This is a list of abbreviations AND acronyms and should be designated as such:
A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, Symbols.

A

ā	=	before
@	=	at
ABC	=	airway, breathing, circulation
abd.	=	abdomen
A/C	=	antecubital fossa
ACLS	=	advanced cardiac life support
ACS	=	Acute Coronary Syndrome
A.D.	=	right ear
AED	=	automated external defibrillator
AF, A-fib, AFib	=	atrial fibrillation
AICD	=	automated implantable cardioverter-defibrillator
A.S.	=	left ear
A.U.	=	both ears
AIDS	=	acquired immune deficiency syndrome
AK	=	above the knee
AKA	=	above the knee amputation
ALS	=	advanced life support
AMA	=	against medical advice
a.m.	=	morning
amb	=	ambulatory
AMI	=	acute myocardial infarction
AMS	=	altered mental status
amp.	=	ampule
amt.	=	amount
ant	=	anterior
AO x 4, A&O x 4	=	alert and oriented to person, place, time, and event
AP	=	anteroposterior
ARDS	=	adult respiratory distress syndrome
ASA	=	aspirin (acetylsalicylic acid)
ASAP	=	as soon as possible
ASHD	=	arteriosclerotic heart disease
ATV	=	all-terrain vehicle
AV	=	atrioventricular

B

bb	=	back board
BBB	=	bundle branch block
BBS	=	bilateral breath sounds
B/F	=	black female
BG	=	blood glucose
BGL	=	blood glucose level

Top

B/M	=	black male
b.i.d.	=	twice a day
BKA	=	below the knee amputation
BLS	=	basic life support
BM	=	bowel movement
BMD	=	bag-mask device
BMV	=	bag-mask ventilation
BP, B/P	=	blood pressure
BPM	=	beats per minute
BS	=	bowel sounds
BSA	=	body surface area (burns)
BSI	=	body substance isolation
BURP	=	backward upward rightward pressure
BVM	=	bag-valve-mask
Bx, Bx	=	biopsy

C

$\bar{c}$	=	with
ºC	=	degrees Celsius (centrigrade)
CA	=	cancer
CABG	=	coronary artery bypass grafting
CAD	=	coronary artery disease
CAOx4	=	conscious, alert, oriented to person, place, time and event
caps	=	capsules
CAT	=	combat application tourniquet
CBC	=	complete blood cell count
CC, C/C	=	chief complaint
cc	=	cubic centimeter
CCU	=	coronary care unit
C diff	=	Clostridium difficile
CHD	=	congenital heart disease
CHF	=	congestive heart failure
CID	=	cervical immobilization device
cm	=	centimeter
CMS	=	circulatory, motor, sensory
CNS	=	central nervous system
C/O	=	complains of
CO	=	cardiac output, carbon monoxide
CO_2	=	carbon dioxide
COPD	=	chronic obstructive pulmonary disease
CP	=	chest pain
CPAP	=	continuous positive airway pressure
CPR	=	cardiopulmonary resuscitation
CR	=	capillary refill
CRT	=	capillary refill time
CSF	=	cerebrospinal fluid
CSM	=	carotid sinus massage
C-spine	=	cervical spine
CTA	=	clear to auscultation
CVA	=	cerebrovascular accident

Top

D

D/C	=	discontinue
D & C	=	dilation and curettage
diff.	=	differential
DM	=	diabetes mellitus
DNR	=	do not resuscitate
DNRO	=	do not resuscitate order
DOA	=	dead on arrival
DOD	=	date of death
DOE	=	dyspnea on exertion
DOS	=	dead on scene
DSD	=	dry sterile dressing
dsg.	=	dressing
DUI	=	driving under the influence
DVT	=	deep vein thrombosis
Dx	=	diagnosis
D5W	=	5% dextrose in water
D10	=	dextrose 10%
D25W	=	dextrose 25%
D50W	=	dextrose 50%

E

EBL	=	estimated blood loss
ECG or EKG	=	electrocardiogram
ED	=	emergency department, erectile dysfunction
EDC	=	estimated date of confinement
EDD	=	expected (estimated) date of delivery
EENT	=	eyes, ears, nose and throat
EEG	=	electroencephalogram
e.g.	=	example given
EGTA	=	esophageal gastric tube airway
EMD	=	electromechanical dissociation
EMR	=	emergency medical responder
EMS	=	emergency medical services
EMT	=	emergency medical technician
ENT	=	ears, nose, and throat
EOA	=	esophageal obturator airway
EOC	=	Emergency Operations Center
EOM	=	extraocular movement
epi	=	epinephrine
ER	=	emergency room
est.	=	estimate(d)
ET	=	endotracheal
ETA	=	estimated time of arrival
ETCO2	=	end-tidal carbon dioxide
ETOH	=	ethyl alcohol
ETT	=	endotracheal tube

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F

ºF	=	degrees Fahrenheit
FAO	=	fire alarm office
FBAO	=	foreign body airway obstruction
FCC	=	fire communications center
FHR	=	fetal heart rate
FHx	=	family history
FMA	=	further medical attention
FIO2	=	fraction of inspired oxygen
fl.	=	fluid
flex.	=	flexion
ft.	=	foot
FROM	=	full range of motion
FSG	=	finger stick glucose
fx	=	fracture

G

G	=	gauge (diameter), gravid
GB	=	gallbladder
GCS	=	Glasgow Coma Scale
GERD	=	gastroesophageal reflux disease
GI	=	gastrointestinal
gm, g	=	gram
GOA	=	gone on arrival
gr.	=	grain
GSW	=	gunshot wound
gtt(s)	=	drop(s)
GU	=	genitourinary
GYN	=	gynecology

H

H/A	=	headache
Hb, Hgb	=	hemoglobin
HF	=	hydrofluoric acid
H/F	=	Hispanic female
H/M	=	Hispanic male
HBP	=	high blood pressure
HBV	=	hepatitis B virus
HCV	=	hepatitis C virus
hr.	=	hour
HEENT	=	head, eyes, ears, nose and throat
HIV	=	human immune deficiency virus
hosp.	=	hospital
HPI, HOI	=	history of present illness/injury
HR	=	heart rate
HTN	=	hypertension
HTX	=	HazTox Medic
Hx	=	history

Top

H2O	=	water
H2S	=	hydrogen sulfide

I

ICS	=	intercostal space, Incident Command System
ICP	=	intracranial pressure
ICU	=	intensive care unit
IDDM	=	insulin-dependent diabetes mellitus
I & D	=	incision and drainage
IM	=	intramuscular
IMS	=	Incident Management System
IN	=	intra-nasal
I & O	=	intake and output
IO	=	intraosseous
IUD	=	intrauterine device (contraceptive)
IV	=	intravenous
IVP	=	intravenous push

J

J	=	joules
JVD	=	jugular vein distention

K

K	=	potassium
kg.	=	kilogram
KCl	=	potassium chloride
KVO	=	keep vein open

L

L	=	liter
lac., LAC	=	laceration
LEMON	=	Look, Evaluate, Mallampati, Obstruction, Neck
lat	=	lateral
LBBB	=	left bundle branch block
lb(s)	=	pound(s)
L & D	=	labor and delivery
LE	=	lower extremity
LEA	=	law enforcement agency
LEO	=	law enforcement officer
lg.	=	large
L/M or LPM	=	liters per minute
LLQ	=	left lower quadrant
LMP	=	last menstrual period
LOC	=	loss of consciousness or level of consciousness
LOM	=	loss of motion
LOI	=	last oral intake

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LP	=	lumbar puncture
LR	=	lactated ringers
LSB	=	long spine board
LUQ	=	left upper quadrant
LVAD	=	left ventricular assist device

M

MAE	=	moves all extremities
MAST	=	medical anti-shock trousers
mA	=	milliampere
max	=	maximum
MBL	=	major blood loss
MCA	=	motorcycle accident
mcg	=	microgram
MCI	=	mass casualty incident
MCL	=	mid-clavicular line
MD	=	medical doctor
MDI	=	metered-dose inhaler
MDFR	=	Miami-Dade Fire Rescue
MDPD	=	Miami-Dade Police Department
MedCom	=	medical communications center
meds	=	medications
mEq	=	milliequivalents
MgSO4	=	magnesium sulfate
MI	=	myocardial infarction
min.	=	minute
mg.	=	milligram
mkd.	=	marked
mL, ml	=	milliliter
mm	=	millimeters
mmHg	=	millimeters of mercury
mod.	=	moderate
MOI	=	mechanism of injury
MOM	=	medical operations manual
MS	=	morphine sulfate
mult.	=	multiple
MVC	=	motor vehicle crash/collision
MVP	=	mitral valve prolapse

N

N2O	=	nitrous oxide
NA, N/A	=	not applicable
NaCl	=	sodium chloride
NAD	=	no acute/apparent distress
NC	=	nasal cannula
neg.	=	negative
NG	=	nasogastric
NICU	=	neonatal intensive care unit

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NIDDM	=	non-insulin dependent diabetes mellitus
NKA	=	no known allergies
NKDA	=	no known drug allergies
NPA	=	nasopharyngeal airway
NPO	=	nothing by mouth
NRB, NRBM	=	non-rebreather mask
NS	=	normal saline
NSR	=	normal sinus rhythm
NTG, nitro	=	nitroglycerin
N/V, N&V	=	nausea and vomiting
N/V/D	=	nausea, vomiting, and diarrhea

O

O_2	=	oxygen
OB	=	obstetrics
OBS	=	organic brain syndrome
OD	=	overdose - also means right eye
OPQRST	=	onset, provocation, quality, radiation, severity, time
ophth	=	ophthalmology
OPA	=	oropharyngeal airway
OPP	=	organophosphate poisoning
OR	=	operating room
OS	=	left eye
OU	=	both eyes
oz	=	ounce

P

P	=	pulse, para
$\bar{p}$	=	after
PA	=	posteroanterior
PAC	=	premature atrial contraction
PaCO2	=	partial pressure of CO_2 in arterial blood
PaO2	=	partial pressure of O_2 in arterial blood
PASG	=	pneumatic antishock garment
PAT	=	paroxysmal atrial tachycardia
PCI	=	percutaneous coronary intervention
PCP	=	primary care physician/practitioner
PD	=	police department
PDR	=	physician's desk reference
PE	=	pulmonary embolism
PEA	=	pulseless electrical activity
ped.	=	pedestrian
pedi	=	pediatric
per	=	by
PEARL, PERL	=	pupils equal and reactive to light
PERRLA	=	pupils equal, round and reactive to light and accommodation
PMHx	=	past medical history
PID	=	pelvic inflammatory disease

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PIH	=	pregnancy induced hypertension
PJC	=	premature junctional contraction
p.m.	=	evening
PMD	=	private medical doctor
PO	=	by mouth
post	=	after
POV	=	privately operated vehicle
pr	=	administered rectally
pre	=	before
prn	=	as needed
PSD	=	public safety department
PSVT	=	paroxysmal supraventricular tachycardia
pt	=	patient
PTA	=	prior to arrival
PTS	=	pediatric trauma score
PTV	=	percutaneous transtracheal ventilation
PVC	=	premature ventricular contraction/complex
PVD	=	peripheral vascular disease
PVR	=	peripheral vascular resistance
Px	=	medical prognosis/patient transfer

Q

$\bar{q}$	=	every
q.h.	=	hourly
q.i.d.	=	four times daily
q.o.d.	=	every other day
QRX	=	standby
QTH	=	location

R

RA	=	rheumatoid arthritis
RAD	=	reactive airway disease, right axis deviation
RBBB	=	right bundle branch block
RBC	=	red blood count/cell
Rh	=	Rhesus blood factor
RLQ	=	right lower quadrant
RN	=	registered nurse
R/O	=	rule out
ROM	=	range of motion
RR	=	respiratory rate
RRR	=	regular, rate, rhythm (heart)
RUQ	=	right upper quadrant
Rx	=	prescription

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S

s̄	=	without
SAH	=	subarachnoid hemorrhage
SaO2	=	oxygen saturation
SAMPLE	=	signs/symptoms, allergies, medications, PMHx, LOI, events prior
SARS	=	severe acute respiratory syndrome
SIDS	=	sudden infant death syndrome
SGA	=	supraglottic airway
SL	=	sublingual
SMR	=	spinal motion restriction
SOAP	=	subjective, objective, assessment, plan
SOB	=	short(ness) of breath
sol.	=	solution
spec.	=	specimen
SpO2	=	saturation of peripheral oxygen
SRT	=	special response team
S/S, S&S	=	signs and symptoms
stat	=	immediately
STD/STI	=	sexually transmitted disease/infection
STEMI	=	ST-segment elevation myocardial infarction
Sub. Q, SQ, SC	=	subcutaneous
SUID	=	sudden unexpected infant death
SVN	=	small volume nebulizer
SVT	=	supraventricular tachycardia
Sx	=	symptoms

T

tab.	=	tablet
TB	=	tuberculosis
TBA	=	to be announced
TC	=	trauma center
tech	=	technician
temp.	=	temperature
TIA	=	transient ischemic attack
t.i.d.	=	three times daily
TKO	=	to keep open
TMJ	=	temporomandibular joint
TOT	=	turned/transferred over to
TPR	=	temperature, pulse and respiration
TTC	=	trauma transport criteria
TTP	=	trauma transport protocol
Tx	=	treatment

U

UA	=	urinalysis
UE	=	upper extremity
ULQ	=	upper left quadrant
unk.	=	unknown

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URI	=	upper respiratory infection
UTI	=	urinary tract infection

V

VF, V fib, VFib	=	ventricular fibrillation
VT, V tach	=	ventricular tachycardia
VD	=	venereal disease
via	=	by way of
vol.	=	volume
VS	=	vital signs

W

W/	=	with
WBC	=	white blood count/cell
W/F	=	white female
W/M	=	white male
WMD	=	weapons of mass destruction
WNL	=	within normal limits
W/O	=	without
wt.	=	weight

X

x	=	times
$\bar{x}$	=	except

Y

Y/O, YO	=	years old

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SYMBOLS

~	=	approximately
1º	=	primary, first degree
2º	=	secondary, second degree
<	=	less than
>	=	more than
≤	=	less than or equal to
≥	=	greater than or equal to
–	=	negative
/	=	per
+	=	plus/positive
#	=	number
%	=	percent
@	=	at
α	=	alpha
ß	=	beta
♂	=	male
♀	=	female
↑	=	increase
↓	=	decrease
Ⓡ	=	right
Ⓛ	=	left
Ø	=	nothing/no/none/null
△	=	change

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Hospital Capability Chart

MIAMI-DADE COUNTY FACILITIES	ADDRESS	GENERAL		OB	TRAUMA CENTER			STROKE CENTER	STEMI CENTER	HAZMAT RADIO-LOGICAL	HYPER-BARIC	HELI-PORT	MCI		
		ADULT	PEDI		ADULT	PEDI	BURN						RED	YELLOW	GREEN
Baptist	8900 North Kendall Drive, Miami	YES	YES	YES				CSC	YES	HAZ/RAD		YES	34	52	87
Baptist Doctors	5000 University Drive, Coral Gables	YES								HAZ/RAD			11	17	28
Baptist Doral	9500 NW 58 Street, Doral	YES											2	5	10
Baptist Homestead	975 Baptist Way, Homestead	YES	YES	YES						HAZ/RAD		YES	4	5	10
Baptist South Miami	6200 SW 73 Street, South Miami	YES		YES				PSC	YES	HAZ/RAD			5	10	20
Baptist West Kendall	9555 SW 162 Avenue, Miami	YES		YES				PSC		HAZ/RAD			9	14	23
Baptist-Coral Way West FSED	14591 SW 26 Street, Miami	YES											2	5	10
Baptist-Country Walk FSED	14150 SW 136 Street, Miami	YES											2	5	10
Baptist-Miami Lakes FSED	15200 NW 77 Court, Miami Lakes	YES											2	5	10
Baptist-Palmetto Bay FSED	8750 SW 144 Street, Miami	YES											2	5	10
Coral Gables HSA	3100 Douglas Road, Coral Gables	YES	YES							HAZ/RAD			5	7	11
HCA FL Aventura	20900 Biscayne Blvd, Aventura	YES	YES		YES			CSC	YES	HAZ/RAD		YES	7	11	18
HCA FL Kendall	11750 Bird Road, Miami	YES	YES	YES	YES	YES	YES	CSC	YES	HAZ/RAD		YES	15	22	36
HCA FL Mercy	3663 South Miami Avenue, Miami	YES	YES	YES				CSC	YES	HAZ/RAD	YES	YES	8	12	20
HCA FL-Cutler Bay FSED	19605 South Dixie Highway, Cutler Bay	YES	YES							HAZ/RAD			2	5	10
HCA FL-Doral FSED	10915 NW 41 Street, Doral	YES	YES							HAZ/RAD			2	5	10
HCA FL-Palm Lakes FSED	18000 NW 57 Avenue, Hialeah	YES	YES							HAZ/RAD			2	5	10
HCA FL-South Dade FSED	14190 SW 288 Street, Homestead	YES	YES							HAZ/RAD			2	5	10
HCA FL-Town & Country FSED	11800 Sherry Lane, Miami	YES	YES							HAZ/RAD			2	5	10
Hialeah HSA	651 East 25 Street, Hialeah	YES						PSC		HAZ/RAD			5	10	15
Jackson Memorial Ryder Trauma	1026 NW 19 Street, Miami 1800 NW 10 Avenue, Miami	YES	YES	YES	YES	YES	YES	CSC	YES	HAZ/RAD		YES	42	63	105
Jackson North Medical Center	160 NW 170 Street, North Miami Beach	YES	YES	YES				PSC	YES	HAZ/RAD			5	10	15
Jackson South Medical Center	9333 SW 152 Street, Miami	YES	YES		YES			PSC	YES	HAZ		YES	10	15	25
Jackson West Medical Center	2801 NW 79 Avenue, Doral	YES	YES						YES	HAZ			4	6	10
Larkin Palm Springs	1475 West 49 Place, Hialeah	YES						CSC	YES	HAZ/RAD			10	15	25
Larkin South Miami	7031 SW 62 Avenue, South Miami	YES								RAD			2	5	10
Mount Sinai Medical Center	4300 Alton Road, Miami Beach	YES	YES	YES				CSC	YES	HAZ/RAD		YES	8	15	20
Mount Sinai-Aventura FSED	2845 NE 199 Street, Aventura	YES	YES							HAZ/RAD			2	5	10
Mount Sinai-Hialeah FSED	6050 West 20 Avenue, Hialeah	YES	YES							HAZ/RAD			2	5	10
Nicklaus Children's	3100 SW 62 Avenue, Miami		YES			YES				HAZ/RAD		YES	7	10	17
North Shore Medical Center HSA	1100 NW 95 Street, Miami	YES	YES						YES	HAZ			5	17	33
Palmetto General HSA	2001 West 68 Street, Hialeah	YES	YES	YES				CSC	YES	HAZ/RAD			15	22	37
University of Miami	1400 NW 12 Avenue, Miami	YES	YES					PSC	YES	HAZ/RAD			19	28	47
Veterans Medical Center	1201 NW 16 Street, Miami	YES						PSC					2	5	10
Westchester-Coral West	2500 SW 75 Avenue, Miami	YES								HAZ			4	6	10
SOUTH BROWARD FACILITIES															
Cleveland Clinic	2950 Cleveland Clinic Blvd, Weston	YES	YES					CSC	YES	HAZ/RAD			9	14	23
Memorial Miramar	1901 SW 172 Avenue, Miramar	YES	YES	YES				PSC		HAZ/RAD			7	11	18
Memorial Pembroke	7800 Sheridan Street, Pembroke Pines	YES	YES					PSC		HAZ/RAD			12	18	30
Memorial Regional Joe DiMaggio Children's	3501 Johnson Street, Hollywood 1005 JoeDiMaggio Drive, Hollywood	YES	YES	YES	YES	YES		CSC	YES	HAZ/RAD		YES	34	51	85
Memorial South	3600 Washington Street, Hollywood	YES	YES							HAZ/RAD			9	13	22
Memorial West	703 North Flamingo Rd, Pembroke Pines	YES	YES	YES				CSC	YES	HAZ/RAD		YES	19	29	49

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Blank Space = Service not Provided
BURN = Burn Unit Center
CSC = Comprehensive Stroke Center
FSED= Free Standing Emergency Department
HAZ = HAZMAT Capable
MCI = Mass Casualty Incident: Use this chart only for MCI Level 3 or higher. For trauma MCIs at Levels 1–2, transport all Red-tagged patients to designated Trauma Centers.
PSC = Primary Stroke Center
RAD = Radioactive Capable
STEMI = ST Elevation Myocardial Infarction
Trauma Center = Brain and Spinal Cord Acute Care Center
Note: If MERCY is off line for hyperbaric, St. Mary Hospital, West Palm Beach or Mariners Hospital, Tavernier can be used.

"Committed To Excellence"

ADULT TRAUMA ALERT CRITERIA (AGE 16 or OLDER) APPENDIX 3

	ANY 1 IN THIS CATEGORY (RED)
Airway/Breathing	-Active airway assistance[1] or need for respiratory support beyond supplemental O2* -Respiratory rate less than 10 breaths per minute **OR** greater than 29 breaths per minute -Oxygen saturation less than 90% room air*
Motor Response/Neuro	-Unable to follow commands or BMR less than 6* -Altered mental status or suspected spinal cord injury, loss of sensation or paralysis* -GCS less than 15 in patients with head trauma taking anticoagulants (not including Aspirin)*
Circulation	-No Radial Pulse with sustained HR greater than 110/min **AND/OR** SBP of less than 90
Fracture	-Skull deformity, suspected skull fracture, severe facial fracture/injury* -Fracture of 2 or more long bones (humerus, radius/ulna, femur, tibia/fibula)* -Open long bone fracture, severely angulated fracture, multiple fractures/multiple dislocations* -Suspected pelvic fractures* -Chest wall instability or deformed chest (flail chest)*
Cutaneous	-Any penetrating injury to the head, neck, torso, or proximal extremities[2]* -GSW to the extremities at or above the wrist or ankle* -Active bleeding requiring a tourniquet or wound packing with continuous pressure* -Amputation proximal to the wrist/ankle; Crushed, degloved, mangled, or pulseless extremity* -Flap avulsion greater than 5 inches or other major soft tissue loss* -2nd or 3rd degree burns to 10% or greater of TBSA* -2nd or 3rd degree circumferential burns, burns to hands, feet, perineum, or groin*
Mechanism of Injury	-Partial or complete ejection from enclosed motor vehicle* -Electrocution or lightning injury with loss of consciousness or visible signs of injury* -Patients within 24 hours post-surgery exhibiting signs of internal bleeding, sustained HR greater than 110/min **AND/OR** SPB less than 90 (includes BBL, liposuction, thoracic surgeries, etc.) -Pregnancy 20 weeks or greater with abdominal pain after blunt trauma
Paramedic Judgment[3]	-See footnote below and document appropriately*

	ANY 2 IN THIS CATEGORY (BLUE)
Age	-55 or older
Medications	-Anticoagulant use associated with significant head trauma (not including Aspirin)*
Motor Response/Neuro	-Head injury with loss of consciousness; amnesia*
Circulation	-Sustained HR of greater than 110/min
Fracture	-Single long bone fracture sustained in MVC or from a fall greater than 10 feet*
Cutaneous	-Burns in conjunction with trauma*
Mechanism of Injury	-Rider separated from open cab vehicle, motorcycle, golf cart, watercraft, horse, etc.* -Auto vs pedestrian/bicyclist thrown, run over, or with significant impact* -Fall from a height of greater than 10 feet -Bruising to the neck, chest, and abdomen post MVC in the pattern of the seat belt (Seat Belt Sign)* -Perineal Hydrostatic Jetstream Injury from jet-powered watercraft[4]* -**High Risk Auto Crash:** 1. Significant intrusion (including roof) - over 12 inches on occupant side or 18 inches any other site; need for extrication for entrapped patient; steering wheel deformity* 2. Death in same passenger compartment* 3. Vehicle telemetry data consistent with significant impact[5]*

[1] Airway assistance includes manual jaw thrust, continuous suctioning, or use of other adjuncts to assist ventilatory efforts.
[2] This excludes superficial wounds where the depth of the wound can be determined. Proximal extremities are considered at or above the elbow or knee.
[3] If a patient does not meet either 1 Red or 2 Blue criteria during the assessment, the paramedic can call a trauma alert, if in his/her judgment, the patient's condition OR mechanism of injury warrants such action.
[4] Perineal Hydrostatic Jetstream Injury is caused by the jetstream from a watercraft while a person is in the water, not from the ejection from the watercraft. Trauma related to this injury is associated with abdominal pain **AND/OR** vaginal/rectal bleeding.
[5] Vehicle Telemetry Data when available can be relayed to dispatch; the data can assist in predicting potential serious injuries.

***Any of the above criteria that has an (*) represents it is the same for both Adult and Pediatrics.**



PEDIATRIC TRAUMA ALERT CRITERIA (AGE 15 or YOUNGER) APPENDIX 4



	ANY 1 IN THIS CATEGORY (RED)
Airway/Breathing	-Active airway assistance[1] or need for respiratory support beyond supplemental O2* -Respiratory rate: **Age 0-1:** less than 20 breaths per min; **Age 1-15:** less than 10 breaths per min -Oxygen saturation less than 90% room air*
Motor Response/Neuro	-Unable to follow commands or BMR less than 6* -Altered mental status or suspected spinal cord injury, loss of sensation or paralysis* -GCS less than 15 in patients with head trauma taking anticoagulants (not including Aspirin)*
Circulation	-Faint or non-palpable carotid or femoral pulse -**Age 0-9**: SBP less than 70; **Age 10-15**: SBP less than 90
Fracture	-Skull deformity, suspected skull fracture, severe facial fracture/injury* -Fracture of 2 or more long bones (humerus, radius/ulna, femur, tibia/fibula)* -Open long bone fracture, severely angulated fracture, multiple fractures/multiple dislocations* -Suspected pelvic fractures* -Chest wall instability or deformed chest (flail chest)*
Cutaneous	-Any penetrating injury to head, neck, torso, or proximal extremities[2]* -GSW to the extremities at or above the wrist or ankle* -Active bleeding that required a tourniquet or wound packing with continuous pressure* -Amputation proximal to the wrist or ankle; Crushed, degloved, mangled, or pulseless extremity* -Flap avulsion greater than 5 inches or other major soft tissue loss* -2nd or 3rd degree burns to 10% or greater of TBSA* -2nd or 3rd degree circumferential burns, burns to hands, feet, perineum, or groin*
Mechanism of Injury	-Partial or complete ejection from enclosed motor vehicle* -Electrocution or lightning injury with loss of consciousness or visible signs of injury*
Paramedic Judgment[3]	-See footnote below and document appropriately*

	ANY 2 IN THIS CATEGORY (BLUE)
Age/ Weight	- **Age:** 5 or younger **Weight:** 20 kg or less
Medications	- Anticoagulant use associated with significant head trauma (not including Aspirin)*
Motor Response/Neuro	-Head injury with loss of consciousness; amnesia*
Circulation	-Carotid or femoral palpable, but the radial or pedal not palpable **OR** SBP less than 90
Fracture	-Single long bone fracture sustained in MVC or from a fall greater than 10 feet*
Cutaneous	-Burns in conjunction with trauma*
Mechanism of Injury	-Rider separated from open cab vehicle, motorcycle, golf cart, watercraft, horse, etc.* -Auto vs pedestrian/bicyclist thrown, run over, or with significant impact* -Fall from a height of greater than 10 feet; or 2-3 times the height of child -Bruising to the neck, chest, and abdomen post MVC in the pattern of the seat belt (Seat Belt Sign)* -Low level fall in children 5 years old or younger with significant head impact -Suspicion of child abuse -Perineal Hydrostatic Jetstream Injury from jet-powered watercraft[4]* -**High Risk Auto Crash:** 1. Significant intrusion (including roof) - over 12 inches on occupant side or 18 inches any other site; need for extrication for entrapped patient; steering wheel deformity* 2. Death in same passenger compartment* 3. Vehicle telemetry data consistent with significant impact[5]* 4. Child (age 0-9) unrestrained or in unsecured child safety seat

[1] Airway assistance includes manual jaw thrust, continuous suctioning, or use of other adjuncts to assist ventilatory efforts.
[2] This excludes superficial wounds where the depth of the wound can be determined. Proximal extremities are considered at or above the elbow or knee.
[3] In the event that a patient does not meet either 1 Red or 2 Blue criteria during the assessment, the paramedic can call a trauma alert, if in his/her judgment, the patient's condition **AND/OR** mechanism of injury warrants such action.
[4] Perineal Hydrostatic Jetstream Injury is caused by the jetstream of a watercraft while a person is in the water, not from an ejection from the watercraft. Trauma related to this injury is associated with abdominal pain **AND/OR** vaginal/rectal bleeding.
[5] Vehicle Telemetry Data when available can be relayed to dispatch; the data can assist in predicting potential serious injuries.

***Any of the above criteria that has an (*) represents it is the same for both Adult and Pediatrics.**

ADULT GLASGOW COMA SCORE

The victim should be scored by the response. This is a dynamic score and can be calculated multiple times during resuscitation and transport of a victim.

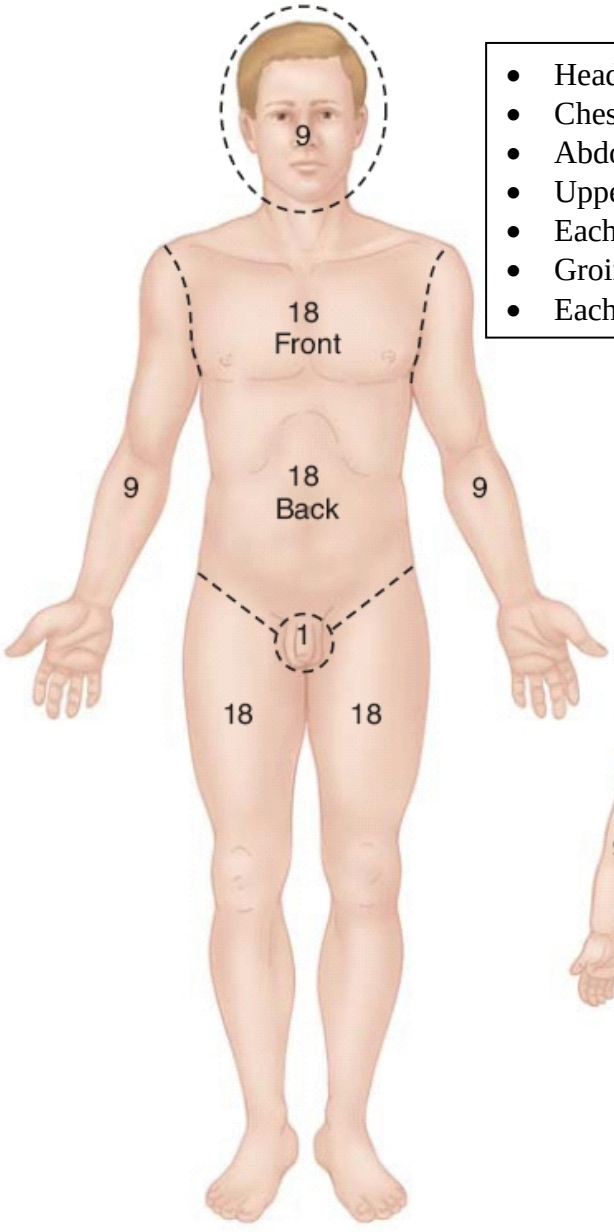
EYE OPENING	SCORE
Spontaneous	4
To voice	3
To pain	2
None	1
MOTOR RESPONSE	**SCORE**
Obeys	6
Localizes	5
Withdraws	4
Flexion (decorticate)	3
Extension (decerebrate)	2
None	1
VERBAL RESPONSE	**SCORE**
Oriented	5
Confused	4
Inappropriate	3
Incomprehensible	2
None	1
TOTAL	**3-15**

		> 1 Year	< 1 Year
Eye Opening	4	Spontaneously	Spontaneously
	3	To Verbal Command	To Shout
	2	To Pain	To Pain
	1	No Response	No Response

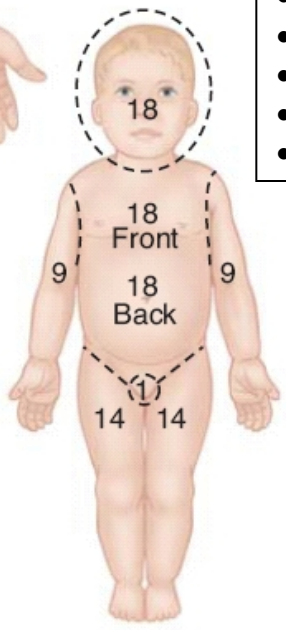
		> 1 Year	< 1 Year
Best Motor Response	6	Obey Commands	Spontaneous
	5	Localizes Pain	Localizes Pain
	4	Flexion-withdrawal	Flexion-normal
	3	Flexion-abnormal (decorticate rigidity)	Flexion-abnormal (decorticate rigidity)
	2	Extension (decerebrate rigidity)	Extension (decerebrate rigidity)
	1	No Response	No Response

		>5 Years	2-5 Years	0-23 Months
Best Verbal Response	5	Oriented and converses	Appropriate words and phrases	Smiles,coos,cries appropriately
	4	Disoriented and converses	Inappropriate words	Cries
	3	Inappropriate words	Cries and/or screams	Inappropriate crying and / or screaming
	2	Incomprehensible Sounds	Grunts	Grunts
	1	No Response	No response	No response

Rule of Nines



- Head (Anterior = 4.5%) Posterior = 4.5%)
- Chest (front) = 9%
- Abdomen (front) = 9%
- Upper/mid/low back and buttocks = 18%
- Each arm (front = 4.5%, back = 4.5%)
- Groin = 1%
- Each leg = 18% total (front = 9%, back = 9%)



- Head (anterior = 9%) Posterior = 9%)
- Torso (front) = 18%
- Torso (back) = 18%
- Each arm (front = 4.5%, back = 4.5%)
- Groin = 1%
- Each leg (front = 7%, back = 7%)

***Rule of Palms:** Used to estimate the percentage of burns in multiple small areas.

- 1% = palm of patient's hand.

CLINICAL SIGNS	0 POINTS	1 POINT	2 POINTS
Appearance	Blue, pale	Body pink, extremities blue	Completely pink
Pulse	Absent	Below 100	Over 100
Grimace	No response	Grimaces	Cries
Activity	Limp	Some flexion of extremities	Active motion
Respiratory effort	Absent	Slow, irregular	Good, strong cry

Points given according to status:

1. **0-3** indicates the need for resuscitation of the infant

   a. If ventilation is inadequate or absent, and the pulse is less than 100 bpm, provide bag-valve-mask ventilation by using gentle puffs just sufficient to inflate infant's lungs at a rate of 40 per minute.
   Re-evaluate respiratory status after one or two minutes of ventilation. Continue ventilation if necessary.
   b. If infant's heart rate is less than 80 beats per minute, perform CPR

2. **4-6** indicates the need for urgent intervention. The infant may need to be ventilated with bag-valve-mask and supplemental oxygen.

3. **7-10** indicates routine supportive care

Supplies needed:
60 drop / mL infusion set (micro set)
One vial of Dopamine (400 mg)
500 mL bag of NS

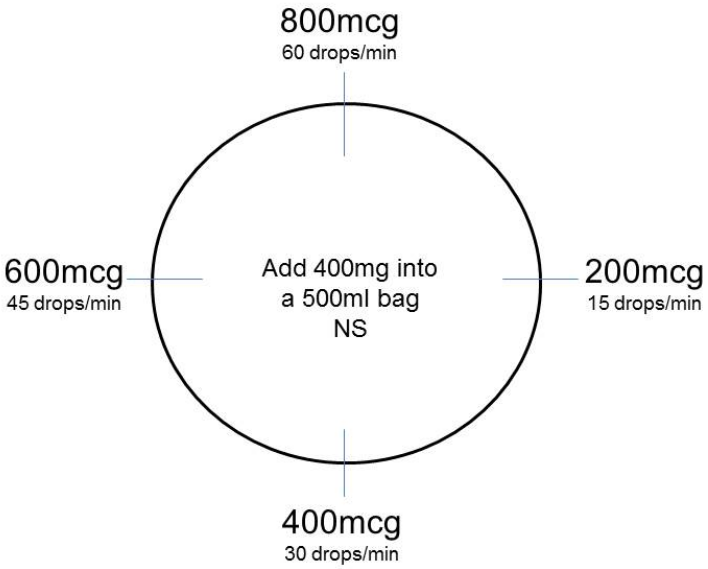
Information needed:
Patient weight in kg
Desired dose in mcg/kg/minute

1) Mix one vial (400 mg total) in 500 mL bag of NS
Yields concentration of 800 mcg/mL

2) Calculate:

Patient weight_____kg x dose _____mcg/kg/min = mcg/min

3) Using clock below, plug in value from above for correct drug administration.
Helpful hint:



15 drops / minute = 1 drop / 4 seconds
30 drops / minute = 1 drop / 2 seconds
45 drops / minute = 3 drops / 4 seconds
60 drops / minute = 1 drop / second

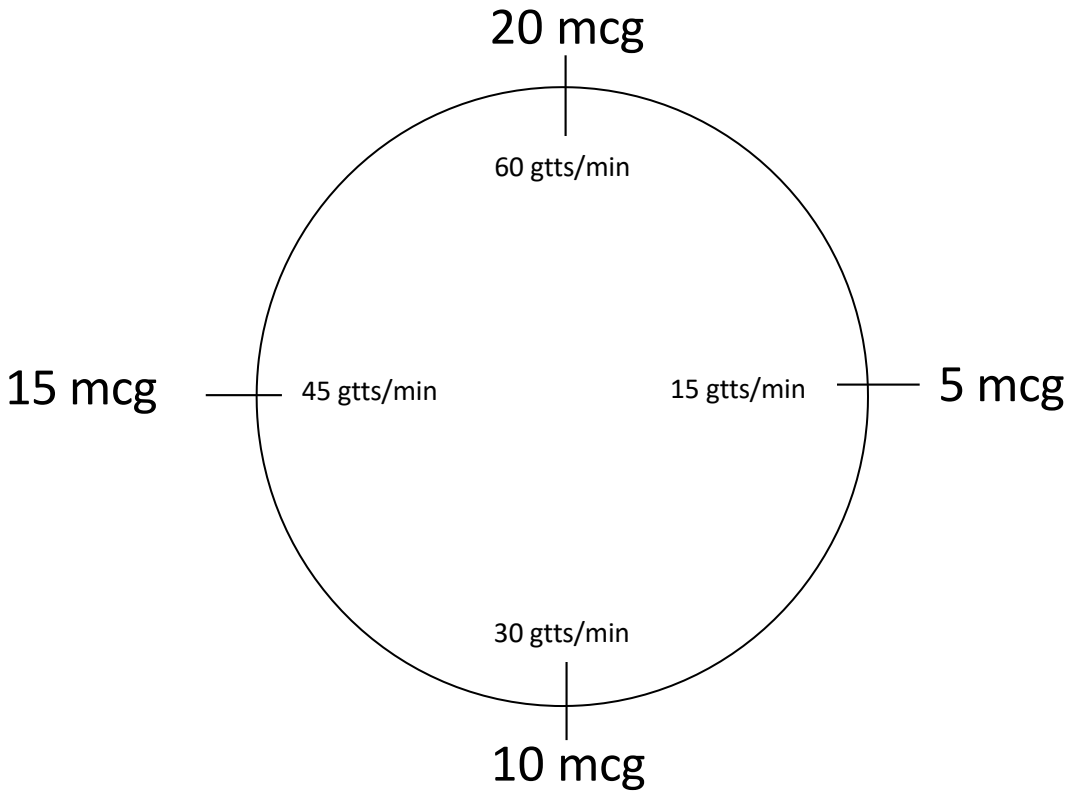
Supplies needed:
60 drop / mL infusion set (micro set)
One 30 mL vial of 1 mg/mL Epinephrine
One 10 mL syringe
500 mL bag of NS

Information needed:
Desired dose in mcg/minute

1. Mix Epinephrine 1mg/1mL, 10 mg (10 mL) into a 500mL NS bag with a 60 gtt/mL set to yield a concentration of 20 mcg/mL and begin administration at approximately 1 drop every 4 seconds and titrate to desired effect. Max dose of 40 mcg/minute (2 drops every second).

2. Using the clock method below, plug in desired dose for correct drug administration.

Helpful hint:
15 drops / minute = 1 drop / 4 seconds
30 drops / minute = 1 drop / 2 seconds
45 drops / minute = 3 drops / 4 seconds
60 drops / minute = 1 drop / second

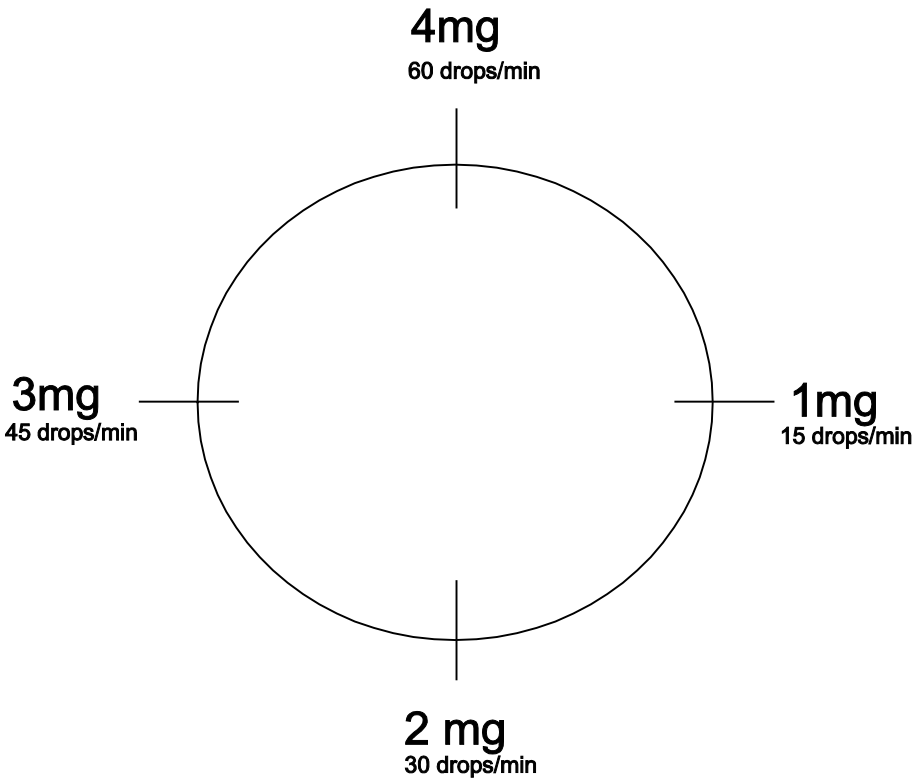


Supplies needed:

60 drop / mL infusion set (micro set)
One pre-mix bag of Lidocaine (1G)

Information needed:
Desired dose in mg/minute

1) Using clock below, plug in desired dose for correct drug administration.



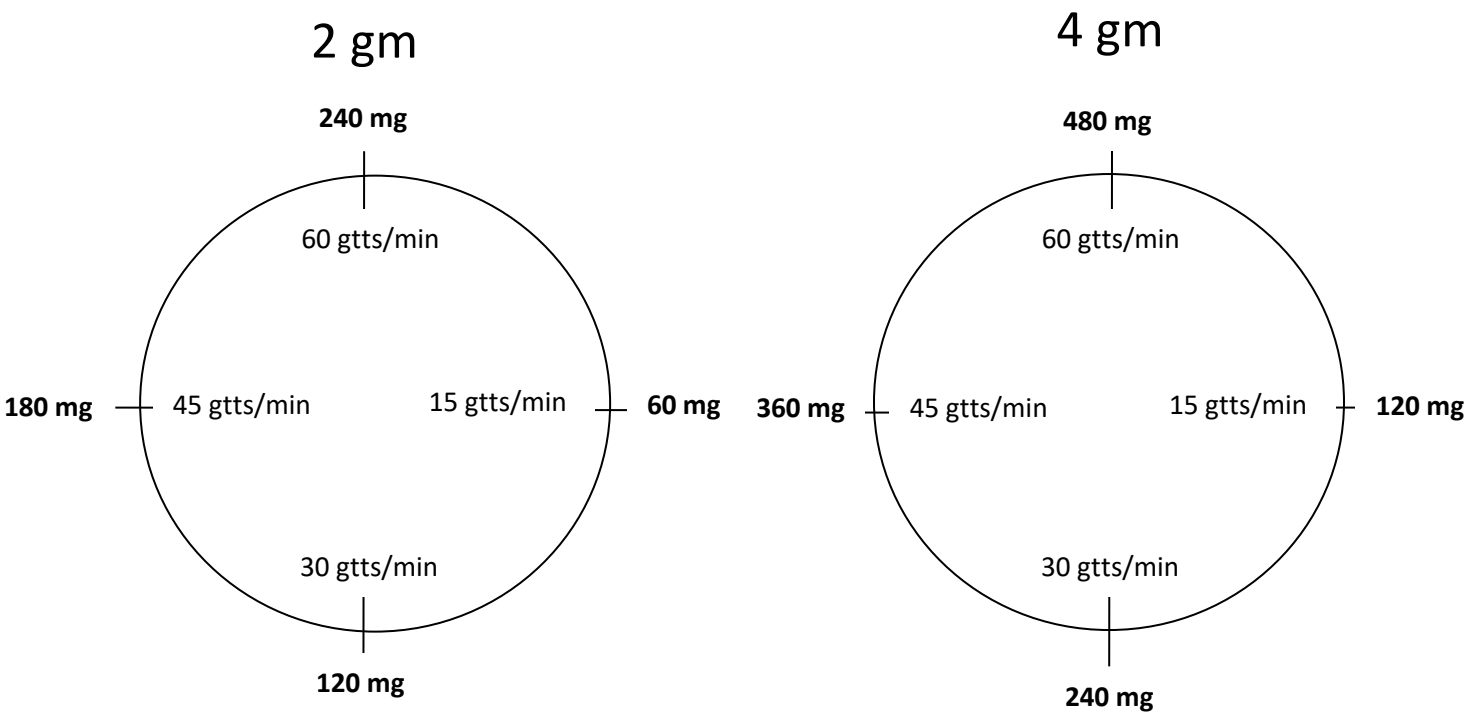
Helpful hint:
15 drops / minute = 1 drop / 4 seconds
30 drops / minute = 1 drop / 2 seconds
45 drops / minute = 3 drops / 4 seconds
60 drops / minute = 1 drop / second

Supplies needed:

10 drop/mL infusion set (**macro set**)
One vial of Magnesium Sulfate (following protocols draw 2 or 4 grams from vial with 5 grams)
50 mL bag of NS

1) Mix 2 gm total in 50 mL bag of NS
Yields concentration of 40 mg/mL

Mix 4 gm total in 50 mL bag of NS
Yields concentration of 80 mg/mL



2) Set flow rate at **1 drop/sec**. to administer the desired dose of drug administration over desired timeframe.

Helpful hints:

60 drops/minute = 1 drop/second
Macro set @ 1 drop/sec. = 6 mL/minute
Yields a concentration of 40 mg/mL
40 mg/mL x 6 mL/min = 240 mg/min
Will deliver 2 gm in 8-9 minutes

60 drops/minute = 1 drop/second
Macro set @ 1 drop/sec. = 6 mL/minute
Yields a concentration of 80 mg/mL
80 mg/mL x 6 mL/min = 480 mg/min
Will deliver 4 gm in 8-9 minutes

Supplies needed:

1. 50 mL NS bag
2. 50-60 cc syringe with needle
3. Alcohol prep pads - aseptic technique for medication preparation
4. Sodium Thiosulfate vial

Dosage and administration:

Adult

- 12.5 grams (50 mL of a 25% solution) IV over 10 minutes.

    1. Start with a 50 mL NS bag.
    2. Draw 40 mL out of the bag and discard.
    3. Mix **50 mL of Sodium Thiosulfate** to the bag.
    4. Attach a 10 gtt/mL (macro) infusion set.
    5. Completely infuse mixed bag at 1 gtt/sec or 60 gtts/min.

Pediatric

- 1.2 mL/kg of a 25% solution to a maximum of 50 mL IV/IO over 10 minutes.

    1. Draw out **Sodium Thiosulfate 1.2 mL/kg.**
    2. Mix into a 50 mL NS bag.
    3. Attach a 10 gtt/mL (macro) infusion set.
    4. Completely infuse mixed bag at 1 gtt/sec or 60 gtts/min.

NOTE: If the pediatric patient meets or exceeds the adult dose of 12.5 gm (50 mL), follow the above Sodium Thiosulfate infusion instructions and administration for adults.



How to mix:

1. 150 mg of medication.
2. 50 ml IV bag of NS.
3. Use a 10gtts/ml (macro) set
4. Administer 1 gtts/sec to achieve 150mg over 10 min.

Adult non-cardiac arrest

1. 150 mg IV over 10 minutes. May repeat 150 mg IV (over 10 min) every 10 minutes.

Supplies needed:

1. Cyanokit (Hydroxocobalamin)
    a. Cyanokit (Hydroxocobalamin) 5 G glass vial
    b. Transfer spike
    c. Vented IV tubing

2. 500 mL NS bag

Reconstitute:

- Place the vial in an upright position in its packaging.
- Add 200 mL of 0.9% Sodium Chloride injection* solution to the vial using the transfer spike.
- Fill to the line denoted on vial.
  * 0.9% Sodium Chloride injection is the recommended diluent (diluent not included in the kit).

Mix:

- The vial should be repeatedly inverted or rocked, not shaken, for at least 60 seconds prior to infusion.
- CYANOKIT solutions should be visually inspected for particulate matter and color prior to administration
- Discard solution if particulate matter is present or solution is not dark red

Dosage and administration:

Adult

- 5 grams over 15 minutes IV

    1. Use supplied vented intravenous tubing, hang and infuse over 15 minutes.
    2. Run IV drip rate at approximately 4 gtts/sec to achieve a rate of 15 mL/min.

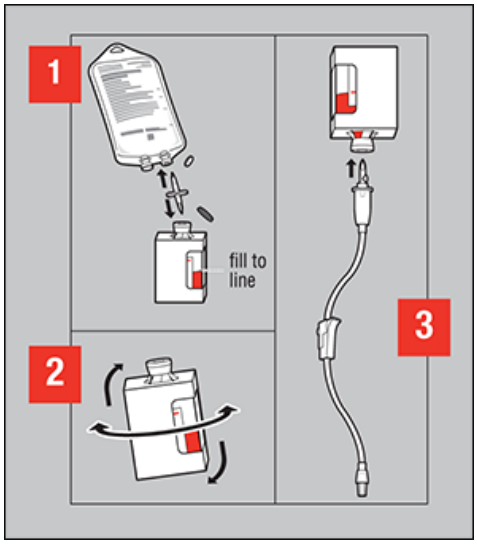
Pediatric

- 70 mg/kg IV

    1. Use supplied vented intravenous tubing, hang and infuse for no more than 1 min per kg.
    2. Run IV at 1 gtt/sec.

Caution should be exercised when administering other cyanide antidotes simultaneously with CYANOKIT, as safety has not been established. If a decision is made to administer another cyanide antidote with CYANOKIT, these drugs should not be administered concurrently in the same IV line.


Each CYANOKIT Consists of:
One 250-mL glass vial containing 5 g of lyophilized hydroxocobalamin for injection
1 Package insert
1 Sterile transfer spike
Diluent not included.
1 Quick-use reference guide
1 Sterile intravenous infusion set


1
fill to line
2
3

Supplies needed:

1. Diltiazem hydrochloride powder, for solution (100mg vials)
2. 100 ml bag of Normal Saline
3. 12cc syringe with needle
4. Clean pair of gloves.

Information needed:

Note: if the ADD-Vantage®Flexible containers are not available use the following steps:

1. Don a clean pair of gloves.
2. Remove the breakaway vial cap and the vial port cover from the 100mg vial.
3. Withdraw 10ml from a 100mL bag of Normal Saline and inject into the vial.
4. Swirl the container to dissolve the Diltiazem hydrochloride powder. Inspected visually for particulate matter and discoloration prior to administration (MAINTAINING STRICT ASEPTIC TECHNIQUE IS CRITICAL).
5. After reconstituting the medication you now have a concentration of 10mg/ml inside the vial.
6. Withdraw 2ml from vial this will yield 20mg of Diltiazem.
7. If a second dose is needed withdraw 2.5ml from the vial to yield 25mg of Diltiazem.

The initial dose of Diltiazem Hydrochloride Injection is 0.25 mg/kg as a bolus administered over 2 minutes (20 mg for the average patient)









ADD-Vantage®Flexible container (Not available)

Items Needed:

1. 250 ml IV bag of pre-mixed Dextrose 10% solution
2. Use a 10gtts/ml (macro) set

Adult Patient:

1. Administer **100ml bolus (wide open)**. May be repeated once if the blood glucose level remains below 80mg/dl.

Pediatric Patient:

1. Administer **5ml/kg bolus (wide open)**. Max of 100ml. May be repeated once if the blood glucose level remains below 80mg/dl.





The following temporary protocol is for guidance on the preparation of an alternative of Epinephrine to achieve 1:10,000 (1 mg/10 mL) concentration due to the current trend of national drug shortages. In the event that Epinephrine 1:10,000 1 mg pre-filled syringes (PFS) are no longer available, the alternative has been approved by the Medical Director for adult and pediatric dosages.

A. Epinephrine 1:10,000 (1 mg/10 mL) Single-Dose Syringe

Adult and Pediatric Care

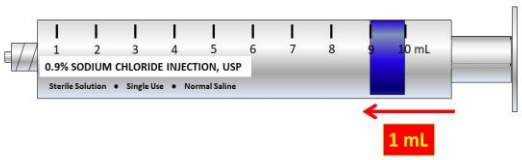
ALS

Supplies needed:

- 10 mL Syringe with Needle
- 10 mL Normal Saline Flush Syringe
- Epinephrine 1:1,000 (1 mg/1 mL) MDV
- Alcohol prep pads - aseptic technique for medication preparation

Procedure:

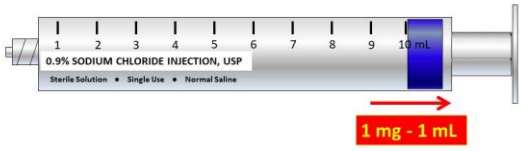
1. Discard 1 mL from the NS flush syringe.



2. Attach a needle to the NS flush syringe.

3. Draw 1 mL from the Epinephrine 1:1,000 (1 mg/1 mL) MDV into the syringe.





4. Gently swirl the syringe for approximately 5 seconds.

5. Syringe is prepared for administration of **Epinephrine 1:10,000 (1 mg/10 mL) (0.1 mg/1 mL)**.

6. Administer medication as indicated in protocols.

NOTE: All medications are to be mixed at the time of use. Medications will NOT be pre-mixed in advance and stored for a later use.

B. Epinephrine 1:10,000 (1 mg/10 mL) Multi-Dose Bag

Adult and Pediatric Care

ALS

Supplies needed:

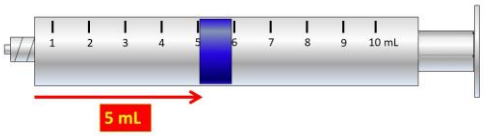
- 10 mL Syringe with Needle
- 50 mL NS Bag
- Epinephrine 1:1,000 (1 mg/1 mL) MDV
- Alcohol prep pads - aseptic technique for medication preparation

Procedure:

1. Using a 10 mL syringe with needle, draw out and discard 5 mL from the 50 mL NS Bag.

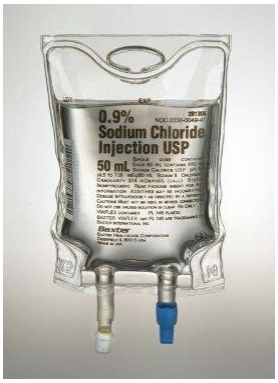
2. Draw 5 mL from the Epinephrine 1:1,000 (1 mg/1 mL) MDV into the syringe.





3. Mix 5 mL of Epinephrine into the 50 mL NS bag.

4. Gently invert the bag a few times to reconstitute the medication.



5. The medication reconstituted in the 50 mL NS bag will contain multiple doses of **Epinephrine 1:10,000 (1 mg/10 mL) (0.1 mg/1 mL)**.

6. Draw out the necessary dosage from the pre-mixed bag and administer medication as indicated in protocols.

NOTE: All medications are to be mixed at the time of use. Medications will NOT be pre-mixed in advance and stored for a later use.

Prehospital ultrasound is a form of medical imaging that is portable, non-invasive, painless, and does not expose the patient to ionizing radiation. Prehospital ultrasound has been shown to aid in the diagnosis of multiple conditions aiming to increase survival and decrease morbidity and mortality from internal hemorrhage and other threatening conditions. The diagnoses of cardiac standstill may directly impact patient resuscitation in the field. “FAST” is an acronym for Focused Assessment with Sonography in Trauma and has become synonymous with bedside ultrasound in trauma. The concept behind the FAST exam is that many life-threatening injuries cause bleeding.

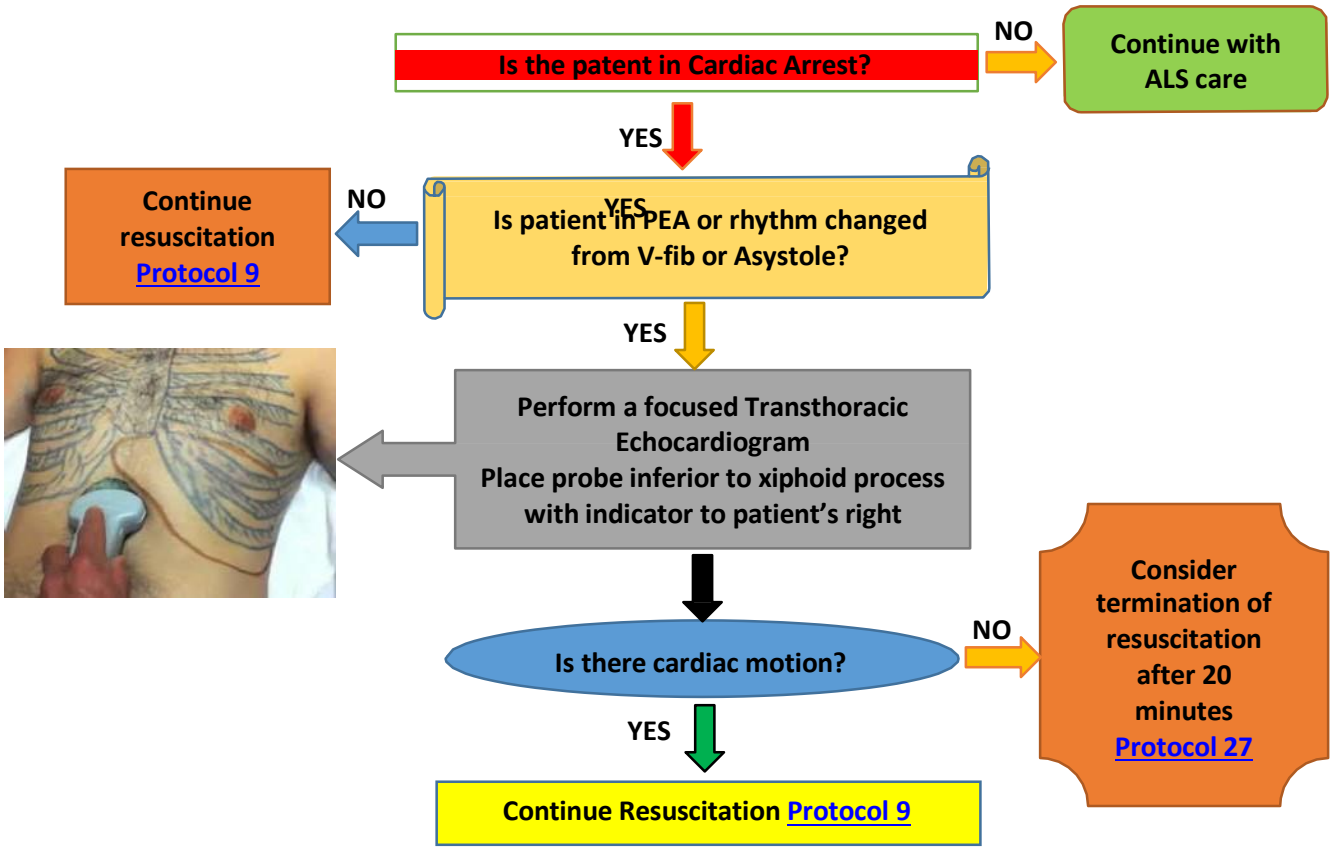
Adult Care

EMR / BLS

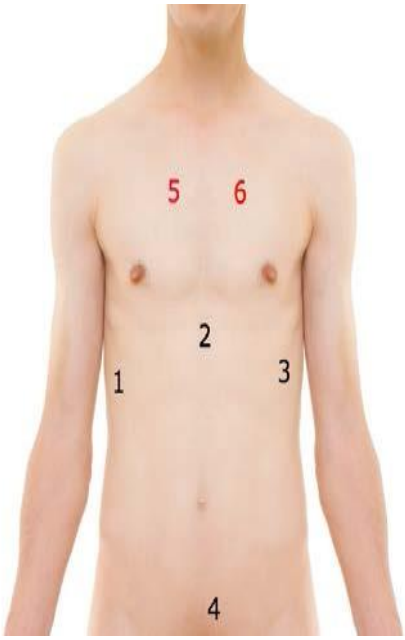
1. Initial Assessment/Care Protocol 1

ALS

Cardiac Indications:



Pneumothorax/Internal bleeding Indications:



Trauma patient or suspected internal bleeding?

NO → Continue with ALS care

YES ↓

Perform an EFAST exam
1. Rt. Upper quadrant
2. Sub-xiphoid
3. Lt. upper quadrant
4. Pelvis
5. Rt. chest mid-clavicular line 3rd or 4th intercostal space
6. Lt. chest mid-clavicular line 3rd or 4th intercostal space

↓

Exam looking for the presence of blood in areas 1-4. Areas 5 and 6 looking for a pneumothorax

↓

Are there indications of internal bleeding or pneumothorax?

NO → Continue with ALS care

YES ↓

Consider upgrading a trauma pt. to a Trauma Alert. Advise receiving facility on a medical pt.

NOTE: ***At no time should an ultrasound exam delay transport (ie: Trauma, Stemi, or Stroke alerts. Exams can be done enroute, or while at the LZ awaiting AR.***

Memorandum

Date: August 23, 2018

To: All Stations and Offices

From: Rowan Taylor, Division Chief
EMS Division

Gerard Job, MD
Medical Director

Subject: National Drug Shortage of Dopamine

Memo #: **08-18-509**

Due to a national drug shortage of Dopamine, the Supply Bureau no longer has any available stock. The anticipated availability for Dopamine is about three (3) months. If you do not have Dopamine available, an Epinephrine Infusion can be substituted in any protocol that require the use of a Dopamine Infusion.

Epinephrine Infusions will be prepared as outlined in Appendix 9-2 of the Medical Operations Manual. **The infusion should be started at 2mcg/min and titrated to a maximum rate of 4mcg/min to maintain a systolic blood pressure of 90 mm Hg or greater.** This temporary protocol will be utilized until our stock is replenished.

If you need further clarification, please contact your EMS Field Supervisor.

RT/GJ

A. Introduction

All physician staffed first aid stations at Hard Rock Stadium have the capability of providing first aid, BLS and limited ALS care to employees and guests. Physician staffed first aid stations may be considered for certain patients who meet the criteria outlined in this procedure. It is incumbent upon all Fire Rescue personnel involved, to act in the patient's best interest. Proper screening and accurate patient assessment must be utilized to determine the appropriate level of care needed.

This procedure is for various types of patients encountered in the event setting and will apply to **ALL** patients treated by Miami-Dade Fire Rescue at Hard Rock Stadium during Super Bowl LIV. This procedure is a supplemental document to Protocol 4 and all other applicable Medical Operations Manual requirements.

B. Procedure

1. After a complete evaluation, the unit OIC **may** transfer an adult patient meeting the below criteria to a physician staffed first aid station:
    a. Alcohol intoxication when GCS = 15 and ETCO2 is ≥ 30mmHg
    b. Superficial 1st degree thermal burns
    c. Stable asthmatic patient without wheezing
    d. Extremity injuries (sprains, strains, abrasions)
    e. Simple lacerations excluding face and neck
    f. Nausea and vomiting without abdominal pain
    g. Heat related problems with a GCS of 15 and no neurological symptoms
    h. Allergic reactions not medicated by MDFR
2. An EMS Field Supervisor or the Medical Director MUST verify the patient's condition prior to the patient being released to the physician staffed first aid station.
3. All transport decisions and/or transport destinations as directed by the EMS Field Supervisor assigned to the event are final.
4. The decision to transfer patient to a physician staffed first aid station will be documented in the Narrative section of the electronic Patient Care Report. The unit OIC will select the ePCR disposition of **"Treated, Transferred to Super Bowl Clinic"** for all patients released to the physician staffed first aid stations.
5. At no time will an unstable ALS patient be released to a physician staffed first aid station. Unstable ALS patients will be transported in accordance with Protocol 4.
6. If there is any doubt or concern about a patient's condition the patient will be transported by an MDFR Rescue unit to a hospital, as defined on the "Hospital Capability Chart".

A. Introduction

This response procedure is a guide for the proper management of patients suspected of being infected with COVID-19. This procedure is a supplemental document to the Medical Operations Manual. It is incumbent upon all Fire Rescue personnel involved, to act in the patient's best interest. Proper screening and accurate patient assessment must be utilized to determine the appropriate level of care needed. Patients will be treated following all other applicable Medical Operations Manual requirements.

B. Procedure

Every medical patient will initially be triaged by one crew member (in full PPE). The crew member will approach the patient and immediately place a **surgical mask** (not an N-95 respirator) on the patient. If the patient is c/o SOB, the appropriate oxygen therapy (non-rebreather mask, nasal cannula) will be applied. **A surgical mask will be placed over the nasal cannula or non-rebreather mask.** Perform an initial assessment and if it can be accomplished safely, consider moving the patient to an open-air environment to complete the remainder of the assessment while maintaining the Standard of Care. All other crew members should be ready to don full PPE on every call and remain six (6) feet away from patient until mask is applied. Patient treatment is a priority but limit the number of personnel who come in contact with the patient during treatment to one or two, unless additional personnel are necessary.

1. Patients meeting **ANY** of the following initial triage criteria will be considered a "Suspected COVID-19" patient:

   a.
   - Cardiac/Respiratory Arrests
   - Unconscious
   - Fever
   - Chills/Chills with Shivering
   - Sputum Production
   - Loss of Appetite
   - Cough
   - Sore Throat
   - Shortness of Breath
   - Diarrhea
   - Headache
   - All Stroke Alerts
   - Sudden onset of a loss of smell/taste
   - Was in close contact with a confirmed COVID-19 patient
   - Patient was laboratory confirmed to have COVID-19
   - Clinical (EMT/Paramedic) Judgment

   b. In addition, pediatrics presenting with any of the following:
      - Persistent Fever (lasting >24 hours)
      - Purpura (Rash of red/purple coloration)
      - Vomiting and Diarrhea
      - Abdominal Pain
      - Conjunctivitis (Pink Eye)
      - Red Swollen Hands/Feet
      - Red Cracked Lips

TREATMENT

2. Patients meeting the above criteria will be evaluated using the following Personal Protective measures:

- **All** personnel involved in direct patient care (within 6 FT of patient) **MUST** wear double gloves, N-95 respirator, fluid resistant sleeves, eye protection.
- Isolation gowns/coveralls are to be used for **ALL** confirmed COVID-19 patients. Also, on all cardiac arrests, intubations, extubations, BVM use, CPAP, suctioning, nebulizer treatments, or any time splash protection is anticipated.
- Reactive airway disease (Asthma, COPD) –
    - Nebulizer treatments for "Suspected COVID-19 Patients" **are only indicated if the SPO2 remains < 92% after applying appropriate oxygen therapy.** If a nebulizer treatment must be done it should be done on the scene in an open, well-ventilated setting prior to loading the patient into the Rescue. If a nebulizer treatment must be done inside the Rescue, it should be completed prior to leaving the scene. During nebulizer treatments, all doors on the Rescue or room must remain open and all personnel not needed for direct patient care should remain outside the Rescue or outside the room until the treatment is completed.
    - The use of the SafetyNeb Mask will assist in the significant reduction of aerosolization, but will not provide 100% aerosol exposure protection as each individual patient will have different facial characteristics that may allow for leaks in the mask and cause leakage.
        - If a third nebulizer treatment is administered, it is recommended that a new SafetyNeb Mask is used as the filters may become saturated.
    - Discontinue the nebulizer treatment procedure PRIOR TO ENTERING the Emergency Department. This is a critical step to avoid any unnecessary exposure to others.
- Place viral/bacterial filters **immediately** on **ALL** ET tubes, I-GELs, BVM, and CPAP **PRIOR** to first ventilation. Procedure 22
- See Cardiac Arrest for Suspected COVID-19 patients Appendix 10-6 Appendix 10-7

TRANSPORT

3. If the patient will be transported by MDFR, the unit OIC will notify the receiving hospital that they have a "Suspected COVID-19" patient.

- Patients that will be transported by MDFR should be transported using the following precautions:
    - Patient should be placed on a disposable blanket and wrapped in the blanket if access to patient is not needed for additional care.
    - Close the door/window between the patient compartment and cab before bringing the patient on board.
    - During transport, vehicle ventilation in both compartments should be on non-recirculated mode to maximize air changes that reduce potentially infectious particles in the vehicle.

- If the vehicle has a rear exhaust fan, use it to draw air away from the cab, toward the patient-care area, and out the back end of the vehicle.
- If a vehicle without an isolated driver compartment and ventilation must be used, open the outside air vents in the driver area and turn on the rear exhaust ventilation fans to the highest setting. This will create a negative pressure gradient in the patient area.
- Family members and other contacts of "Suspected COVID-19 Patients" should **NOT** ride in the transport vehicle, if possible. If riding in the transport vehicle, they must wear a facemask.

- If patient is being transferred to an ambulance for BLS transport, the ambulance crew must be alerted to wear proper PPE.
- The ePCR application has been updated to **require** a "Risk Factor Assessment" be completed on all "Suspected COVID-19" patients.
- A "**14FT Alert**" will **ONLY** be declared and transmitted to the Fire Alarm Office immediately upon determining that the crew had a high-risk exposure. The FAO will dispatch the closest EMS Field Supervisor.
- The MDFR Infection Control Office will be alerted via the ePCR application when a "high-risk" assessment is part of any closed report. The ICO will follow-up with the Emergency Department to determine if patient was a confirmed COVID-19 patient.
- All portions of the MOM including Protocol 2 and Protocol 4 remain unchanged by this procedure.

PPE DONNING AND DOFFING

4. The following procedure must be adhered to when **donning** Personal Protective Equipment:
   - Equipment should be donned in the following sequence: Isolation gown/coveralls (if used), N-95 respirator, goggles/face shield, inner gloves, fluid resistant sleeves, outer gloves.
5. The following **sequence** must be adhered to when **removing** Personal Protective Equipment:
   - Outer gloves should be removed first cautiously making sure to flip gloves inside out and dispose in biohazard container.
   - Remove goggles and dispose in biohazard container if it meets the disposal criteria below.
   - Remove sleeve by reaching underneath to the clean side and slide off arm and dispose in biohazard container.
   - If a gown is used, pull gown away from neck and shoulders, touching inside of gown only. Turn the gown inside out and fold or roll into a bundle then discard.
   - While wearing your clean gloves hold N-95 respirator to face and remove top strap, then bottom strap and discard in biohazard container if it meets the disposal criteria below.
   - **All** personnel should perform hand hygiene including use of alcohol-based hand gel immediately after removing personal protective equipment.

PPE USE

6. After initial use, N-95 respirators can be reused by the same employee **for an entire work shift** under the following guidelines:
    - N-95 respirators are re-usable if still structurally sound and passes the users seal check when inhaling and exhaling.
    - N-95 respirators should **ONLY** be discarded if used for cardiac arrest resuscitation, intubation, extubation, nebulizer therapy, CPAP, suctioning, use of a BVM and/or whenever contaminated with blood, respiratory or nasal secretions or other bodily fluids from patient.
    - Keep personal N-95 respirators stored in a paper bag when not being used.
    - A pair of clean/non-sterile gloves must be used when donning a used N-95 respirator. Hand hygiene must be performed after each contact with the exterior of the N-95 respirator.
    - N-95 respirators must be discarded in bio-hazard bags and bio-hazard receptacles.
7. After initial use, safety goggles can be kept and reused by the same employee under the following guidelines:
    - Safety goggles should be cleaned with approved disinfectant or washed with soap and water.
    - Safety goggles must be discarded in bio-hazard bags and bio-hazard receptacles following use of aerosol-generating procedures and/or whenever contaminated with blood, respiratory or nasal secretions or other bodily fluids from patient.
8. Isolation gowns/coveralls are to be used for ALL confirmed COVID-19 patients. Also, on all cardiac arrests, intubations, extubations, BVM use, CPAP, suctioning, nebulizer treatments, or any time splash protection is anticipated. Gowns are disposable and are to be discarded after initial use.
9. If available, face shields should be worn for every advanced airway procedure and cardiac arrests.

DECON

10. The following decontamination procedure will be used for all low or medium risk exposure incidents. The crew and the apparatus **MUST** be decontaminated prior to the unit returning to quarters
    - After transporting the patient, leave the rear doors of the transport vehicle open to allow for enough air exchange to remove potentially infectious particles. The time to complete transfer of the patient to the receiving facility and complete all documentation should provide sufficient air exchange.
    - While wearing PPE and clean gloves, all equipment and working surfaces will be cleaned and decontaminated after contact with potentially infectious materials. An appropriate disinfectant or a 1:10 solution of household bleach and water will be used to clean these surfaces. A 1:10 solution is made by combining 1-part bleach and 9-parts water. This solution should always be made just prior to its use to ensure effectiveness. At no time will soiled material be left for the oncoming shift to clean.

- Non-transport units will place all disposable PPE in a red biohazard bag and send to the hospital with the Rescue or BLS transport unit for disposal at the hospital. If no transport unit is on scene, the biohazard bag will be placed in an exterior compartment and disposed of in the station biohazard container. All disposable PPE must be removed prior to re-entering the apparatus.
- **All** personnel should perform hand hygiene including use of alcohol-based hand gel immediately after removing personal protective equipment.

11. Suspected COVID-19 patient treatment that include cardiac arrest resuscitation, intubation, CPAP, BVM or nebulizer treatment pose a higher risk to all personnel involved. These incidents will be evaluated by the EMS Field Supervisor to determine if specialized decontamination of personnel and apparatus is required with the assistance of a Haz-Mat unit.

C. Resource Links

- CDC – Guidance for EMS
- CDC – Clinical Guidance
- Elsevier COVID-19 Healthcare Hub
- John Hopkins Center for Health Security – COVID-19 Resource Center
- National Institutes of Health – COVID-19
- The New England Journal of Medicine – COVID-19
- Royal College of Pediatrics and Child Health
- The World Health Organization – COVID-19 Outbreak

D. Risk Factor Assessment

In accordance with CDC guidance, a risk factor assessment will continue to be completed on all "Suspected COVID-19" patient contacts. This will be required in the ePCR application. The EMS Field Supervisor will be notified to assess all personnel that respond to an incident where a **"14FT Alert"** was declared due to a high-risk exposure.

Any EMS response that presents a NO to any of the following will be deemed a **HIGH-RISK** exposure:

1. Were all crew members wearing an N-95 respirator during an EMS response?

   ☐ **YES** ☐ **NO**

2. Did all crew members wear eye protection on a response to a person with SARS-CoV-2 infection that a surgical mask was not applied during a cardiac arrest resuscitation?

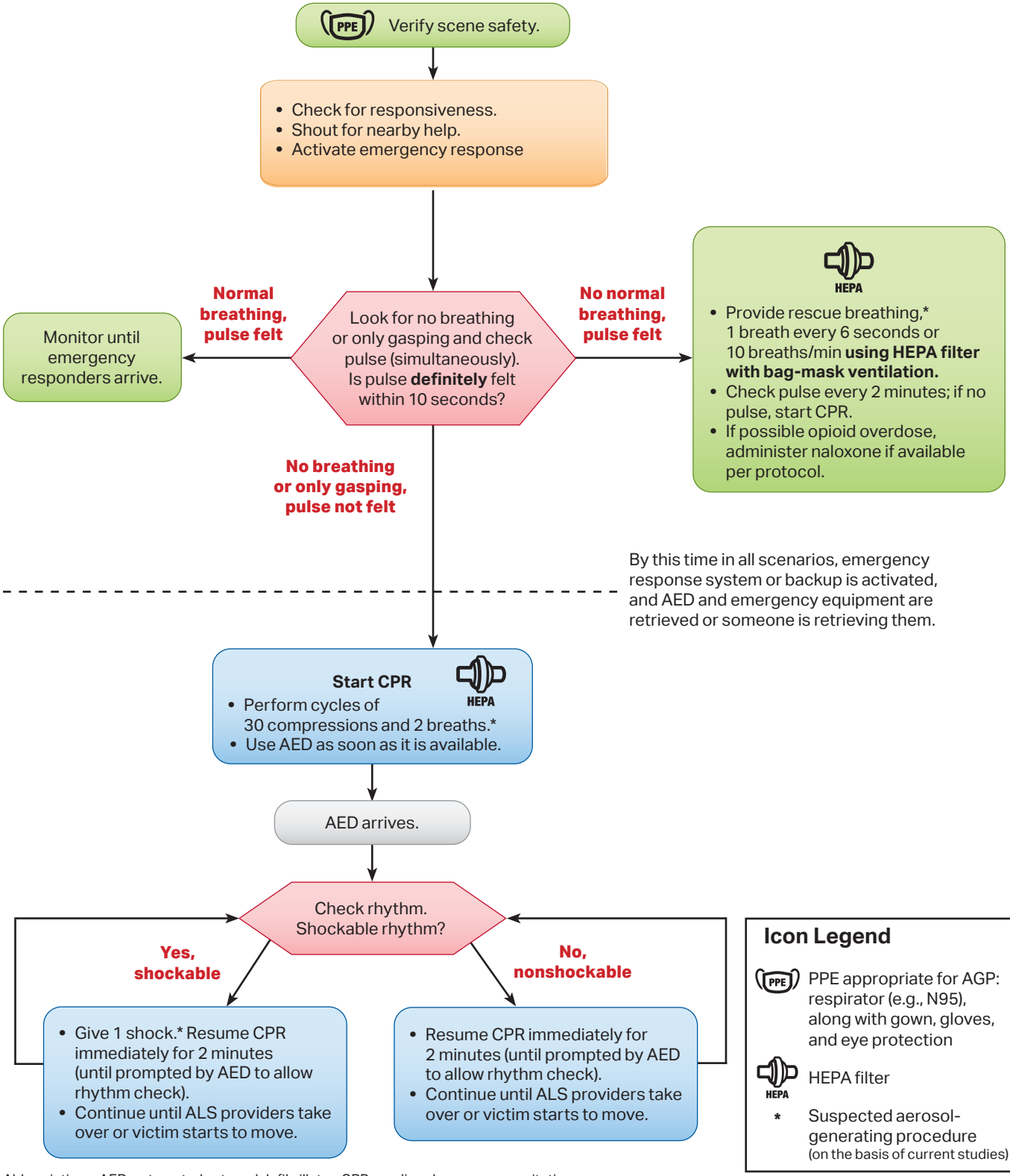
   ☐ **YES** ☐ **NO**

3. Were all crew members wearing all recommended PPE (i.e., sleeves, gloves, eye protection, N-95 respirator) while performing an aerosol-generating procedure?

   ☐ **YES** ☐ **NO**

Notes/Additional Information:

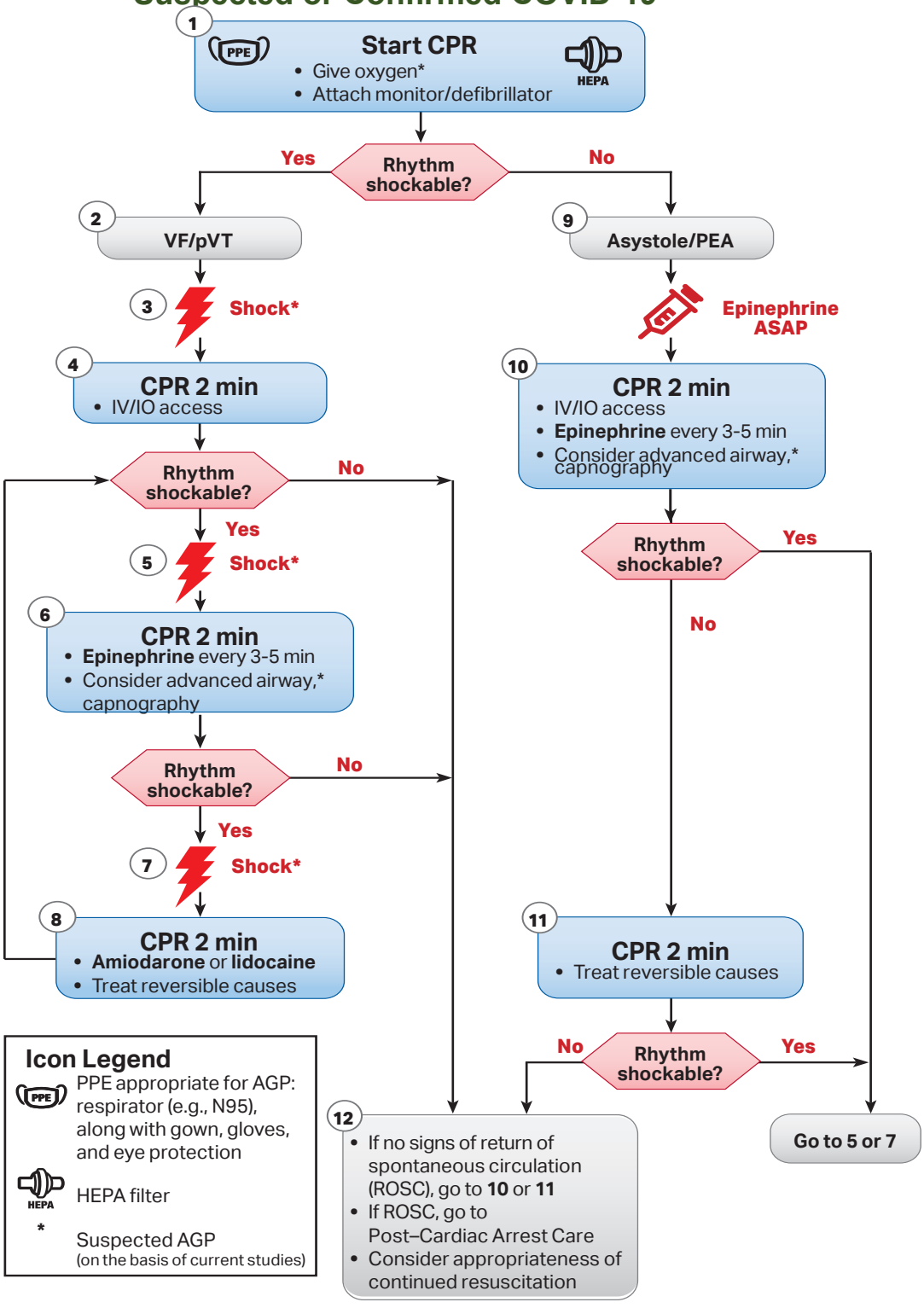
A. Adult BLS Algorithm for Suspected or Confirmed COVID-19



Abbreviations: AED, automated external defibrillator; CPR, cardiopulmonary resuscitation; HEPA, high-efficiency particulate air; PPE, personal protective equipment.

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B. Adult Cardiac Arrest Algorithm for Patients with Suspected or Confirmed COVID-19



Abbreviations: AGP, aerosol-generating procedure; CPR, cardiopulmonary resuscitation; ET, endotracheal; HEPA, high-efficiency particulate air; IO, intraosseous; IV, intravenous; PEA, pulseless electrical activity; PPE, personal protective equipment; ROSC, return of spontaneous circulation; VF, ventricular fibrillation; pVT, pulseless ventricular tachycardia.

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CPR Quality

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Change compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
  - If $PETCO_2$ is low or decreasing, reassess CPR quality.

Shock Energy for Defibrillation

- **Biphasic**: Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic**: 360 J

Drug Therapy

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
- **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.
  or
  Lidocaine IV/IO dose: First dose: 1-1.5 mg/kg. Second dose: 0.5-0.75 mg/kg.

Advanced Airway

- **Rapidly apply PPE before AGPs.**
- Provide endotracheal intubation or supraglottic advanced airway.
- **For all ventilation, use a HEPA filter.**
- Perform waveform capnography or capnometry to confirm and monitor ET tube placement.
- Once advanced airway is in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions.

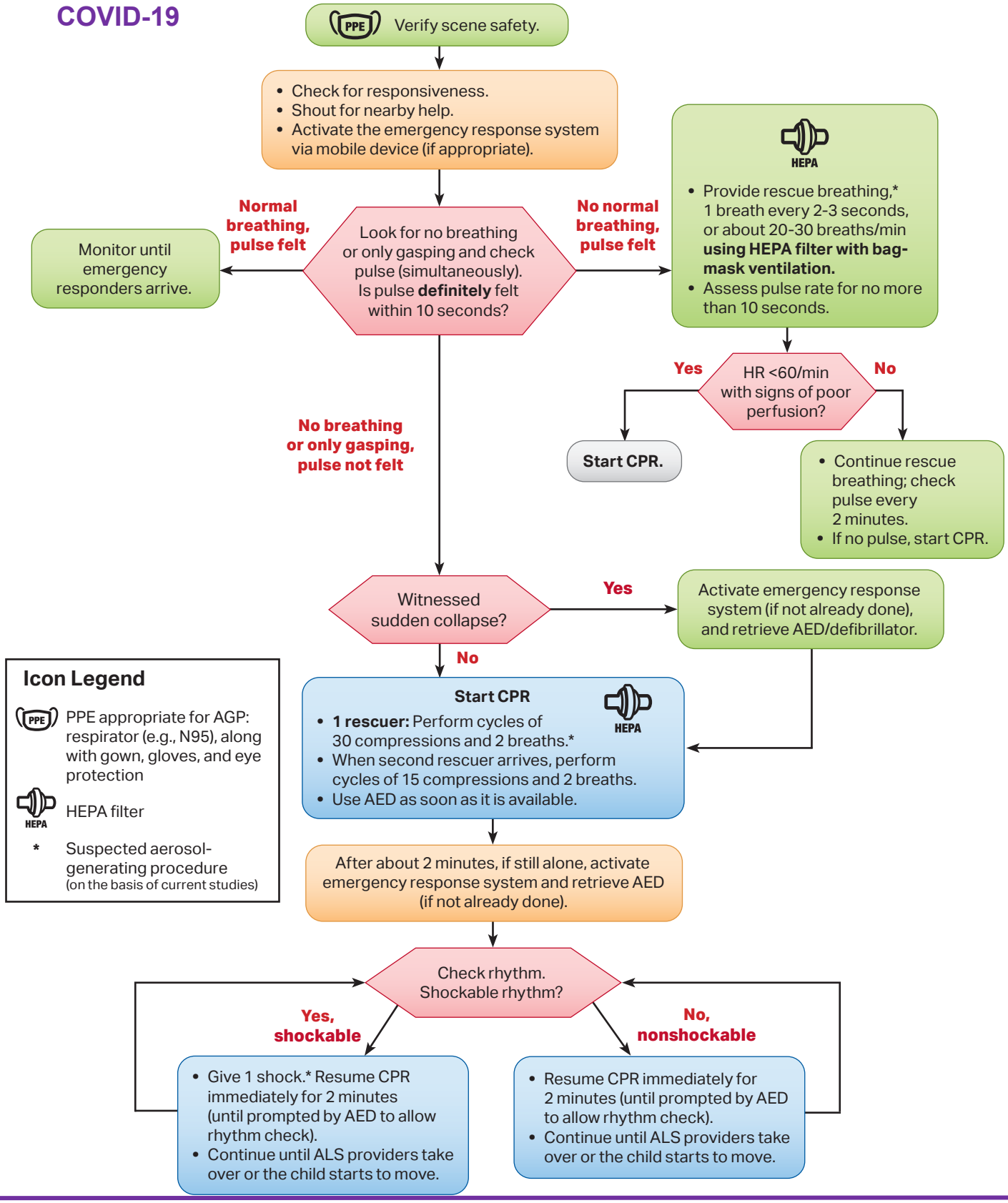
Return of Spontaneous Circulation (ROSC)

- Pulse and blood pressure
- Abrupt sustained increase in $PETCO_2$ (typically ≥40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

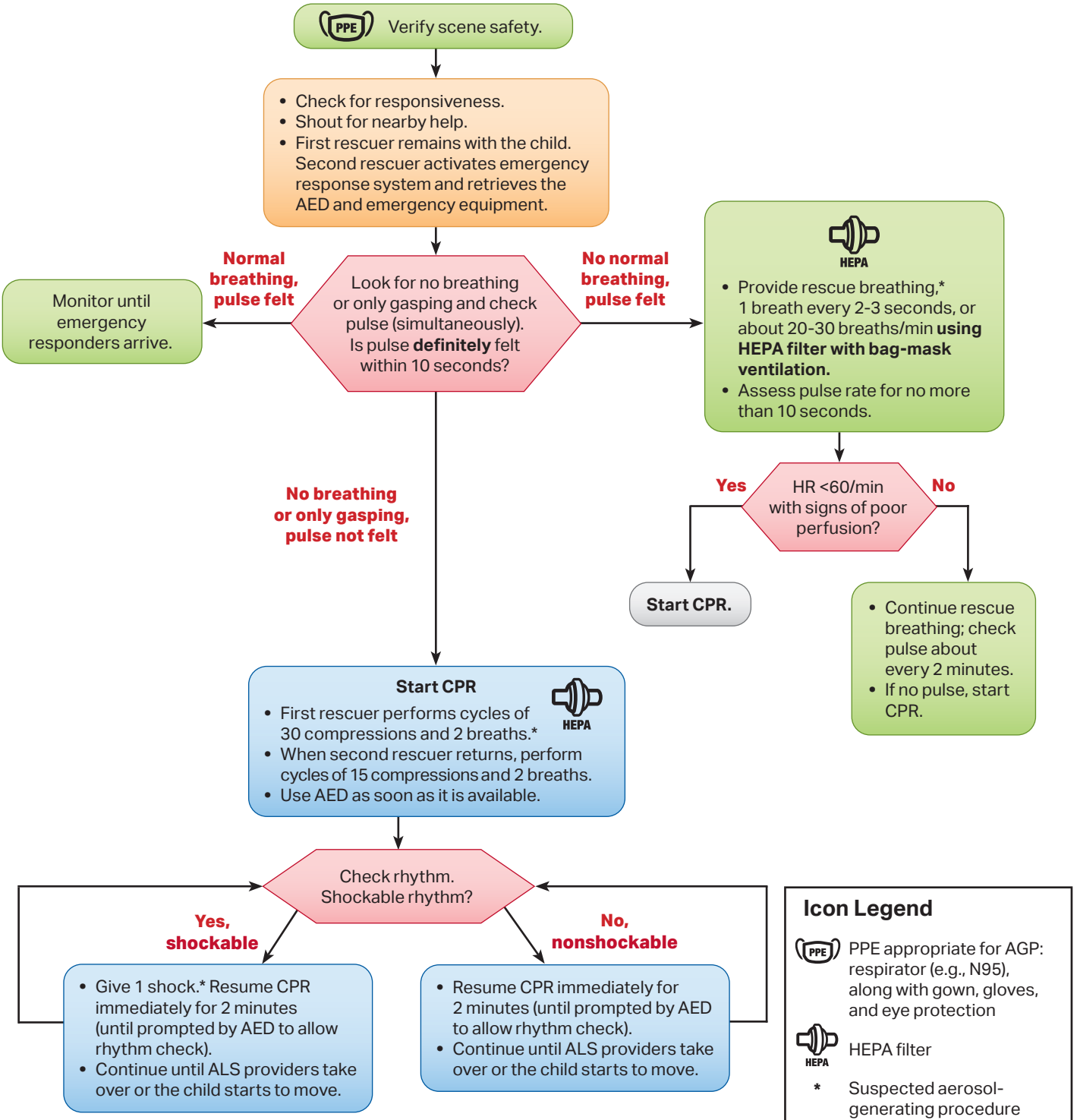
Reversible Causes

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

A. Pediatric BLS Algorithm – Single Rescuer for Suspected or Confirmed COVID-19



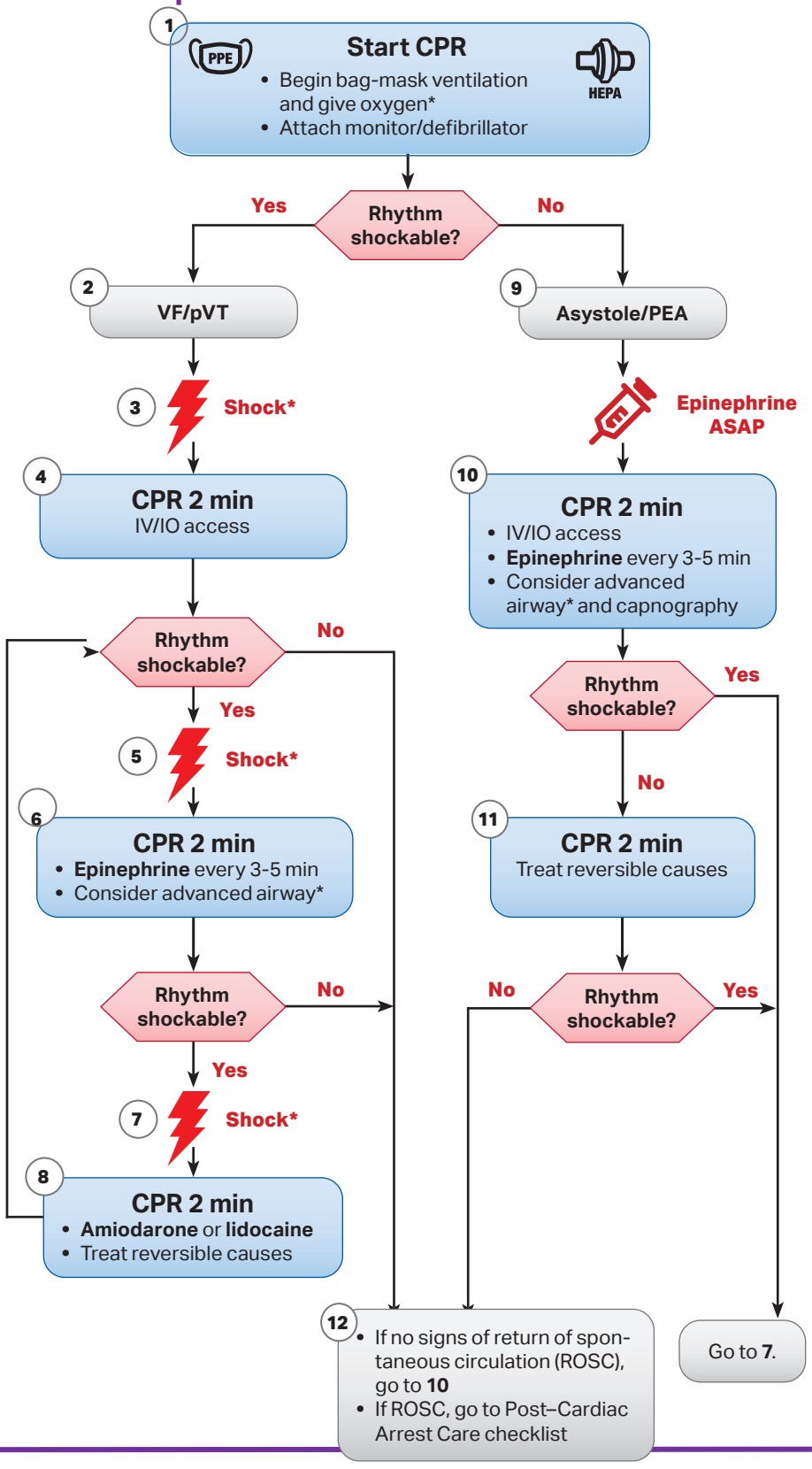
B. Pediatric BLS Algorithm – 2 or More Rescuers for Suspected or Confirmed COVID-19



Abbreviations: AED, automated external defibrillation; ALS, advanced life support; CPR, cardiopulmonary resuscitation; HEPA, high-efficiency particulate air; HR, heart rate; PPE, personal protective equipment.

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C. Pediatric Cardiac Arrest Algorithm for Patients with Suspected or Confirmed COVID-19



CPR Quality

- Push hard (≥⅓ of anteroposterior diameter of chest) and fast (100-120/min) and allow complete chest recoil
- Minimize interruptions in compressions
- Change compressor every 2 minutes, or sooner if fatigued
- If no advanced airway, 15:2 compression-ventilation ratio
- If advanced airway, provide continuous compressions and give a breath every 2-3 seconds

Shock Energy for Defibrillation

- First shock 2 J/kg
- Second shock 4 J/kg
- Subsequent shocks ≥4 J/kg, maximum 10 J/kg or adult dose

Drug Therapy

- **Epinephrine IV/IO dose:** 0.01 mg/kg (0.1 mL/kg of the 0.1 mg/mL concentration). Max dose 1 mg. Repeat every 3-5 minutes. If no IV/IO access, may give endotracheal dose: 0.1 mg/kg (0.1 mL/kg of the 1 mg/mL concentration).
- **Amiodarone IV/IO dose:** 5 mg/kg bolus during cardiac arrest. May repeat up to 3 total doses for refractory VF/pulseless VT
  or
  Lidocaine IV/IO dose: Initial: 1 mg/kg loading dose

Advanced Airway

- **Rapidly apply PPE before AGPs.**
- Provide endotracheal intubation or supraglottic advanced airway.
- Perform waveform capnography or capnometry to confirm and monitor ET tube placement.
- **For all ventilation, use a HEPA filter.**

Reversible Causes

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypoglycemia
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

MIAMI DADE FIRE RESCUE

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Always Ready, Proud To Serve

Normal Sinus Rhythm



Rate	60 – 100
Rhythm	Regular
P Wave?	Yes. Upright and normal
PR Interval?	Less than 4 small boxes
QRS Complex?	Narrow. Less than 3 small boxes
Ectopy?	

Sinus Tachycardia



Rate **Above 100**

Sinus Bradycardia



Rate **Less than 60**

Sinus Arrhythmia



Rate	60 - 100
Rhythm	**Irregular**

Sinus Arrest



Rate	60 - 100
Rhythm	**Irregular –period of inactivity (Arrest)**
P Wave?	Yes. Upright and normal
PR Interval?	Less than 4 small boxes
QRS Complex?	Narrow. Less than 3 small boxes
Ectopy?	

Wandering Pacemaker



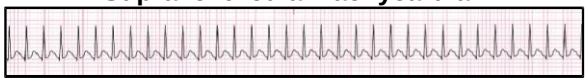
Rate	60 - 100
Rhythm	**May be irregular**
P Wave?	Yes. Different appearance
PR Interval?	Less than 4 small boxes, but can have varying PR intervals
QRS Complex?	Narrow. Less than 3 small boxes
Ectopy?	

Atrial Tachycardia



Rate	150-250
Rhythm	May be irregular
P Wave?	Yes. May be multiform
PR Interval?	Less than 4 small boxes, but can have varying PR intervals
QRS Complex?	Narrow. Less than 3 small boxes
Ectopy?	

Supraventricular Tachycardia



Rate	150-250
Rhythm	Regular
P Wave?	Unable to see P waves – buried in T-wave
PR Interval?	Usually unable to see
QRS Complex?	Narrow. Less than 3 small boxes
Ectopy?	

Atrial Flutter



Rate	60 - 100
Rhythm	**May be irregular**
P Wave?	Multiple p waves for each QRS
PR Interval?	Less than 4 small boxes, but can have varying PR intervals
QRS Complex?	Narrow. Less than 3 small boxes
Ectopy?	

Atrial Fibrillation



Rate	Atrial - ≥350, Ventricular rate may vary
Rhythm	**Irregularly irregular**
P Wave?	"Fib waves" showing atrial activity
PR Interval?	Unidentifiable
QRS Complex?	Narrow. Less than 3 small boxes
Ectopy?	

Junctional Rhythm



Rate	40 - 60
Rhythm	Regular
P Wave?	Absent – may be inverted or buried
PR Interval?	None (short if inverted)
QRS Complex?	Narrow. Less than 3 small boxes
Ectopy?	

Accelerated Junctional Rhythm



Rate	60 - 100
Rhythm	Regular
P Wave?	Absent – may be inverted or buried
PR Interval?	None (short if inverted)
QRS Complex?	Narrow. Less than 3 small boxes
Ectopy?	

Junctional Tachycardia



Rate	> 100
Rhythm	Regular
P Wave?	Absent – may be inverted or buried
PR Interval?	None (short if inverted)
QRS Complex?	Narrow. Less than 3 small boxes
Ectopy?	

1° AV Block



Rate	Depends on underlying rhythm
Rhythm	Regular
P Wave?	Yes. Upright and normal
PR Interval?	MORE than 4 small boxes
QRS Complex?	Narrow. Less than 3 small boxes
Notes:	**Wide or prolonged PR interval**

2° AV Block type 1 (Wenkebach)



Rate	Depends on the rate of the underlying rhythm
Rhythm	Irregular
P Wave?	Yes. Normal. More P waves than QUS Complexes
PR Interval?	Progressively longer until a QRS complex is dropped
QRS Complex?	Narrow. Less than 3 small boxes
Notes:	**Widening PR interval until dropped QRS, then PR starts over.**

2° AV Block Type 2



Rate	Atrial – 60-100, Ventricular rate may be slower
Rhythm	Irregular
P Wave?	Yes. Upright and normal
PR Interval?	Can be normal or prolonged but constant. QRS dropped
QRS Complex?	Usually wide but can be normal.
Ectopy?	**Constant PR intervals with dropped QRS Complexes**

3° AV Block



Rate	Atrial 60-100 / Ventricular 40-60
Rhythm	Usually Regular
P Wave?	Yes. Upright and normal
PR Interval?	Variable
QRS Complex?	Normal or wide
Notes:	**P waves and QRS are independent of each other.**

Idioventricular Rhythm



Rate	40-60
Rhythm	Usually Regular
P Wave?	NO
PR Interval?	None
QRS Complex?	Wide Complex
Notes:	**QRS generated from below the AV Node creating a wide complex**

Ventricular Tachycardia



Rate	150-250
Rhythm	Usually Regular
P Wave?	NO
PR Interval?	None
QRS Complex?	Wide Complex
Notes:	**QRS generated from below the AV Node creating a wide complex**

Premature Ventricular Complex



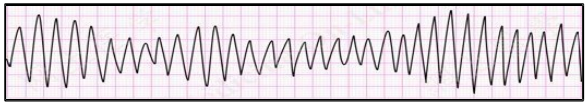
Premature Atrial Complex



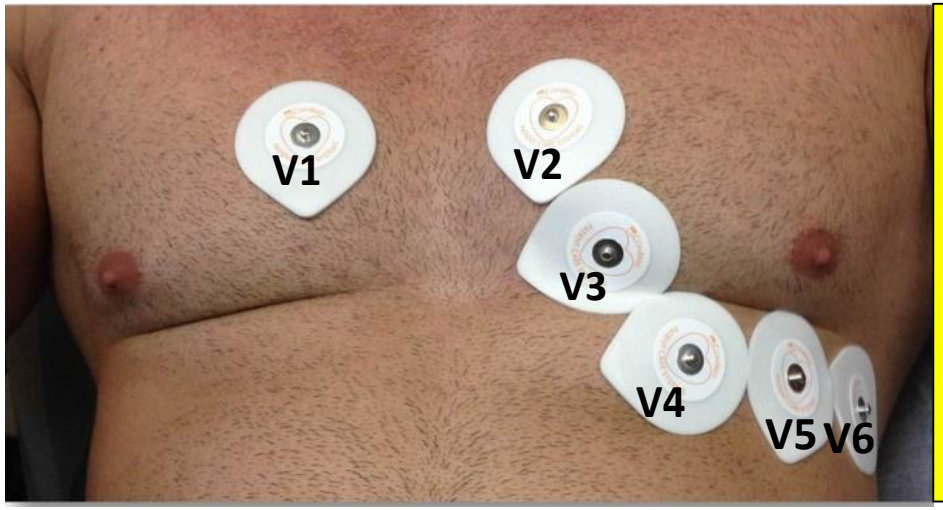
Premature Junctional Complex



Torsades de Pointes



V-LEADS ELECTRODE PLACEMENT

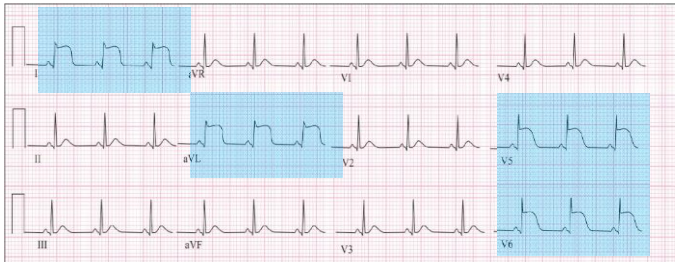


V1 – 4th Intercostal Space, Parasternal
V2 – 4th Intercostal Space, Parasternal
V4 – 5th Intercostal Space, Midclavicular Line
V3 – In a straight line between V2 and V4
V6 – 5th Intercostal Space, Midaxillary Line
V5 - In a straight line between V4 and V6

Inferior Wall MI



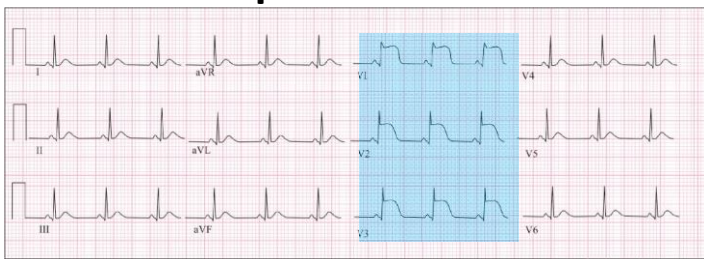
Lateral Wall MI



Anterior Wall MI



Septal Wall MI



Anteroseptal MI



Anterolateral MI



A. Introduction

All physicians staffed at first aid stations at Hard Rock Stadium have the capability of providing first aid, BLS and limited ALS care to employees and guests. Physician staffed first aid stations may be considered for certain patients who meet the criteria outlined in this procedure. It is incumbent upon all Fire Rescue personnel involved to act in the patient's best interests. Proper screening and accurate patient assessment must be utilized to determine the appropriate level of care needed.

This procedure is for various types of patients encountered in the event setting and will apply to **ALL** patients treated by Miami-Dade Fire Rescue at Hard Rock Stadium during FIFA World Cup 2026. This procedure is a supplemental document to Protocol 4 and all other applicable Medical Operations Manual requirements.

B. Procedure

1. After a complete evaluation, the unit OIC **may** transfer an adult patient meeting the below criteria to a physician staffed first aid station:
    a. Alcohol intoxication when GCS = 15 and ETCO2 is 30mmHg or greater
    b. Superficial 1st degree thermal burns
    c. Stable asthmatic patient without wheezing
    d. Extremity injuries (sprains, strains, abrasions)
    e. Simple lacerations excluding face and neck
    f. Nausea and vomiting without abdominal pain
    g. Heat-related problems with a GCS of 15 and no neurological symptoms
    h. Allergic reactions not medicated by MDFR
2. An EMS Field Supervisor or the Medical Director MUST verify the patient's condition prior to the patient being released to the physician staffed first aid station.
3. All transport decisions and/or transport destinations as directed by the EMS Field Supervisor assigned to the event are final.
4. The decision to transfer patients to a physician staffed first aid station will be documented in the Narrative section of the electronic Patient Care Report. The unit OIC will select the ePCR Transport Disposition: "**Transport by this EMS unit", Type of Destination: "Clinic", Destination: Other Facility"** for all patients released to the physician staffed first aid stations.
5. At no time will an unstable ALS patient be released to a physician staffed first aid station. Unstable ALS patients will be transported in accordance with **Protocol 4**.
6. I f there is any doubt or concern about a patient's condition the patient will be transported by an MDFR Rescue unit to a hospital, as defined on the "Hospital Capability Chart".

Class

Antidysrhythmic

Pharmacologic properties

Adenosine is an endogenous purine nucleoside that slows conduction time through the AV node and interrupts AV reentry pathways which restores normal sinus rhythm in patients with paroxysmal supraventricular tachycardia (PSVT). The onset of action is 20-30 seconds and the duration of action is < 10 seconds.

Indications

- Symptomatic PSVT with ECG showing rates between 150-230 narrow QRS complexes.
  - Adult – Regular, narrow complex tachycardia ≥ 150 Protocol 9.
  - Child – Regular, narrow complex tachycardia ≥ 180 Protocol 9P.
  - Infant – Regular, narrow complex tachycardia ≥ 220 Protocol 9P.
- Used as a diagnostic tool for stable, regular, monomorphic QRS complex tachycardias Protocol 9, Protocol 9P.
- Halogenated/Aromatic Hydrocarbon & Gasoline Exposures causing sensitized myocardial tissue presenting with a regular, narrow complex tachycardia with a rate ≥ 150 Protocol 25.

Contraindications

- Known hypersensitivity
- 2nd or 3rd degree AV block
- Sick sinus syndrome

Precautions

- Effects of adenosine are antagonized by methylxanthine (theophylline and caffeine)
- Adenosine can provoke bronchospasm and should be used cautiously in patients with reactive airway disease
- Adenosine is not effective in converting atrial fibrillation or flutter
- The half-life of adenosine is < 5 seconds - the drug should be administered via a large bore IV in the upper extremity, and at the port closest to the IV hub
- Never administer doses greater than 6 mg via external jugular vein.

Side Effects/Adverse Reactions

- Cardiovascular- transient chest pain
- Facial flushing (transient)
- Respiratory- transient dyspnea
- Metallic taste

Dosage and Administration

Adult

- 6 mg rapid IVP (administered over a 1-2 second period) through a large-bore catheter (preferably in the antecubital) followed by a 20 mL rapid flush.
    - A second bolus of 12 mg rapid IVP may be administered after 1-2 minutes if the PSVT is not eliminated.
    - Never administer doses greater than 6 mg via external jugular vein.

Pediatric

- 0.1 mg/kg rapid IVP (MAX 6 mg) followed by a 5-10 mL rapid flush.
    - A second bolus of 0.2 mg/kg rapid IVP (MAX 12 mg) followed by a 5-10 mL rapid flush may be administered after 1-2 minutes if the PSVT is not eliminated.

Class

Sympathomimetic, Bronchodilator

Pharmacologic properties

Albuterol is primarily a beta-2 agonist that produces bronchodilation with limited cardiovascular side effects due to its high specificity for beta-2 receptors. Onset is within 15 minutes; peak effect is in 60-90 minutes. Therapeutic effects may be active up to 5 hours.

Indications

- Acute bronchospasm (wheezing) due to asthma, COPD or allergic reactions Protocol 8, Protocol 8P.

Contraindications

- Known hypersensitivity/allergy

Precautions

- Use cautiously in patients with coronary artery disease, hypertension, hyperthyroidism, diabetes
- Epinephrine should not be used at the same time as albuterol, however, either may be used subsequent to a failure of the other

Side Effects/Adverse reactions

- Nervousness
- Tremor
- Tachycardia
- Hypertension
- Nausea
- Vomiting

Dosage and Administration

- Each unit dose delivers by nebulization 2.5 mg of Albuterol Sulfate in 3 mL of 0.083 % of total solution in adult and pediatric patients.

Adult

- Administer 1 vial 2.5 mg/3 mL of premixed single unit dose via nebulizer.
    - Initial dose is combined with Ipratropium Bromide (Atrovent) 0.5 mg Medication 18.
    - Albuterol may be repeated according to respective protocol, if bronchospasms are still present.

Pediatric

- ≤ 10 kg, administer 1.25 mg (1.5 mL of vial) diluted in 2 mL of Normal Saline via nebulizer.
    - Initial dose is combined with Ipratropium Bromide (Atrovent) 0.25 mg Medication 18.
    - Albuterol may be repeated according to respective protocol, if bronchospasms are still present.
- > 10 kg, administer adult dose, 1 vial (2.5 mg) of premixed single unit dose via nebulizer.
    - Initial dose is combined with Ipratropium Bromide (Atrovent) 0.5 mg Medication 18.
    - Albuterol may be repeated according to respective protocol, if bronchospasms are still present.

Class

Antidysrhythmic

Pharmacologic properties

Amiodarone is considered a class III antiarrhythmic. It possesses electrophysiologic characteristics of sodium, potassium and calcium channel blockade, as well as alpha- and beta-adrenergic blocking activity. These properties prolong action potentials and repolarization, stabilizing myocardial membranes.

Indications

- Ventricular fibrillation/pulseless ventricular tachycardia Protocol 9.
- Monomorphic ventricular tachycardia without overt signs of shock (SBP > 90) Protocol 9, Protocol 9P.
- Wide complex tachycardia of unknown etiology Protocol 9, Protocol 9P.
- Pediatric ventricular fibrillation/pulseless ventricular tachycardia Protocol 9P.

Contraindications

- Known hypersensitivity
- Cardiogenic shock, marked sinus bradycardia, and second- and third-degree AV block
- Iodine hypersensitivity
- Patients taking Coumadin (Warfarin)

Precautions

- Solution is extremely viscous – Do Not Shake
- Administer the medication slowly
- Administered to patients on Digoxin may cause digitalis toxicity

Side Effects/Adverse Reactions

Adverse reactions include fever, bradycardia, CHF, cardiac arrest, hypotension, ventricular tachycardia, prolonged QT interval, nausea, and abnormal liver function.

Dosage and Administration

Adult

Adult V-Fib or Pulseless V-Tach

- 300 mg IV/IO bolus.
    - For persistent VF/VT, repeat 150 mg IV/IO bolus (Maximum dose of 450 mg)

Adult (Wide Complex Tachycardia with a Pulse)

- 150 mg IV over 8-9 minutes. Mix 150 mg in 50 mL IV NS. Use a 10 gtts/mL (macro) drip set and administer 1 gtt/sec to achieve 150 mg over 10 minutes.
    - May repeat 150 mg IV over 8-9 minutes.

Pediatric

Pediatric V-Fib or Pulseless VT

- 5 mg/kg IV/IO bolus (Maximum individual dose 300 mg).
    - For persistent VF/VT, repeat 5 mg/kg IV/IO bolus.
    - May be administered up to 3 times for a maximum total dose of 15 mg/kg.

Pediatric (Wide Complex Tachycardia with a Pulse)

- 5 mg/kg over 20 minutes. Mix 5 mg/kg in 50 mL IV bag NS. Use a 10 gtts/mL (macro) drip set and administer 1 gtt every 2 seconds to achieve dose delivery over approximately 20 minutes.

DISCONTINUED

Class

Salicylates, Platelet Aggregator Inhibitor, Anti-Inflammatory

Pharmacologic properties

Aspirin is a salicylate with anti-platelet activity. It inhibits cyclooxygenase, blocking the synthesis of prostaglandin to interfere with platelet aggregation. This action has been demonstrated to reduce mortality in patients suffering from myocardial infarction. Aspirin also has moderate analgesic and anti-pyretic effects. The onset of action is 5-30 minutes, and the duration of action is 3-6 hours.

Indications

- Chest Pain - suspected myocardial ischemia Protocol 10, Protocol 11.

Contraindications

- Known hypersensitivity
- Relative contraindicated in patients with active ulcer disease or asthma
- Pregnant (especially third trimester) or a nursing mother
- Patients < 18 years of age

Side Effects/Adverse Reactions

- Anaphylaxis (if history of hypersensitivity)
- Abdominal discomfort
- Gastrointestinal bleeding (if previous condition exists)

Dosage and Administration

Adult

- 324 mg PO (Quantity of 4 - 81 mg per tablet of chewable baby aspirin).

Pediatric

- Not indicated for pediatrics for CP – suspected myocardial ischemia.

Atropine Sulfate
(Cardiac Agent)

Class

Anticholinergic, Vagolytic, Belladonna Alkaloid, Cycloplegic Mydriatic

Pharmacologic properties

Atropine is a potent parasympatholytic anticholinergic. It inhibits muscarinic receptor activity in the parasympathetic sites in smooth muscle, central nervous system, cardiac and secretory tissue. This reduces vagal tone, increases automaticity of the SA node and increases AV conductions, thus increasing heart rate. Additional effects include drying secretions and slowing motility in the gastrointestinal tract.

Indications

- Bradydysrhythmias (rate < 50) accompanied by hemodynamic compromise, i.e. hypotension (systolic less than 90 mmHg), shock, pulmonary edema, altered level of consciousness Protocol 9
- Pediatric Bradycardia (HR < 100 in an infant, HR < 60 in a child) despite adequate oxygenation, ventilation, chest compressions, ***and refractory to epinephrine*** Protocol 9P.
- RSI in pediatrics Protocol 7P.
- Beta-blocker or calcium channel blocker overdose Protocol 15, Protocol 15P.

Contraindications

- Atropine has no effect in patients with transplanted hearts
- 3rd degree AV block in the setting of an acute MI, especially an anterior wall MI

Precautions

- If normal dose pushed too slowly, or if too small a dose (< 0.5 mg) is given, heart rate may initially slow down
- Atropine is potentiated by antihistamines and antidepressants
- Cautious use in Type II AV block and 3rd degree block with wide QRS complexes

Side Effects/Adverse Reactions

- Restlessness, Agitation, Confusion, Pupil dilation, Blurred vision, Headache, Increased myocardial oxygen demand, Ventricular fibrillation, Dry mouth, Difficulty swallowing, Urinary retention, Paradoxical bradycardia when pushed too slowly or when given at low doses.

Dosage and Administration

Adult

- 1 mg IV/IO bolus for symptomatic bradycardia.
    - May be repeated every 3-5 minutes until a maximum total dose of 3 mg or 0.04 mg/kg is reached.

Pediatric

- 0.02 mg/kg IV/IO bolus (MAX 0.5 mg) for symptomatic bradycardia. (Refractory to epinephrine)
    - Minimum individual dose is 0.1 mg (1 mL) and maximum individual dose is 0.5 mg (5 mL).
    - May be repeated every 3-5 minutes not to exceed a maximum total dose of 3 mg or 0.04 mg/kg is reached.

Atropine Sulfate
(Antidote for Poisoning)

Class

Anticholinergic, Vagolytic, Belladonna Alkaloid, Cycloplegic Mydriatic

Pharmacologic properties

Atropine is a potent parasympatholytic anticholinergic. It inhibits muscarinic receptor activity in the parasympathetic sites on smooth muscle and the central nervous system, as well as cardiac and secretory tissue. This reduces vagal tone, increases automaticity of the SA node and increases AV conductions, thus increasing heart rate. Additional effects include drying secretions and slowing motility in the gastrointestinal tract.

Indications

- Organophosphate Poisoning (i.e. parathion, malathion, rid-a-bug) and carbamate (Baygon, sevin, and many common roach and ant sprays) Protocol 25.
    - Poisoning signs affecting muscarinic receptor sites:
        - **DUMBBELLS**
            - Diarrhea
            - Urination
            - Miosis
            - Bronchorrhea, Bradycardia
            - Bronchospasms
            - Emesis
            - Lacrimation
            - Lethargy
            - Salivations

Contraindications

- None when used in the management of severe organophosphate poisoning

Precautions

- It is important that the patient be adequately oxygenated and ventilated prior to using atropine, as atropine may precipitate ventricular fibrillation in a poorly oxygenated patient.
- Do not rely upon pupillary constriction to discontinue or to titrate medications.

Side Effects/Adverse Reactions

- Victims of organophosphate poisoning can tolerate large doses (1000 mg) of atropine.
- Signs of atropinization (flushing, pupil dilation, dry mouth, tachycardia) are likely to occur.

Dosage and Administration

Adult

- 2 mg IV/IO/IM
  - May repeat 2 mg IV/IO/IM every 5 minutes as necessary.
  - Titrate until respiratory secretions/distress begins to decrease (atropinization).

Pediatric

- 0.02 mg/kg IV/IO/IM
  - May repeat 0.02 mg/kg every 5 minutes as necessary.
  - Titrate until respiratory secretions/distress begins to decrease (atropinization).

Class

Beta-Blocker, Antidysrhythmic

Pharmacologic properties:

Brevibloc is a rapid onset adrenergic receptor blocking agent with a very short duration of action (selective Beta-blocker), reducing heart rate and causing vasodilation.

Indications

- Used for the treatment of rapid PSVT, atrial flutter and atrial fibrillation associated with exposure to halogenated hydrocarbons Protocol 25.

Contraindications

- Hypersensitivity, sinus bradycardia, heart blocks, cardiogenic shock, or profound CHF. Patients with bronchospastic diseases should not receive Beta-blockers

Precautions

- Use with caution in patients with impaired renal function, patients taking beta blockers, or Verapamil. Extravasation will cause tissue necrosis.

Side Effects/Adverse Reactions

- Symptomatic hypotension, diaphoresis, chest pain, flushing, pallor, bradycardia, and dizziness.

Dosage and Administration

Adult

Loading Dose

- 50 mg SLOW IVP over 1 minute.
    - May be repeated once in 5 minutes if dysrhythmia reoccurs.

Maintenance Infusion

- Infusion of 5 mg/min.
- Mix 2500 mg ampule into 500 mL of NS to yield 5 mg/mL.
    - Starting dose of 5 mg/min. Use a 60 gtts/mL (micro) drip set and run at 1 gtt/sec (60 gtts/min).

- Upon administration of the second loading bolus due to no change or dysrhythmia reoccurrence.
  - Increase the maintenance infusion dose to 10 mg/min. Use a 60 gtts/mL (micro) drip set and run at 2 gtts/sec (120 gtts/min).

- Premixed Injection – 2500 mg in 250 mL of solution, yielding 10 mg/mL.
  - Starting dose of 5 mg/min. Use a 60 gtts/mL (micro) drip set and run at 1 gtt every 2 seconds (30 gtts/min).
  - Upon administration of the second loading bolus due to no change or dysrhythmia reoccurrence.
    - Increase the maintenance infusion dose to 10 mg/min. Use a 60 gtts/mL (micro) drip set and run at a rate of 1 gtt/sec. (60 gtts/min).

Pediatric

- Not indicated for pediatric use.

Class

Electrolyte

Pharmacologic Properties

Calcium is a cation that essential for neurotransmission, bone formation, enzymatic reactions and muscle (including cardiac) contraction. In the myocardium, it increases the force of contraction and augments cardiac output. Calcium also has a stabilizing effect on myocardial membranes when dangerously high potassium levels make the heart at risk for fibrillation.

Indications

- Hyperkalemia with associated ECG disturbances Protocol 9, Protocol 9P.
- Hypocalcemia (known)
- Calcium channel blocker toxicity with hemodynamic compromise Protocol 9, Protocol 9P, Protocol 15, Protocol 15P.
- Cardiac arrest with Asystole Protocol 9, Protocol 9P.
- Magnesium (MgS04) toxicity Medication 22.
- Cardiac arrest secondary to Hydrofluoric Acid (HF) exposure Protocol 25.

Contraindications

- Cardiac arrest not associated with one of the above
- Digoxin toxicity (assumed if on Digoxin and unknown levels)
- Hypercalcemia

Precautions

- Cautious use in patients receiving Digoxin - do not administer to patients with suspected Digoxin toxicity or overdose
- Do not mix with sodium bicarbonate - it will form an insoluble precipitate (calcium carbonate)

Side Effects/Adverse Reactions

- Bradycardia (usually caused by rapid administration)
- Arrhythmias - especially in patients on digoxin
- Sclerosis of veins (if IV infiltrates)

Dosage and Administration

Adult

Adult Cardiac Arrest

- 1000 mg slow IV/IO bolus.
    - If patient is taking digitalis, administer 250 mg slow IV/IO bolus.
    - May repeat once in 10 minutes if no response (Maximum total dose 2 grams).

Hyperkalemia and Calcium Channel Blocker Overdose

- 500 – 1000 mg slow IV/IO bolus.

Adult Cardiac Arrest secondary to Hydrofluoric Acid (HF) Exposure

- 1000 mg slow IV/IO bolus.

Pediatric

- 20 mg/kg (0.2 mL/kg) slow IV/IO bolus.
    - May repeat once in 10 minutes if no response (Maximum total dose 2 grams).

Class

Electrolyte

Pharmacologic properties

Provides rapid availability of calcium ions for the treatment of severe hypocalcemia. It binds with fluoride to produce calcium fluoride, an insoluble salt.

Indications

- Topical treatment for hydrofluoric acid (HF) burns. The Calcium Gluconate combines with hydrofluoric acid to neutralize the powerful ion. The immediate application of antidote gel to burn site reduces burn damage to bone and deep tissue Protocol 25.

Contraindications

- Lack of HF burns - for external use only.

Precautions

- Calcium gluconate may cause nausea, constipation, and upset stomach

Side Effects/Adverse Reactions

- Enhances the effects of digitalis and may precipitate arrhythmias associated with Hypercalcemia

Dosage and Administration

Adult

- Apply Calcium Gluconate Gel liberally to the affected area(s) and continuously massaged into the skin until the pain has subsided and for at least 15 minutes afterwards.
- Application of gel should be by personnel with donned personal protective equipment, utilizing gown, mask, eye protection and nitrile gloves (two pairs).
- Remove all contaminated clothing, proceed with decontamination procedures and flood the affected area of the affected skin with copious amounts of water for at least one minute.
- Reapply gel liberally as necessary.

Pediatric

- No specific recommended dose.
- Follow adult dosage and administration.

Class

Antihypoglycemic, Carbohydrate

Pharmacologic properties

Dextrose is a simple monosaccharide also known as glucose. It provides calories for metabolic needs, sparing body proteins and loss of electrolytes. Dextrose is a hypertonic solution that is readily excreted by the kidneys producing diuresis.

Indications

- Hypoglycemia - Blood Glucose Level < 50 mg/dL asymptomatic patient or < 70 mg/dL symptomatic patient Protocol 36, Protocol 36P.
- Hypoglycemia - Blood Glucose Level < 60 mg/dL for suspected stroke or acute brain injury Protocol 13

Contraindications

- Stroke or acute brain injury (intracranial hemorrhage) with glucose > 60 mg/dL

Precautions

- May theoretically precipitate Wernicke-Korsakoff syndrome if given without thiamine in chronic alcohol dependence and malnutrition

Side Effects/Adverse Reactions

- Thrombosis, sclerosing if given in a peripheral vein
- Tissue irritation if infiltrates (extravasation) leading to tissue necrosis.
- Hyperglycemia
- Hypokalemia

Dosage and Administration

Adult

- 10 gm (100 mL) of Dextrose 10% IV/IO infusion with a macro drip set
  - May be repeated once if BGL remains below 80 mg/dL upon reassessment.

  OR
- 12.5 gm (25 mL) of Dextrose 50% IV/IO bolus
  - May be repeated once if BGL remains below 80 mg/dL upon reassessment.

Pediatric

- 0.5 gm/kg (5 mL/kg) of Dextrose 10% (Max dose 10 gm (100 mL)) infusion with a macro drip set
    - For D50 dilution, obtain a D50 prefilled syringe, discard 40 mL and draw up 40 mL of NS to yield concentration of Dextrose 10% to be administered IV/IO bolus.
    - May be repeated once if BGL remains below 80 mg/dL upon reassessment.

Class

Calcium Channel Blocker, Antidysrhythmic

Pharmacologic Properties

Diltiazem is a calcium channel blocking agent that inhibits the influx of calcium ions during membrane depolarization of cardiac and vascular smooth muscle. Its action is to slow AV nodal conduction and increase the AV nodal refractory period. Diltiazem slows the ventricular rate in patients with a rapid ventricular response during atrial fibrillation or atrial flutter, potentially converts supraventricular tachycardia to normal sinus rhythm, and decreases total peripheral resistance in both systolic and diastolic blood pressure.

Indications

- Narrow complex atrial fibrillation/flutter with rapid ventricular rate (≥ 150 bpm) Protocol 9.
- PSVT refractory to adenosine Protocol 9.

Contraindications

- Patients with pulmonary edema or severe heart failure/cardiogenic shock
- 2nd degree or complete heart block
- Hypotension (SBP < 90) or cardiogenic shock
- Recently (within past 1 hour) received IV ß-blocker
- Patients with a history of Wolff-Parkinson-White Syndrome (WPW)
- Sick sinus syndrome
- Ventricular tachycardia or wide complex tachycardia

Precautions

- Cautious use in patients with congestive heart failure, monitor for signs of pulmonary edema
- Cautious use in patients who are already taking antihypertensive medications, monitor for hypotension
- If possible, it is recommended that diltiazem hydrochloride be infused in its own intravenous line.

Side Effects/Adverse Reactions

- Hypotension
- Bradycardia
- Heart block

Dosage and Administration

Adult

- 0.25 mg/kg slow IVP bolus over 2 minutes (MAX 20 mg).
    - If rhythm does not convert after 15 minutes, may repeat once at 0.35 mg/kg slow IVP over 2 minutes (MAX 25 mg).

Pediatric

- Not indicated for pediatric management.

Class

Antihistamine

Pharmacologic properties

Diphenhydramine is a histamine H1-receptor antagonist that prevents the release of histamine from effector mast cells. Histamine is a vasoactive substance central to allergic reactions that induces vasodilation, vascular permeability, and bronchoconstriction. Diphenhydramine prevents histamine-mediated responses, particularly the effects of histamine on the smooth muscle of the bronchial airways, skin, gastrointestinal tract, and blood vessels.

Indications

- Acute allergic reactions (mild, moderate, or severe) Protocol 17, Protocol 17P.
- Anaphylaxis Protocol 17, Protocol 17P.
- Acute dystonic reactions associated with ingestion of phenothiazines and related drugs (haloperidol, thorazine, compazine, metaclopromide, ziprasidone) Protocol 17, Protocol 17P.

Contraindications

- Benadryl is not to be used in newborn or premature infants or in nursing mothers
- Known hypersensitivity to diphenhydramine or antihistamines

Precautions:

- May cause significant sedation or paradoxical excitation/akathisia
- Diphenhydramine has additive effects with alcohol and other CNS depressants
- Antihistamines may cause dizziness, confusion, delirium, hallucinations, and/or hypotension in the elderly (60 years or older)
- Diphenhydramine has an atropine-like action (anti-cholinergic) and therefore should be used with caution in patients with a history of bronchial asthma, increased intraocular pressure, narrow angle glaucoma, hyperthyroidism, patients taking MAOIs, cardiovascular disease or hyper-tension

Side Effects/Adverse Reactions

- Drowsiness, sedation, Confusion, Vertigo, Hyperactivity in children, Palpitations, Tachycardia, PVC's, Hypotension, Nausea, Vomiting, Diarrhea, Dry mouth, Constipation, Thickening of bronchial secretion

Dosage and Administration

Adult

- 25 mg slow IVP or IM
    - May be repeated once in 5 min. if symptoms do not subside.

Pediatric

- 1 mg/kg slow IV/IO or IM (MAX 25 mg - Do not exceed adult dose)
    - May be repeated once in 5 min. if symptoms do not subside.

Class

Adrenergic, Inotropic Agent, Vasopressor

Pharmacologic Properties

Dopamine is an endogenous catecholamine that exerts an inotropic effect on the myocardium resulting in increased cardiac output. It stimulates dopaminergic, beta-adrenergic and alpha- adrenergic receptors of the nervous system in a dose-dependent manner. Low to moderate doses (2-10 mcg/kg/min) have predominant beta-adrenergic receptor stimulating actions that result in increased cardiac output and heart rate with minimal vasoconstriction. At higher doses (more than 10 mcg/kg/min), dopamine has alpha receptor stimulating actions that result in peripheral vasoconstriction and increased blood pressure.

Indications

- Cardiogenic, neurogenic, septic, or anaphylactic shock **Protocol 35**.
- Bradycardia with hypotension refractory to Atropine **Protocol 9**.
- Pediatric bradycardia with hypotension refractory to Epinephrine **Protocol 9P**.
- Hemodynamically significant (SBP < 90 mmHg) hypotension **Protocol 9**, **Protocol 35**.
- Hypotension (SBP < 90 mmHg) not secondary to hypovolemia **Protocol 35**.
- Hypotension associated with acute CHF/Pulmonary Edema **Protocol 8**.

Contraindications

- Shock due to hypovolemia
- Dopamine should not be administered in the presence of uncorrected tachyarrhythmias or ventricular fibrillation
- Dopamine should not be used in patients with pheochromocytoma

Precautions

- Significant local tissue necrosis can occur with extravasation from peripheral IV
- Dopamine is inactivated in alkaline solution, do not use any alkaline diluent
- Patients who have been treated with monoamine oxidase (MAO) inhibitors will require substantially reduced dosage (1/10th of the regular dose)

Side Effects/Adverse Reactions

- Headache, Ectopic beats, Tachycardia, Palpitation, Nausea, Vomiting, Dyspnea

Dosage and Administration

Adult

Adult Symptomatic Bradycardia

- 10 mcg/kg/min, slowly titrated to desired effect/response up to a max of 20 mcg/kg/min.
  - Mix 400 mg of Dopamine into a 500 mL bag of NS to yield a concentration of 800 mcg/mL.
  - Mix 800 mg of Dopamine into a 500 mL bag of NS to yield a concentration of 1600 mcg/mL.

Adult Hypotension

- 10 mcg/kg/min, slowly titrated to desired effect/response up to a max of 20 mcg/kg/min.
  - Mix 400 mg of Dopamine into a 500 mL bag of NS to yield a concentration of 800 mcg/mL.
  - Mix 800 mg of Dopamine into a 500 mL bag of NS to yield a concentration of 1600 mcg/mL.

Pediatric

Pediatric Symptomatic Bradycardia

- **MCP**
- Dosage as listed for pediatric hypotension.

Pediatric Hypotension

- 5 – 20 mcg/kg/min, slowly titrated to desired effect/response.
  - Mix 400 mg of Dopamine into a 500 mL bag of NS to yield a concentration of 800 mcg/mL.
  - Mix 800 mg of Dopamine into a 500 mL bag of NS to yield a concentration of 1600 mcg/mL.

Class

Sympathomimetic

Pharmacologic Properties

Epinephrine is a sympathomimetic which stimulates both Alpha- and Beta-adrenergic receptors. Its effects are to increase systemic vascular resistance, arterial blood pressure, coronary and cerebral blood flow, heart rate and contractility. The alpha-adrenergic effect increases vascular resistance and coronary blood flow, which may make the fibrillating myocardium more susceptible to counter-shock. The beta-adrenergic effect increases heart rate and cardiac output and induces bronchodilation.

Indications

- Anaphylaxis and acute allergic reactions associated with severe systemic symptoms (BP < 90 mmHg, stridor, severe respiratory distress) in adults and pediatrics **Protocol 17**, **Protocol 17P**.
- Severe bronchospasm associated with asthma or COPD exacerbation **Protocol 8**.
- Symptomatic bradycardia **Protocol 9**, **Protocol 9P**.
- Profound hypotension **Protocol 35**.

Contraindications

- Known hypersensitivity

Precautions

- Presence of hypertension
- Epinephrine 1 mg/1 mL cannot be given intravenously in non-cardiac arrest patients
- Epinephrine is inactivated by alkaline solutions and should not be mixed with Sodium Bicarbonate

Side Effects/Adverse Reactions

- Anxiety, Headache, Cerebral hemorrhage, Tachycardia, Ventricular dysrhythmias, Hypertension, Angina, Nausea and vomiting

Dosage and Administration

Adult

Adult Anaphylaxis – Severe allergic Reactions

- 0.3 mg IM from 1 mg/1mL
  - May be repeated once in 5 minutes with no change.
- Epinephrine Auto-Injector (EpiPen) 0.3 mg IM **Procedure 18.**

Adult Acute Bronchospasm

- 0.3 mg Epinephrine (1 mg/1 mL)
  - May be repeated once in 5 minutes with no change.

Adult Cardiac Arrest

- 1 mg/1 mL
  - Using a 10 mL syringe, draw up 1 mL of Epinephrine (1 mg/mL) and dilute with 9 mL of NS to yield a concentration of 1 mg/10 mL.

Adult Symptomatic Bradycardia

- 5-40 mcg/min.
  - Mix Epinephrine (1 mg/1 mL) 10 mg (10 mL) into a 500 mL bag of NS to yield a concentration of 20 mcg/mL and attach a 60 gtt. (micro) set to run at desired dose. Start at 1 drop every 4 seconds and titrate to effect. Max dose of 40 mcg/minute.

Adult Profound Hypotension

- 5-40 mcg/min.
  - Mix Epinephrine (1 mg/1 mL) 10 mg (10 mL) into a 500 mL bag of NS to yield a concentration of 20 mcg/mL and attach a 60 gtt. (micro) set to run at desired dose. Start at 1 drop every 4 seconds and titrate to effect. Max dose of 40 mcg/minute.

Pediatric

Pediatric Anaphylaxis – Severe Allergic Reactions

- 0.01 mg/kg (0.01 mL/kg) IM from (1 mg/1 mL) (Maximum single dose of 0.3 mg)
  - May be repeated once in 5 minutes with no change.
- Pediatric Epinephrine Auto-Injector (EpiPen, Jr.) 0.15 mg IM **Procedure 18.**

Pediatric Acute Bronchospasm

- 0.01 mg/kg (0.01 mL/kg) IM from (1 mg/1 mL) (Maximum single dose of 0.3 mg)
  - May be repeated once in 5 minutes with no change.

Pediatric Croup

- 3 mg (3 mL) from concentration of (1 mg/1 mL) mixed in 3 mL of NS into nebulizer barrel.

Pediatric Cardiac Arrest/Bradycardia

- Dilute 1 mg of Epinephrine of 1 mg/1 mL with 9 mL of NS and administer at 0.01 mg/kg (0.1 mL/kg) IV/IO every 3-5 minutes as needed.

Pediatric Profound Hypotension

- 0.1 – 0.5 mcg/kg/min.
  - Mix Epinephrine (1 mg/1 mL) 5 mg (5 mL) into a 500 mL bag of NS to yield a concentration of 10 mcg/mL and attach a 60 gtt (micro) set to run at desired dose.

Class

Sympathomimetic

Pharmacologic Properties

Epinephrine is a sympathomimetic which stimulates both Alpha and Beta adrenergic receptors. Its effects are to increase systemic vascular resistance, arterial blood pressure, coronary and cerebral blood flow, heart rate and contractility. The alpha-adrenergic effect increases vascular resistance and coronary blood flow, which may make the fibrillating myocardium more susceptible to counter-shock. The beta adrenergic effect increases heart rate and cardiac output, and induces bronchodilation.

Indications

- Cardiac arrest (Ventricular fibrillation (VF) or pulseless ventricular tachycardia (VT), Asystole, Pulseless electrical activity (PEA) **Protocol 9**.
- Anaphylactic shock **Protocol 17, Protocol 17P**.
- Pediatric bradycardia and cardiac arrest **Protocol 9P.**
- Newborn resuscitation/Neonatal asystole or bradycardia **Protocol 20P**.

Contraindications

- NONE in the cardiac arrest situation

Precautions

- Epinephrine is inactivated by alkaline solutions and should not be mixed with Sodium Bicarbonate

Side Effects/Adverse Reactions

- Cerebral hemorrhage, Tachycardia, Ventricular dysrhythmias, Hypertension, Angina, Nausea and vomiting

Dosage and Administration

Adult

Adult Cardiac Arrest

- 1 mg IV/IO bolus every 3-5 minutes.

Adult Anaphylaxis - Severe Allergic Reactions

- 0.1 mg (1 mL) slow IVP

Pediatric

Pediatric Cardiac Arrest/Symptomatic Bradycardia

- 0.01 mg/kg (0.1 mL/kg) IV/IO every 3-5 minutes as needed

Pediatric Anaphylaxis - Severe Allergic Reactions

- 0.05 mg (0.5 mL) slow IVP

Class

Opioid Analgesic

Pharmacologic Properties

Fentanyl is a synthetic opioid analgesic that suppresses pain by agonizing opioid receptors in the central nervous system. Fentanyl has fewer vasoactive effects than morphine and does not induce significant histamine release. As a result, the drug does not cause significant hypotension in proper doses.

Indications

- Chest pain associated with suspected myocardial ischemia Protocol 10, Protocol 11.
- Thermal burns Protocol 18, Protocol 18P, Protocol 21, Protocol 21P.
- Pain management for frostbite Protocol 18, Protocol 18P.
- Isolated extremity injury Protocol 21, Protocol 21P.
- Pain management from suspected kidney stone Protocol 18, Protocol 18P.

Contraindications

- Hypotension (SBP < 100 mmHg) or volume depletion
- Acute alcohol intoxication
- Acute respiratory distress
- Known hypersensitivity

Precautions

- Use with caution in elderly patients
- Fentanyl is metabolized by the liver, use caution in patients with known liver disease
- Sedative effects are potentiated by alcohol, antihistamines, barbiturates, benzodiazepines, phenothiazines, and other sedatives
- A dose of 100 mcg of Fentanyl Citrate is equivalent to 10 mg of Morphine

Side Effects/Adverse Reactions

- Euphoria
- Pupillary constriction
- Decreases gastric motility
- Bradycardia
- Drowsiness
- Respiratory arrest
- Nausea and vomiting
- Chest wall rigidity

Dosage and Administration

Adult

- 1-2 mcg/kg (MAX single dose of 50 mcg) slow IV/IO bolus or IM (Max total dose of 100 mcg).
    - May be repeated once if pain relief is not attained.
- 100 mcg (single dose) Intranasal – via mucosal atomization device (MAD) – dose divided between nostrils (MAX 1 mL/nostril).

Pediatric

- 0.5 mcg/kg (MAX single dose of 25 mcg) slow IV/IO bolus or IM (Max total dose 50 mcg).
    - May be repeated once if pain relief is not attained.
- 1.5 mcg/kg single dose (Max total dose of 100 mcg) Intranasal – via mucosal atomization device (MAD) - dose divided between nostrils (MAX 0.5 mL/nostril).

Class

Pancreatic Hormone, Insulin Antagonist, Hyperglycemic Agent

Pharmacologic Properties

Glucagon is an endogenous hormone that is produced in the pancreas. It acts as an insulin antagonist, accelerating hepatic glycogenolysis and gluconeogenesis. This has the effect of increasing blood glucose concentrations. Glucagon also effectively restores force and rate of ventricular contractions in patients with symptomatic beta-blocker and calcium channel blocker overdose via stimulation of intracellular cyclic adenosine monophosphate (cAMP) production.

Indications

- Hypoglycemia (where IV access cannot be obtained) Protocol 36, Protocol 36P.
- Beta-blocker and calcium channel blocker overdoses Protocol 15, Protocol 15P.

Contraindications

- Patients with known hypersensitivity to glucagon.
- Patients with a history of pheochromocytoma or insulinoma.

Precautions

- Glucagon should be administered with caution in patients with a history of insulinoma or pheochromocytoma
- Awaken patient following administration to provide oral glucose in order to replete glycogen stores

Side Effects/Adverse Reactions

- Occasional nausea and vomiting

Dosage and Administration

Adult

Adult Hypoglycemia

- 1 mg (1 unit) IM reconstituted with saline provided

Adult Calcium Channel Blocker/Beta-Blocker Overdose

- 3 mg (3 units) slow IV/IO bolus over 3 – 5 minutes

Pediatric

Pediatric Hypoglycemia

- < 20 kg, 0.5 mg (0.5 unit) IM reconstituted with saline provided
- ≥ 20 kg, 1 mg (1 unit) IM reconstituted with saline provided

Pediatric Calcium Channel Blocker/Beta-Blocker Overdose

- 0.05 – 0.15 mg/kg slow IV/IO bolus over 3 – 5 minutes

Class

Anticholinergic, Bronchodilator

Pharmacologic Properties

Ipratropium bromide is an anticholinergic bronchodilator classified as a quaternary ammonium compound. Anticholinergics prevent the binding of acetylcholine with muscarinic receptors on bronchial smooth muscle, inhibiting bronchoconstriction. The bronchodilation effect of ipratropium is primarily local and site specific. Since it is not well absorbed systemically, there is low potential for toxicity.

Indications

- Acute bronchospasm (wheezing) associated with asthma or COPD in adult and pediatric patients Protocol 8, Protocol 8P.

Contraindications

- Hypersensitivity to ipratropium, atropine or its derivatives, soya lecithin or related food products such as soybean or lecithin

Precautions

- Use with caution in patients with narrow angle glaucoma, prostatic hypertrophy, or bladder-neck obstruction
- Contact with eyes can cause irritation and precipitation of narrow angle glaucoma

Side Effects/Adverse Reactions

- Palpitations
- Nervousness
- Dizziness
- Headache
- Nausea
- GI distress
- Dry mouth
- Cough

Dosage and Administration

- Each unit dose delivers by nebulization 0.5 mg of Ipratropium Bromide in 2.5 mL of solution.

Adult

- Administer 1 vial 0.5 mg/2.5 mL premixed single unit dose via nebulizer.
  - Initial dose is combined with Albuterol (Proventil) 2.5 mg Medication 2.
  - Atrovent may be repeated according to respective protocol, if bronchospasms are still present.

Pediatric

- < 10 kg, administer 0.25 mg (1.25 mL) into nebulizer barrel
  - Initial dose is combined with Albuterol (Proventil) 1.25 mg Medication 2.
  - Atrovent may be repeated according to respective protocol, if bronchospasms are still present.
- > 10 kg, 0.5 mg/2.5 mL into nebulizer barrel
  - Initial dose is combined with Albuterol (Proventil) 2.5 mg Medication 2.
  - Atrovent may be repeated according to respective protocol, if bronchospasms are still present.

Class

Antihypertensive, Selective Alpha and Nonselective Beta-Adrenergic Blocker

Pharmacologic Properties

Labetalol combines both selective alpha and non-selective beta blocking activity in a single substance. These actions decrease blood pressure without reflex tachycardia and without significant reduction in heart rate or cardiac output.

Indications

- Hypertensive emergencies in absence of CVA/Brain Attack Protocol 12.

Contraindications

- A history of any of the following:
    1. Asthma, emphysema, chronic bronchitis
    2. Congestive heart failure / pulmonary edema
    3. Cardiogenic shock
    4. Heart blocks > 1° or symptomatic sinus bradycardia
    5. Amphetamines and/or cocaine use

Adverse Reactions

- Orthostatic hypotension, ventricular dysrhythmia, syncope, bradycardia, heart block, dizziness, headache, tingling of the scalp/skin, numbness, vertigo, wheezing, nausea/vomiting.

Dosage and Administration

Adult

- 10 mg slow IVP over 2 minutes.
    - May be repeated once after 5 minutes if necessary to achieve the desired effect, (B/P > 200/110 regardless of presence or absence of symptoms).
        - 10 mg slow IVP over 2 minutes.

Pediatric

- Not indicated for pediatric use.

Class

Loop Diuretic

Pharmacologic Properties

Lasix is a sulfonamide derivative and potent diuretic which inhibits the reabsorption of sodium and chloride in the proximal and distal renal tubules as well as in the loop of Henle. With IV administration the effect is seen before the onset of diuresis, within 10 minutes; peaks in 30 minutes; and has a duration of 2 hours. Lasix also has a direct vasodilating effect in acute pulmonary edema.

Indications

- Acute pulmonary edema Protocol 8.

Contraindications

- Lasix is contraindicated in anuria and in patients who are allergic to sulfa. Should be used in pregnancy only when benefits clearly outweigh risks.

Precautions

- Furosemide should be protected from light. Dehydration and electrolyte imbalance can result from excessive dosages. Rapid diuresis can lead to hypotension and thromboembolic episodes.

Side Effects/Adverse Reactions

- Dizziness, tinnitus, and hearing loss if administered too fast. Hypotension, pruritus, urticaria, muscle cramping.

Dosage and Administration

Adult

- 40 mg slow IV/IO or IM if patient is not taking a diuretic.
- 80 mg slow IV/IO or IM if patient is taking a diuretic.
- 20 mg slow IV/IO or IM if SBP > 110 mmHg with no improvement after 5 min. on CPAP.

Pediatric

- Not indicated for pediatric use.

Class

Antidysrhythmic, Anesthetic

Pharmacologic Properties

Decreases ventricular automaticity and raises the ventricular fibrillation threshold.

Indications

- PVC's closely coupled (R on T) Protocol 9.
- Multi-formed PVC's in configuration Protocol 9.
- PVC's occurring in short bursts of two or more in succession Protocol 9.
- Alternative to Amiodarone for ventricular fibrillation/tachycardia Protocol 9, Protocol 9P.
- Local anesthetic for IO infusions of fluids or medications administered to the awake patient Procedure 14.

Contraindications

- Lidocaine is contraindicated in second-degree heart block, Mobitz II; complete AV block; and Stokes-Adams syndrome.
- Bradycardia with ventricular ectopy. If PVC's occur in conjunction with sinus bradycardia, the bradycardia should be treated first.

Precautions

- Lidocaine is metabolized in the liver. In patients with liver disease and low cardiac output states, e.g., acute MI, shock, congestive heart failure;
- Patients older than 70 years, has liver or renal disease, CHF, or in shock, the drip should be run at 1-2 mg/minute or half the regular rate.

Adverse Reactions

- Drowsiness, numbness, dizziness, blurred vision, tinnitus, muscle twitching, and seizures.

Dosage and Administration

Adult

Cardiac Arrest – Pulseless Ventricular Arrhythmias

- 1.5 mg/kg IV/IO Loading Bolus.
    - May repeat dose twice of 0.75 mg/kg IV/IO bolus every 5 – 10 minutes.
    - Max total dose of 3 mg/kg.

Premature Ventricular Complexes (PVCs)/Ventricular Arrythmias with a Pulse

- 1 mg/kg IV/IO
    - May repeat dose every 5 – 10 minutes up to a max total dose of 3 mg/kg.

Maintenance Infusion

- 2 – 4 mg/min IV/IO.
- Mix 2 gm in 500 mL of NS to yield a concentration of 4 mg/mL and attach a 60 gtt. (micro) set, run at 2 – 4 mg/min. (30 – 60 gtts/sec).
    - > 70 years of age or known hepatic failure/disease, begin at half the regular rate.

- IO Anesthetic
    - 40 mg slow IO bolus over 120 seconds.
        - Additional doses may be repeated as needed for pain management of the administration of medications via IO route on the awake patient.
        - Additional dose – 20 mg slow IO bolus over 60 seconds.

Pediatric

- 1 mg/kg IV/IO Loading Bolus (Max dose of 100 mg).
    - May repeat dose 1 mg/kg when maintenance infusion is initiated, and bolus has not been administered within previous 15 minutes.

- Maintenance Infusion
    - 20 – 50 mcg/kg/min.
    - Mix Lidocaine 50 mg into a 50 mL bag of NS to yield a concentration of 1000 mcg/mL and attach a 60 gtt (micro) set, set rate of administration to the desired dose calculated.

- IO Anesthetic
    - 0.5 mg/kg slow IO bolus over 120 seconds (MAX 40 mg).
        - Additional doses may be repeated as needed for pain management of the administration of medications via IO route on the awake patient.
        - Additional dose – 0.25 mg/kg slow IO bolus over 60 seconds (MAX 20 mg).

Class

Electrolyte, Anticonvulsant, CNS Depressant

Pharmacologic properties

Magnesium is a cation that acts as a cofactor of the cellular membrane sodium-potassium pump and plays an integral role in maintaining intracellular potassium levels. Magnesium is essential for energy transfer and electrical stability, and acts as a powerful antiarrhythmic - particularly in the setting of Torsades de Pointes (TdP). It is also a CNS depressant effective in the management of seizures associated with toxemia of pregnancy (pre-eclampsia/eclampsia) not affecting the mother or fetus/neonate, and a bronchodilator effective for asthma and COPD.

Indications

- Bronchospasm (wheezing) unresponsive to Albuterol and Ipratropium Bromide Protocol 8, Protocol 8P.
- Parenteral anticonvulsant for the prevention and control of seizures in severe toxemia of pregnancy and gestational hypertensive crisis (pre-eclampsia) Protocol 19.
- Torsades de Pointes (Polymorphic V-Tach) Protocol 9, Protocol 9P.
- Refractory ventricular fibrillation Protocol 9, Protocol 9P.
- Hypomagnesemia in cardiac arrest Protocol 9, Protocol 9P.

Contraindications

- Renal Failure

Precautions

- Avoid rapid IVP unless unstable
- May induce respiratory depression or apnea – Patients in a hypermagnesemic state, treat with 10% Calcium Chloride to counteract the potential hazards associated with magnesium intoxication
- Use with extreme caution in patients with myasthenia gravis, neuromuscular disease, or heart block

Side Effects/Adverse Reactions

- Loss of deep tendon reflexes, Respiratory Arrest, Hypotension, Drowsiness and Flushing

Dosages and Administration

Adult

Adult Severe Bronchospasms

- 2 grams mixed into a 50 mL of NS IV/IO over 8-9 minutes with a macro drip set at 1 drop/second.

Adult Pre-eclampsia

- 4 grams mixed into a 50 mL of NS IV/IO over 8-9 minutes with a 10 gtt (macro) drip set at 1 drop/second.

Adult Eclampsia

- 4 grams mixed into a 50 mL of NS IV/IO over 8-9 minutes with a 10 gtt (macro) drip set at 1 drop/second.
  - May be repeated once if BP remains above 160 systolic, 5 minutes after complete administration of first dose.

Adult Torsades de Pointe or Refractory VF

TdP with a Pulse: 2 grams mixed into a 50 mL of NS IV/IO over 8-9 minutes with a 10 gtt (macro) drip set at 1 drop/second.

TdP without a Pulse: 2 grams IV/IO over 2 minutes.

Pediatric

Pediatric Acute Bronchospasms

- 50 mg/kg (MAX 2 gm) mixed into a 50 mL of NS over 20 minutes with a 10 gtt (macro) drip set a 1 drop every 2 seconds.

Pediatric Torsades de Pointe or Refractory VF

Pediatric TdP with a Pulse: 50 mg/kg (MAX 2 gm) mixed into a 50 mL of NS over 8-9 minutes with a 10 gtt (macro) drip set at 1 drop/second.

Pediatric TdP without a Pulse: 50 mg/kg (MAX 2 gm) IV/IO over 2 minutes.

Class

Antidote

Pharmacologic Properties

Reduces methemoglobin to hemoglobin in low doses.

Indications

- Used for the treatment of methemoglobinemia associated with exposure to aromatic nitro, ammino, or sodium nitrite compounds Protocol 25.

Contraindications

- Absence of methemoglobinemia.

Precautions

- **WARNING** Methylene Blue is itself toxic and may produce disorientation, elevated BP, nausea, diarrhea and delayed hemolytic anemia.

Adverse Reactions

- Dyspnea, chest pain, red cell hemolysis, and arrhythmias.

Dosage and Administration

Adult

- 1 – 2 mg/kg slow IV/IO over 2 – 5 minutes.
    - Discontinue administration if hypotension occurs.

Pediatric

- 1 mg/kg slow IV/IO over 2 – 5 minutes.
    - Discontinue administration if hypotension occurs.

Class

Benzodiazepine, Anti-Convulsive, Short/Intermediate Acting Sedative/Hypnotic

Pharmacologic Properties

Midazolam is a short-acting sedative hypnotic of the benzodiazepine family that increases the action of gamma-aminobutyric acid (GABA), the major inhibitory neurotransmitter in the central nervous system causing sedative, anxiolytic, amnesic, and hypnotic effects. Midazolam depresses the limbic system, thalamus, and hypothalamus resulting in profound sedation and muscle relaxation. The inhibitory nature of the drug also provides anti-epileptic activity that terminates and prevents seizures.

Indications

- Status epilepticus Protocol 16, Protocol 16P.
- Behavioral emergencies in patients with severe agitation or aggressive behavior resulting in interference with patient care or patient/crew safety Protocol 39.
- Procedural sedation (intubation Protocol 7, Protocol 7P; electrical therapy Protocol 9, Protocol 9P.

Contraindications

- Acute alcohol intoxication or overdose
- Do not administer to neonatal patients
- Respiratory insufficiency
- Shock or coma
- Known hypersensitivity to benzodiazepines
- Acute narrow-angle glaucoma
- Concomitant use with barbiturates, alcohol, narcotic, or other CNS depressants.

Precautions

- Use extreme caution with intravenous administration - rapid IV bolus may cause hypotension and respiratory depression/arrest
- Effects are exacerbated in the elderly, and when administered to patients who have already ingested another CNS depressant (ETOH, barbiturates, GHB)

Side Effects/Adverse Reactions

Confusion, Drowsiness, Somnolence, Respiratory depression/arrest, Apnea, Hypotension, Headache, Nausea, Vomiting, Cardiac Arrest

Dosage and Administration

Adult

Adult Seizure

- 5 mg slow IV/IM
- Intranasal – via MAD – 0.2 mg/kg (Max single dose 10 mg)
    - Do not administer more than 1 mL per nostril.

Adult Electrical Therapy

- 5 mg slow IV/IM
- Intranasal – via MAD – 0.2 mg/kg (Max single dose 10 mg)
    - Do not administer more than 1 mL per nostril.

Adult Intubation with Sedation

- 2.5 mg slow IV or IM/IN (via MAD)
    - May be repeated with 2.5 mg as needed to maintain sedation to a maximum total dose of 0.1 mg/kg (MAX 10 mg)

Excited Delirium

- 2.5 mg slow IV or IM/IN (via MAD)

Pediatric

Pediatric Seizure

- 0.1 mg/kg (Max single dose 5 mg) slow IV/IO
- IM/Intranasal – via MAD – 0.2 mg/kg (Max single dose 5 mg)
    - Do not administer more than 0.5 mL per nostril.
- May be repeated once if the seizure activity continues (Max total dose of 10 mg)

Pediatric Electrical Therapy

- 0.1 mg/kg (Max single dose 5 mg) slow IV/IO
- IM/Intranasal – via MAD – 0.2 mg/kg (Max single dose 5 mg)
    - Do not administer more than 0.5 mL per nostril.

Pediatric Intubation with Sedation

- 0.05 – 0.5 mg/kg slow IV or IM/IN (via MAD)
    - Do not administer more than 0.5 mL per nostril.

Class

Opioid, Narcotic Analgesic

Pharmacologic Properties

Morphine is a narcotic analgesic which depresses the central nervous system and sensitivity to pain. It increases venous capacitance, decreases venous return and produces mild peripheral vasodilation. Morphine also decreases myocardial oxygen demand. Patients allergic to "Sulfa" drugs are NOT allergic to Morphine Sulfate.

Indications

- Pain from acute MI Protocol 10, Protocol 11.
- Burn patients without multiple trauma or head trauma Protocol 18, Protocol 18P, Protocol 21, Protocol 21P.
- Severe pain management Protocol 18, Protocol 18P.

Contraindications

- Morphine should not be given to a patient with volume depletion or hypotension. It is contraindicated in patients with head trauma, acute alcoholism, acute asthma, severe chronic obstructive lung disease, and in those who are hypersensitive to the drug.

Precautions

- Constipation, warmth, tingling, or redness under the skin, stomach pain, diarrhea, loss of appetite, dizziness, headache and anxiety.

Side Effects/Adverse Reactions

- Euphoria, drowsiness, pupillary constriction, respiratory arrest, bradycardia, hypotension, nausea and vomiting.

Dosage and Administration

Adult

- 2 – 10 mg slow IV/IO or IM
    - May repeat in small increments of 2 mg every 5 minutes until desired effects are achieved.

Pediatric

- 0.1 – 0.2 mg/kg slow IV/IO or IM (Maximum dose 5 mg)
    - May repeat in small increments of 0.05 mg/kg every 5 minutes until desired effects are achieved.

Class

Opioid Antagonist, Antidote

Pharmacologic Properties

Naloxone is a competitive opioid receptor antagonist and non-opioid centrally acting analgesics. The drug antagonizes the effects of opiates by competing at the same receptor sites, reversing the effects of respiratory depression. Onset of action is 1-2 minutes; the duration of action is 30-120 minutes.

Indications

- Naloxone is indicated for the reversal of narcotic intoxication with respiratory depression Protocol 15, Protocol 15P.
- Altered mental status (unknown cause) or CO Poisoning with respiratory depression Protocol 25.

Contraindications

- Known hypersensitivity

Precautions

- Use caution during administration as patient may become agitated or violent as level of consciousness increases
- Should be administered cautiously to persons who are known or suspected to be physically dependent on opiates, including newborns of dependent mothers – may precipitate acute withdrawal
- Naloxone has a relatively short half-life compared to many narcotics, monitor closely for the need to repeat dose
- Naloxone is not effective against a respiratory depression due to non-opioid drugs
- Patients who become responsive secondary to naloxone administration are not authorized to refuse medical care and/or transport since all such patients are considered medically incapacitated

Side Effects/Adverse Reactions

- Tremor, Agitation, Belligerence, Pupillary dilation, Seizures, Sweating, Hypertension, Hypotension, Ventricular tachycardia, Pulmonary edema, Ventricular fibrillation, Nausea and Vomiting

Dosage and Administration

Adult

- Pre-packaged 4 mg nasal spray (4 mg/0.1 mL single dose)
  - May repeat every 2 to 3 minutes in alternating nostrils as needed to improve respiratory drive to a self-sustainable level.

- In the event the pre-packaged nasal spray is not available, administer 1 mg IN via MAD
  - Do not administer more than 1 mL per nostril per single dose.
  - Make sure to alternate nostrils when repeating administration as needed.
  - May repeat every 2 to 3 minutes in alternating nostrils as needed to improve respiratory drive to a self-sustainable level.

- 0.5 mg slow IV/IO or IM.
  - May be repeated as needed to improve respiratory drive to a self-sustainable level.

Pediatric

- Pre-packaged 4 mg nasal spray (4 mg/0.1 mL single dose)
  - May repeat every 2 to 3 minutes in alternating nostrils as needed to improve respiratory drive to a self-sustainable level.

- In the event the pre-packaged nasal spray is not available, administer 1 mg IN via MAD
  - Do not administer more than 0.5 mL per nostril. Administer 0.5 mL in each nostril to give a total of 1 mg.
  - Make sure to alternate nostrils when repeating administration as needed.
  - May repeat every 2 to 3 minutes in alternating nostrils as needed to improve respiratory drive to a self-sustainable level.

- 0.1 mg/kg slow IV/IO or IM (Max total dose of 2 mg).
  - May be repeated as needed to improve respiratory drive to a self-sustainable level.

Class

Vasodilator

Pharmacologic Properties

Nitroglycerin is an organic nitrate which causes systemic vasodilation by entering vascular smooth muscle, converting to nitric oxide, and activating cGMP. This dose-dependent dilation acts primarily on the venous system, although it also produces direct coronary artery vasodilation as well. The overall result is a decrease in venous return which decreases the workload on the heart and thus, decreases myocardial oxygen demand.

Indications

- Chest pain associated with angina pectoris or suspected acute MI Protocol 10, Protocol 11.
- Acute pulmonary edema with hypertension Protocol 8.

Contraindications

- Hypertension associated with acute stroke or severe brain injury
- Systolic BP < 90 mmHg
- Phosphodiesterase-5 inhibitor use within 24 hours - sildenafil (Viagra®), 48 hours - vardenafil (Levitra®) or tadalafil (Cialis®).
- Phosphodiesterase-5 inhibitor use secondary to Pulmonary Hypertension within 24 hours - sildenafil (Revatio®) or 48 hours - tadalafil (Adcirca®).

Precautions

- Use with caution in acute inferior wall MI or right ventricular infarct (ST elevation in V4R) - be prepared to administer up to 1000 mL NS bolus if hypotension develops
- Patients on chronic nitrate therapy may require larger doses of nitroglycerine during acute anginal episodes
- Alcohol will accentuate vasodilating and hypotensive effects

Side Effect/Adverse Reactions

- Headache, dizziness, flushing, nausea and vomiting. Hypotension, reflex tachycardia. Have the patient sit or lay down during administration to avoid postural hypotension.

Dosage and Administration

Adult

Adult Cardiac Event/CHF

- 0.4 mg lingual/sublingual.
    - May be repeated every 3 – 5 minutes if the systolic blood pressure remains above 90 mmHg (Maximum total dose of 1.2 mg or 3 doses).

Adult Pulmonary Edema/CHF

- 1" (one inch) of 2% Nitro-Bid topical ointment applied to the chest wall.
    - Ensure systolic B/P ≥ 100 mmHg.

Pediatric

- Not indicated for pediatric management.

Class

Pharmacologic Properties

Indications

Contraindications

Precautions

Side Effects/Adverse Reactions

Dosage and Administration

Adult

Pediatric

DISCONTINUED

Class

Alkalizing Agent, Systemic Hydrogen Ion Buffer

Pharmacologic Properties

Sodium bicarbonate is an endogenous anion that reacts with hydrogen ions to form water and carbon dioxide. It is an alkalizing agent used to buffer acids present in the body during periods of metabolic acidosis. Its effect is to raise the serum pH. This effect is favorable in the treatment of pre-existing metabolic acidosis, hyperkalemia, tricyclic anti-depressant/salicylate (aspirin)/or phenobarbital overdose, and after profound hypoxia/prolonged cardiac arrest. Sodium bicarbonate is effective only when administered with adequate ventilation and oxygenation.

Indications

- Bicarbonate responsive metabolic acidosis precipitating cardiac arrest Protocol 9, Protocol 9P.
- Hyperkalemia Protocol 9, Protocol 9P.
- Tricyclic antidepressant Protocol 15, Protocol 15P.
- Adult traumatic injuries causing asphyxiation or crush syndromes Protocol 21.

Contraindications

- Congestive heart failure
- Alkalotic states
- Hypoxic lactic acidosis

Precautions

- Excessive bicarbonate therapy inhibits the release of oxygen, induces hyperosmolarity and hypernatremia, and produces paradoxical acidosis in myocardial and cerebral cells
- Bicarbonate does not improve the ability to defibrillate
- May inactivate simultaneously administered catecholamines
- Will precipitate if mixed with calcium chloride

Side Effects/Adverse Reactions

- Metabolic alkalosis
- Hypernatremia/Hyperosmolality
- Cerebral acidosis (paradoxical effect)
- Sodium and fluid retention which can cause pulmonary edema

Dosage and Administration

Adult

Adult Cardiac Arrest/Overdose/Hyperkalemia (8.4% Solution)

- 1 mEq/kg slow IV/IO
  - May repeat in 10 minutes, 0.5 mEq/kg.

Adult Reperfusion (Crush) Injury

- 1 mEq/kg IV/IO mixed into a 1000 mL bag of NS with a 10 gtt (macro) drip set and infused wide open.

Adult Traumatic Asphyxia (8.4% Solution)

- 1 mEq/kg slow IV/IO just prior to or during the removal of the entrapment.
  - Administration during compressed chest injuries for a prolonged period of time > 20 minutes.

Pediatric

Pediatric Cardiac Arrest/Overdose/Hyperkalemia (8.4% Solution)

- 1 mEq/kg slow IV/IO
  - May repeat in 10 minutes, 0.5 mEq/kg.

Infant/Neonate (4.2 % Solution)

- 1 mEq/kg slow IV/IO
  - Dilute 8.4% to 4.2% by discarding 25 mL of vial and drawing up 25 mL of NS to mix into vial yielding a 1:1 ration in concentration = 4.2%

Class

Antidote, Cyanide Poisoning Adjunct

Pharmacologic Properties

Nitrite ion reacts and converts hemoglobin to methemoglobin, which binds with the cyanide ion and it chemically binds in order to prevent a toxic effect.

Indications

- Cyanide, hydrogen sulfide, or sodium azide poisonings Protocol 25.

Contraindications

- No evidence of cyanide poisoning.

Precautions

- General side effects have included fatigue, weakness, and diaphoresis.

Side Effects/Adverse Reactions

- Nervous system side effects have included generalized numbness and tingling, lightheadedness, headache, dizziness, blurred vision, hypotension, seizures, confusion, and coma.

Dosage and Administration

Adult

- 300 mg (10 mL of 3% solution) slow IV over 2 – 4 minutes.
    - Dose can be diluted into a 50 mL bag of NS and infused slowly with a 10 gtt (macro) set, run at 2 gtts/sec.

Pediatric

- 0.2 mL/kg of 3% solution slow IV (Max dose of 300 mg or 10 mL) over 2 – 4 minutes.
    - Dose can be diluted into a 50 mL bag of NS and infused slowly with a 10 gtt (macro) set, run at 2 gtts/sec.

Class

Cyanide Antidote

Pharmacologic Properties

Provides a sulfur donor which causes the conversion of cyanide to thiocyanate, a less toxic compound. The toxicity of thiocyanate is half of that of cyanide and the compound is excreted easily through the urine.

Indications

- Severe cases of cyanide poisoning Protocol 25.
- Smoke inhalation, exposure to hydrogen cyanide Protocol 25, Protocol 37.

Contraindications

- None in the emergency setting.

Precautions

- None

Side Effects/Adverse Reactions

- Diarrhea

Dosage and Administration

Adult

- 12.5 g (50 mL of a 25% solution) IV/IO over 10 minutes.
    - Mix 12.5 g into a 50 mL bag of NS with a 10 gtt (macro) drip set and run at 2 gtts/sec.

Pediatric

- 1.2 mL/kg of a 25% solution (Max dose of 12.5 g or 50 mL) IV/IO over 10 minutes.
    - Mix 1.2 mL/kg into a 50 mL bag of NS with a 10 gtt (macro) drip set and run at 2 gtts/sec.

Class

Local Anesthetic

Pharmacologic Properties

Tetracaine is an ophthalmic solution that anesthetizes the eyes. The onset of anesthesia usually begins within 20 seconds and lasts up to 15 minutes.

Indications

- In the field, tetracaine is intended for use in the patient who is unable to cooperate with you in adequately flushing the eye(s) due to discomfort or pain. If flushing can be accomplished easily, tetracaine may not be needed.

Contraindications

- Allergy to any topical anesthetic.

Precautions

- Do not use the solution if it contains crystals, or if it is cloudy or discolored. For topical ophthalmic use only. Not for injection. The patient should be advised not to touch or rub the eye(s) until the effect of the anesthesia has worn off.

Dosage and Administration

Adult

- One or two drops in the affected eye as a topical anesthetic.

Pediatric

- Contraindicated in ages less than 8 years of age, unless approved by MCP.
- One or two drops in the affected eye as a topical anesthetic.

Class

Antiemetic

Pharmacologic Properties

Ondansetron hydrochloride is an anti-emetic which acts as a selective inhibitor of the serotonin 5-HT 3 receptor type. The drug binds to both central nervous system and peripheral receptors in the gastrointestinal tract to exert its effects. Its onset is a few seconds, and duration of action is 2-7 hours.

Indications

- Prevention and control of nausea and/or vomiting
- Prevention and control of nausea or vomiting post administration of Fentanyl Citrate (Sublimaze) **Protocol 10**, **Protocol 11**, **Protocol 18**, **Protocol 18P**, **Protocol 21**, **Protocol 21P**.
- The administration of Zofran requires mandatory MDFR ALS transport.

Contraindications

- Known hypersensitivity
- Known Long-QT Syndrome
- Pregnancy

Precautions

- May lengthen QT interval – patients should be placed on a cardiac monitor after administration.
- The use of ondansetron in patients following abdominal surgery may mask a progressive ileus and/or gastric distention.

Side Effects/Adverse Reactions

- Headache, Fatigue, Diarrhea, Dizziness, Abnormal ECG, Prolonged QT interval, 2nd degree AVHB.

Dosage and Administration

Adult

- 4 mg PO, One Oral Disintegrating Tablet (ODT) or 4 mg SL/SLOW IVP or IM

Pediatric

- greater than 15 kg (greater than 33 lbs)
  - 4 mg PO, One ODT or 4 mg SL/SLOW IVP or IM
- 8 – 15 kg (18 – 33 lbs)
  - 2 mg PO, Half of an ODT or 2 mg SL/SLOW IVP or IM

Class

Sedative, Analgesic Dissociative Anesthetic

Pharmacologic Properties

Ketamine is a non-competitive NMDA receptor antagonist and dissociative, amnestic, a rapid-acting analgesic anesthetic agent. Blocks the pain receptors and minimizes spinal cord activity, affecting the association pathways of the brain between the thalamus and limbic system.

Indications

- Adult patient with signs of excited delirium or violent behavior where the safety of patient and/or providers is of substantial concern Protocol 39.
- Induction agent for pharmacologically assisted intubations Protocol 7, Protocol 7P.

Contraindications

- Known hypersensitivity
- Hypertension, severe or poorly controlled
- Suspected ACS
- Relatively contraindicated in penetrating eye trauma.
- Relative contraindication in patients with known cardiovascular disease. (Ketamine causes tachycardia)

Onset & Duration

- IV within 30 seconds, duration 10-15 min.; IM within 3-4 min, duration 12-25 min

Side Effects/Adverse Reactions

- Laryngospasm: this very rare adverse reaction presents with stridor and respiratory distress. After every administration of ketamine:
  a) Prepare to provide respiratory support including bag-valve-mask ventilation and suction which are generally sufficient in rare cases of laryngospasm.
  b) Institute cardiac monitoring, pulse oximetry and continuous waveform capnography
  c) Establish IV or IO access, check blood glucose
  d) Establish and maintain physical restraint.

1. Emergence reaction: presents as anxiety, agitation, apparent hallucinations or nightmares as ketamine is wearing off. For severe reactions, consider benzodiazepine.
2. Nausea and Vomiting: always have suction available after ketamine administration. Give antiemetic as needed.
3. Hyper-salivation: Suction usually sufficient. If profound hyper-salivation causing airway difficulty, administer Atropine 0.5 mg IV.

Dosage and Administration

Adult

- 2 mg/kg slow IVP or IM (MAX 200 mg)
    - For IM administration, a second dose can be administered in a different IM injection site (Maximum total dose 400 mg).

Pediatric

- 12 years of age or older: 2 mg/kg slow IVP or IM (Max single dose of 200 mg)

Class

Anesthesia Induction Agent, Nonbarbiturate Hypnotic

Pharmacologic Properties

Etomidate is a short-acting, non-barbituate hypnotic, lacking analgesic properties used for induction of general anesthesia. The action is at the level of the reticular activating system in the brain-system. Etomidate is generally considered to have minimal adverse effect on cardiac and respiratory function. The duration of action is 3-5 minutes and excretion is through the renal system.

Indications

- To induce general anesthesia to facilitate intubation Protocol 7, Protocol 7P.
- Unconscious patient with trismus Protocol 7, Protocol 7P.

Contraindications

- Suspected sepsis
- Known sensitivity to the drug

Precautions

- Supportive airway control must be monitored and under direct observation at all times.

Side Effects/Adverse Reactions

- The most common side effects are nausea and vomiting. Can cause uncontrolled skeletal muscle activity. May cause trismus if pushed too fast.

Dosage and Administration

Adult

- 20 mg IV over 30 – 60 seconds (Max dose of 20 mg).
    - Single dose only.

Pediatric

- Pediatric > 10 years of age
- 0.3 mg/kg IV over 30 – 60 seconds (Max dose of 20 mg).
    - Single dose only.

Class

Depolarizing Neuromuscular Blocker, Skeletal Muscle Relaxant

Pharmacologic Properties

Neuromuscular blocking agent (depolarizing). Skeletal muscle relaxant, paralyzes skeletal muscles including respiratory muscles that is ultra-short-acting mimicking acetylcholine as it binds with the cholinergic receptors on the motor end plate, producing a phase 1 block as manifested by fasciculations.

Indications

- To achieve paralysis to facilitate endotracheal intubation (RSI) Protocol 7, Protocol 7P.

Contraindications

- Patients with known hypersensitivity to the drug
- Acute narrow-angle glaucoma
- Penetrating eye injuries
- Malignant hyperthermia
- Major burns, crush injuries and acute injuries after multisystem trauma that may result in hyperkalemia

Precautions

- Should not be administered unless persons skilled in endotracheal intubation are present.
- Endotracheal intubation equipment must be available.
- Oxygen equipment and emergency resuscitative drugs must be available.
- Paralysis occurs within 1 minute and lasts for approximately 8 minutes.

Side Effects/Adverse Reactions

- Prolonged paralysis, apnea, respiratory depression, dysrhythmia, hypotension, and bradycardia.

Dosage and Administration

Adult

- 1.5 mg/kg IVP

Pediatric

- 1.5 mg/kg IVP

Class

Antidote, Cyanide Poisoning Adjunct

Pharmacologic Properties

The action of hydroxocobalamin in the treatment of cyanide poisoning is based on its ability to bind to cyanide ions. Each hydroxocobalamin molecule can bind one cyanide ion by substituting it for the hydroxo ligand linked to the trivalent cobalt ion, thereby forming cyanocobalamin, which is then excreted renally. Cyanide poisoning may result from inhalation, ingestion, or dermal exposure to various cyanide-containing compounds, including smoke from closed-space fires. Sources of cyanide poisoning include hydrogen cyanide and its salts, cyanogenic plants, aliphatic nitriles, and prolonged exposure to sodium nitro-prusside.

Indications

- Known or suspected cyanide poisoning Protocol 25.
- Patients showing signs of shock secondary to smoke inhalation Protocol 37.
    - Signs/symptoms may include:
        - Patients trapped in a compartmentalized fire for extended periods of time
        - Severe respiratory distress/depression
        - Altered mental status/unconsciousness
        - Hypotension
        - Obvious cyanosis
        - ETCO2 < 29mmHg
        - Cardiac Arrest

Contraindications

- Known Hypersensitivity

Side Effects/Adverse Reactions

- Red-colored urine, Red-colored skin and mucous membranes, acne-like rash
- Nausea, vomiting, diarrhea, bloody stools, trouble swallowing, stomach pain
- Headache, dizziness, memory problems, restlessness
- Infusion site reaction
- Eye swelling, irritation, or redness
- Swelling of feet and ankles
- Irregular heartbeat, increased heart rate
- Fluid in Lungs

Dosage and Administration

Adult

- 5 gm IV infusion over 15 minutes at a rate of 15 mL/min (approximately 4 gtts/sec) with vented tubing
    - Mix 200 mL of NS into the vial with 5 gm using the transfer spike to yield a concentration of 25 mg/mL, filling up to the line and mix well by repeatedly inverting or rocking (do NOT shake) the vial for at least 60 seconds to reconstitute medication and hang with supplied vented IV tubing.

Pediatric

- 70 mg/kg IV, recommended infusion - run at 1 gtt/sec, no more than 1 min/kg.
    - Mix 200 mL of NS into the vial with 5 gm using the transfer spike to yield a concentration of 25 mg/mL, filling up to the line and mix well by repeatedly inverting or rocking (do NOT shake) the vial for at least 60 seconds to reconstitute medication and hang with supplied vented IV tubing.
    - Administration example
        - 10 kg patient – 70 mg/kg x 10 kg = 700 mg
        - Recommend rate of administration 1 min/kg x 10 kg = MAX of 10 minute administration at 1 gtt/sec

Class
Hemostatic Agent, Antifibrinolytic, Plasminogen Inactivator

Pharmacologic Properties

Tranexamic Acid (TXA) is a synthetic derivative of the amino acid lysine that forms a reversible complex that displaces plasminogen from fibrin resulting in the inhibition of fibrinolysis leading to an improved homeostasis in the traumatic patient with significant hemorrhage. It also inhibits the proteolytic activity of plasmin, basically, TXA inhibits fibrin clots from being dissolved or degraded in the body by plasmin that aids in the reduction of mortality due to bleeding in the trauma patient.

Indications

TXA use should never supersede field bleeding control techniques and rapid transport to a Trauma Center.

Adult patients with systolic blood pressure less than 90 **AND/OR** a sustained HR greater than 110 beats per min **or** Pediatrics with age-appropriate shock Protocol 21P, due to any **ONE** of the following that occurred within 3 hours of injury or child birth:

- Trauma Alert Patients with torso injuries and/or amputations (not controlled by tourniquets, hemostatic agents, and/or wound packing)
- Uncontrollable bleeding from shunts, fistulas, etc.
- Severe postpartum hemorrhage
- Tactical Field Care for uncontrolled hemorrhage Protocol 38.
- Any patient in TRAUMATIC ARREST for whom resuscitation efforts have been initiated or are ongoing.

*May be considered at the discretion of the on-scene OIC based on their assessment of the patient's condition and the benefits/risk.

Contraindications

- More than three **(3) hours** from time of injury or child birth
- Hypersensitivity
- Suspected MI, Stroke, or Pulmonary Embolism
- Isolated head injuries
- Patients less than 5 years of age
- Do not infuse concurrently in the same IV line with blood products or Hextend®.

Side Effect/Adverse Reactions

TXA potentially can possess the risk of venous and arterial blood clots (thromboembolisms), therefore the use should be cautious and selective to meet the specific population of patients listed. Hypotension (with rapid IV injection), dizziness, allergic dermatitis, diarrhea, headache, nausea, vomiting, blurred vision.

Dosage and Administration

Adult

- 2 grams slow IVP

Pediatric

- 15 mg/kg IV slow IVP

***Note – Not indicated for pediatrics less than 5 years old.**

A. General Guidelines for Oxygen Administration

Oxygen will be administered utilizing the most appropriate device in order to achieve an Oxygen saturation greater than 94%.

EMR / BLS

1. Consider high flow oxygen (10-15 L/min) via non-rebreather facemask or BVM to all of the following but not limited to:

    a) Patients in congestive heart failure (CHF) or with suspected pulmonary edema.

    b) Patients with obstructive pulmonary disease in severe respiratory distress.

    c) Patients with upper airway burns and toxic inhalations.

    d) Patients experiencing significant PVC's Protocol 09 (**ALS Only)**

B. Chronic Obstructive Pulmonary Disease (COPD)

1. If the patient is showing signs of respiratory distress, administer high-flow oxygen as in any other critical patient.

2. If the patient is awake, alert and not showing signs of respiratory distress and on home oxygen therapy, administer oxygen via nasal cannula at 1 L/minute higher than their rate at home. If the home oxygen rate is not known or if the patient is awake, alert and not showing signs of acute respiratory distress, administer oxygen at 3 L/minute via nasal cannula and monitor respirations

A. Procedure

ALS

1. Prepare equipment:
   a) Nebulizer kit
   b) Reservoir tube
   c) Oxygen supply
   d) Proper medication and dosage
   e) Oxygen supply tubing
2. Place the correct amount of medication in the bottom half of nebulizer barrel (The bottom of the nebulizer can be identified by the oxygen connection port).
3. Connect the upper half of the nebulizer to the barrel.
4. Connect the "T" shaped directional tubing on top of the nebulizer barrel or connect barrel to a face mask.
   a) Only use the aerosol face mask designed for the nebulizer. DO NOT use ordinary oxygen masks.
5. Connect a mouthpiece to the "T" tubing.
6. Connect the reservoir tubing to the other end of the "T" tubing.
7. Connect oxygen supply tubing to the bottom of the nebulizer and oxygen supply.
8. Adjust the oxygen supply to 5 - 6 L/min (depending on the flowmeter and nebulizer specifications) to obtain a mist of medication. Only use non-humidified oxygen.
9. Nebulizer must be held upright for medication to be nebulized.

A. Introduction

1. This procedure will be followed to verify correct tube placement during ALL field intubations including oral-tracheal and naso-tracheal intubations. The tube placement will be assessed immediately following insertion, after the patient is moved, and periodically throughout the management of the patient.
2. If there is any indication of esophageal intubation at any time, the tube will be removed and the patient ventilated for 1-2 minutes. An attempt at re-intubation can then be performed.
3. Documentation of tube placement in the ePCR will be done during any attempt (successful or unsuccessful), periodically throughout transport, any significant change in patient status and upon release to another unit or hospital.

B. Procedure

ALS

1. Attach the capnographer in-line with the BVM to obtain an initial ETCO2 and waveform to verify proper placement during ventilations. Document in the ePCR an initial ETCO2 as early as possible as well as the ETCO2 upon release of the patient.
2. If the capnographer is unavailable, attach the TubeChek-B®. Rapid bulb inflation (<30 seconds) supports the assessment of endotracheal intubation.

NOTE: The TubeChek-B® may not be reliable if utilized on patients who have significant gastric distension, have been previously ventilated through an ET tube, or who have received prolonged BVM ventilation.

3. Ventilate through the tube and observe for symmetrical chest rise.
4. Auscultate the following areas:
   a) Over the epigastrium (upper left quadrant).
   b) Over the right then left anterior bases; along the mid-axillary line at the 7-8th ICS.
   c) Over the right then left apices; midway between the suprasternal notch and the 4th ICS.
5. Note the lung compliance. The bag should be relatively easy to compress during ventilations.
6. Upon confirmation of the tube placement, note the cm. mark of the proximal end of the tube as compared to the front teeth. This will be documented in the ePCR upon initial intubation and release to hospital.
7. Attempt to obtain and document a pulse oximetry reading. Readings may be inaccurate or difficult to obtain in patients with poor peripheral perfusion.
8. Upon hospital release, and after documentation has been finished, complete a LifePak Data Transfer with the ePCR Procedure 40.These data transfers are required by law.

A. Introduction

Endotracheal medication administration is indicated only as an absolute last resort when IV, IO (or Intra Nasal for Narcan) access is delayed or unavailable. The only medications that can be administered via the ET tube include Lidocaine, Epinephrine, Atropine, and Narcan (naloxone) (**L.E.A.N.**).

B. Procedure

General Care

ALS

1. Medications to be administered via the ET tube should be administered at a dose two times the usual IV dosage unless otherwise specified. Medications will be mixed with Normal Saline to achieve a 10ml solution for placing into the ET tube.

2. If CPR is in progress, stop chest compressions and inject the medication into the ET tube.

3. Use the BVM to deliver several quick ventilations to aerosolize the medication.

4. Resume CPR if indicated.

A. Introduction

1. Signs and symptoms of tension pneumothorax should be assessed prior to initiating pleural decompression. Signs and/or symptoms that indicate tension pneumothorax generally point to cardiopulmonary compromise and may include any combination of the following:

   a) Marked dyspnea

   b) Absent unilateral breath sounds.

   c) Signs of shock.

   d) Pale/cyanotic skin.

   e) Jugular vein distention.

   f) Decreased compliance during BVM ventilations.

   g) Tracheal deviation. (Usually a late sign).

   h) Subcutaneous emphysema.

B. Procedure

Adult Care

ALS

1. Identify the second intercostal space along the mid-clavicular line.

2. Prep the area with an antiseptic prep.

3. **Insert a 10 or 14 gauge**, 3 ¼ inch IV catheter over the top of the third rib on the affected side. You should note the presence or absence of evacuating air through the catheter following insertion. This information must be relayed to the MCP and documented on the ePCR.

4. The mid-clavicular approach is the preferred method, but if there is significant trauma to the anterior portion of the chest, use the intercostal space above the sixth rib mid-axillary on the affected side.

5. The catheter should be inserted until air is released through the needle.

6. Secure the catheter in place with tape.

Pediatric Care

ALS

1. Identify the second intercostal space along the mid-clavicular line.
2. Prep the area with an antiseptic prep.
3. **Insert an 18 gauge**, 1¼ inch IV catheter over the TOP of the third rib. You should note the presence or absence of evacuating air through the catheter following insertion. This information must be relayed to the MCP and documented on the ePCR.
    a) For infants < 1 year**, insert a 20 gauge** catheter.
4. The catheter should be inserted until air is released through the needle.
5. Secure the catheter in place with tape.

A. Introduction

Any injury to the thorax, neck, back, or upper abdomen that has a break to the integrity of the skin should be considered penetrating until proven otherwise.

B. Procedure

General Care

EMR/BLS

1. Cover the injury with an occlusive dressing large enough to overlap the wound edges.
2. If open wound to the chest, tape the occlusive dressing on three sides to provide a flutter valve effect on the front entrance wound. If other open wounds, tape the occlusive dressing on four sides.
3. Place a gauze dressing over the occlusive dressing and bandage in place.
4. Constantly reassess the patient for development of a tension pneumothorax. If a tension pneumothorax develops, raise the un-taped edge of dressing in an attempt to relieve the tension. If this does not relieve the tension then go to the Chest Decompression Procedure 5
5. If open wound to the neck, use sterile occlusive dressing covered by bulky dressing. Secure with roller bandage wrapped around the injured side of the neck and the uninjured (opposite) armpit.
6. If open wound to the abdomen or visible evisceration, use a moist sterile dressing. Cover the moist sterile dressing with an occlusive material (plastic package from multi-trauma dressing, aluminum foil, etc.). Secure the dressing in place using bandages or tape.
7. Impaled object should never be removed from the body unless they interfere with the performance of cardiopulmonary resuscitation (CPR). If an object must be removed to perform adequate CPR, pack the wound with gauze to tamponade the bleeding. Apply sterile dressings over the wound and around the impaled object. Stabilize the object with bulky dressings on all four sides. Bandage in place using sufficient pressure and bulk to control bleeding and stabilize the object without impeding circulation.

A. Indications

1. Spontaneously breathing patients who require a more patent and/or protective airway.

B. Contraindications

1. Apneic patient.
2. Known or suspected facial fractures or a basilar skull fracture.
3. Patients less than eight years of age.

NOTE: Patients who are unconscious or without a gag reflex should be orotracheally intubated in order to secure the largest diameter airway possible

C. Procedure

ALS

1. Prepare equipment:
   a) Endotracheal tube with a outside diameter just smaller than the patient's nostril (minimum 7 mm or greater)
   b) 10-12 mL syringe
   c) Water soluble lubricant or 2% Xylocaine gel
   d) BAAM™ (Beck Airway Airflow Monitor)
   e) Benzocaine spray
   f) BVM with supplemental O2
   g) Stethoscope
   h) Veni-Gard™ or 1" tape for securing the tube
   i) Capnographer
   j) Personal protective equipment (minimum of gloves, goggles/eye protection, and mask)
2. Form the tube in a "U-curve". This can be accomplished by inserting the distal end into the 15 mm adapter, making a loop and allow it to sit while you continue to prepare the equipment.
3. Liberally lubricate the distal end of the tube with a water soluble gel, preferably 2% Xylocaine gel.

4. Attach the BAAM™ to the proximal end of the tube.

5. Administer Benzocaine spray towards the posterior oropharynx (no longer than two seconds) in order to control the gag reflex. Topical anesthesia should occur in approximately 30 seconds.

6. Gently advance the tube into the most patent nostril along the floor of the nasal cavity. NEVER DIRECT THE TUBE UPWARD.

7. Listen for the whistling sound from the BAAM™ as the tube is advanced through the pharynx towards the glottic opening. Sounds may be increased by closing the other nostril and the mouth.

8. When sounds are loudest and misting of the tube is noted, the tube should be near the glottic opening. If at any time the whistle sound becomes distant or absent, withdraw the tube slightly and gently rotate the tube towards the midline and advance again.

9. Once at the glottic opening, insert the tube completely on the next inhalation. If the patient is able, instruct them to take a deep breath. Insert the tube completely until the 15 mm adapter is at the nostril.

10. Inflate the cuff and confirm placement Procedure 03

11. Secure the tube with tape or the Veni-Gard™.

12. For all patients, immobilize the head with a C-collar and blanket roll/Headbed™ to prevent dislodging of the tube secondary to movement of the head.

13. Reconfirm and document proper placement Procedure 03

D. Special Considerations

1. During nasal intubation of the trauma patient with a suspected C-spine injury, care must be taken to maintain in-line stabilization at all times during this procedure.

2. During nasal intubation of the non-trauma patient, it may be helpful to slightly turn the patient's head towards the side of the nostril in which the tube is inserted in order to guide the tube into the glottic area. This should only be done after the tube is through the nares into the pharynx.

Cricothyrotomy is indicated as a last resort to secure an otherwise unmanageable airway. Prior to the institution of this procedure, all other less invasive methods of airway management should be attempted.

A. Needle Cricothyrotomy (14 gauge catheter)

ALS

1. Place the patient supine
2. Assemble equipment:
   a) 14 gauge Angiocath
   b) Oxygen supply tubing
   c) 50 psi O2 source
   d) Antiseptic prep
3. Manually stabilize the head and neck.
4. Identify the cricothyroid membrane.
5. Prep the area with an antiseptic swab.
6. Stabilize the thyroid cartilage.
7. Puncture the skin midline directly over the cricothyroid membrane on a 90 degree angle and enter the trachea.
8. Aspirate air to confirm placement in the trachea.
9. Prior to further advancement, direct the Angiocath 45 degrees towards the feet.
10. Withdraw the needle while advancing the catheter to the hub.
11. Secure the catheter to the patient.
12. Ventilate the patient using transtracheal jet ventilation.

NOTE: Though the 14g needle technique requires fewer steps, it has significant disadvantages:

1. Transtracheal jet ventilation is required when using a 14g catheter.
2. The small lumen of the catheter does not allow adequate airflow to maintain adequate ventilation using conventional ventilation
3. The thin plastic 14g catheter bends very easily and can thus cut off airflow.

B. Transtracheal Ventilation

NOTE: This equipment should be prepared ahead of time and stored.

1. A few inches from the distal end of the oxygen supply tubing, bend tubing over and cut a corner off the tubing to create a small hole.
2. Remove the plunger from a 1cc syringe. Cut off the distal end of the 1cc syringe and insert it into the end of oxygen supply tubing.
3. Connect the 1cc syringe with oxygen tubing to the catheter hub in the patients trachea.
4. Connect the other end of the of oxygen tubing to an oxygen source set at 15 L/min
5. Place a finger over the hole that was made in the oxygen tubing and watch for chest rise.
6. Ventilate the patient using the 1:2 rule. This is allowing one unit of time for ventilations (chest rise) and two units of time for exhalation.
7. Reassess the patient.

C. Surgical Cricothyrotomy

A consideration should be given to performing a surgical cricothyrotomy, as a last means if unable to secure a patent airway. This procedure can only be performed by individuals familiar with the procedure and only after receiving authorization from Medical Control. If there is a delay in establishing contact with Medical Control, perform the procedure and advise Medical Control as soon as possible.

ALS

1. Place patient in supine position.
2. Stabilize the head and neck.
3. Use the Surgical Cricothyrotomy Kit (pre-packaged) or Assemble equipment if the kit is unavailable:
    a) Antiseptic prep
    b) Scalpel
    c) Curved forceps
    d) 6.0 mm cuffed ET tube
4. Identify the cricothyroid membrane.
5. Cleanse area with antiseptic wipe.
6. Continually hold skin taut over the thyroid cartilage.

7. Make a 1 inch vertical incision through the skin over cricoid membrane to expose the trachea.

8. Make a horizontal puncture over the cricothyroid membrane with the scalpel.

9. Open the puncture with a gloved finger or curved forceps if available.

10. Insert the ET tube into the puncture. Always direct the tube distally.

11. Inflate the cuff, ventilate the patient with a BVM and secure the tube.

Introduction

Wound packing is for compressible (external) hemorrhage not amenable to limb tourniquet use or as an adjunct to tourniquet downgrade/conversion.

Procedure

BLS

1. Identify the extent of injury and bleeding site.
2. Open foil pouch and remove hemostatic dressing. If hemostatic dressing is not available, use gauze roll dressing.
3. Identify the source of bleeding.
4. With the dressing, apply direct digital pressure to the source of bleeding.
5. Pack dressing completely into the wound track. Use enough of the dressing to fill the wound and contact all bleeding surfaces. More than one dressing may be required.
6. Pack an absorbent dressing in a gauze roll, on top of the hemostatic dressing(s)
7. Apply constant pressure to the bleeding site for at least 3 minutes.
8. Secure the entire dressing with a pressure bandage.

A. Introduction

The pulse oximeter measures the oxygen saturation of hemoglobin and is expressed as SpO2. When available, it should be used in the assessment of all patients treated by Fire Rescue.

B. Oxygen Saturation Values

NOTE: The pulse oximeter will require at least eight pulse beats to identify a change in saturation.

1. The following guidelines will be used for assessing the severity of respiratory distress using the pulse oximeter when the patient is breathing room air (prior to oxygen administration):

    a) 95-99% Normal SpO2 **reading**.

    b) 90-94% Mild hypoxemia.

    c) 85-89% Moderate hypoxemia.

    d) < 85% Severe hypoxemia.

NOTE: Patients presenting with a SpO2 reading ≤ 91% will be managed accordingly and transported ALS by Rescue to the closest appropriate facility.

2. Oxygen saturation values alone should not be used as the basis for assessing the clinical condition of the patient (**see (E) Precautions**).

3. Patients exhibiting signs/symptoms of respiratory distress, regardless of the oxygen saturation values, will be re-evaluated and treated per the appropriate protocol and require ALS transport.

C. Procedure

BLS

1. Assemble the equipment:

    a) Pulse oximeter

    b) Adult non-disposable finger probe (if applicable)

    c) Pediatric non-disposable finger probe (if applicable)

2. Choose the appropriate probe (see Adult/Pedi sections below) and attach it to the unit. The probe is designed to transmit light through the cuticle of the nail bed or other peripheral tissue.

3. Firmly depress the "ON" key to power up the unit. After eight pulse beats, the oxygen saturation and pulse rate will be displayed.

4. Document on the ePCR, the initial reading of, the SpO2 after each subsequent set of vital signs, and upon release to a hospital or other transport unit (ALS/BLS, Air Rescue).

Adult Care

5. Appropriate attachment sites for patients > 45 kg:

   a) Attach the non-disposable finger probe on a finger or toe. Make sure the probe is positioned to allow the light to pass through the cuticle (base) area of the nail. Remove dark nail polish.

Pediatric Care

6. For patients 15-45 kg follow Adult Care guidelines.

7. For patients < 15 kg utilize the appropriate attachment.

D. Additional Considerations for Use

1. To evaluate distal circulation to an extremity with a fracture(s) or soft tissue injury.

2. To identify the need for more aggressive intervention (i.e., a patient on oxygen who continues to decline in saturation may require assistance with a BVM and intubation).

E. Precautions

1. The following are conditions which may limit the effectiveness and reliability of pulse oximetry readings:

   a) Carbon monoxide inhalation (may indicate a higher SpO2 than normal).

   b) Nitrate & Nitrite poisonings/Methylene Blue administration Protocol 25

   c) Low perfusion states, i.e. hypotension and cardiac arrest (may not register a SpO2 reading).

   d) Anemia, including Sickle cell.

   e) Hypothermia or cold extremities.

   f) Active seizures.

   g) Dark nail polish (when finger probe is used).

   h) Bright lighting (may affect reading from probe's infrared light source).

F. Maintenance

1. **Cleaning:**

   a) Clean unit as needed with a soft cloth moistened in water or a mild soap solution.

   b) If disinfecting is necessary, wipe surfaces of the unit with isopropyl alcohol.

   c) The case can be washed in the station washer using Fire-Rescue issued anti-bacterial soap and allowed to air dry.

2. **Batteries:**

   a) The unit uses six standard alkaline "AA" cell batteries that can be replaced as needed.

   b) Battery life is 24 hours in continuous mode or 80 hours in spot check mode.

   c) The low battery indicator lights when there is approximately two hours of battery use remaining.

3. For **repairs or replacement**, contact EMS R&D and submit and EMS equipment service request.

A. Introduction

The capnographer measures expired carbon dioxide as expressed as end-tidal CO2 (ETCO2). Capnography will be used to assist in verifying that an advanced airway has been correctly placed and maintained.

B. Indications for Use

1. To confirm initial tube placement in all intubated patients.
2. For continuous monitoring of tube placement throughout patient care and transport.
3. To identify the proper ETCO2 values when providing treatment to patients exhibiting signs of brainstem herniation Protocol 36 Protocol 21
4. To confirm the placement of an endotracheal tube upon release of a patient at the Emergency Department or other transport unit.

C. Normal Values

NOTE: The capnographer will require approximately six breaths to display a change of ETCO2.

1. The following guidelines will be used for patients with a pulse and/or blood pressure:
   a) 35-45mmHg Normal ETCO2 values.
   b) 46-50mmHg Mild hypercarbia.
   c) >50mmHg Severe hypercarbia.
   d) 35 - 40mmHg Maintain for increased intracranial pressure management (ICP).
2. A return of spontaneous circulation (ROSC) will be indicated during resuscitation following a rhythm change and a corresponding increase of >20 mmHg ETCO2 value.

D. Procedure

ALS

1. Attach $ETCO_2$ Filter Tubing to LP12/LP15. Be sure the port is clear before insertion.
2. Reading will be displayed in LP12/LP15 display on lower left side.
3. Attach the 15 mm adapter in-line with the ventilation device and the ET tube and after six breaths, note the ETCO2.
4. As a minimum, an initial ETCO2 reading upon receipt of a patient and a reading upon release of a patient must be documented on the ePCR. Additionally, once tube placement has been confirmed, select “confirm tube” in Event selection of LP12/LP15.

E. Precautions

1. In a patient with spontaneous circulation, if the $ETCO_2$ value is below 15 mmHg, proper ET tube placement must be verified by other means Procedure 03, preferably direct visualization.

2. Decreasing $ETCO_2$ values during CPR may indicate:

   a) An excessive ventilation rate (hyperventilation)

   b) Poor CPR

   c) Circulation of high-dose Epinephrine (causing profound vasoconstriction)

3. If CO_2 filter-line purging message appears on LP12/LP15 screen, the ETCO2 Filter Tubingcan be twisted, kinked or clogged with fluid. Check for kinks and if unresolved, disconnect the ETCO2 Filter Tubing from the LP12/LP15 and reconnect. If needed, change ETCO2 Filter Tubing.

Caution: When delivering medications via ET tube, make certain six positive pressure ventilations follow medication administration to avoid clogging of the ETCO2 Filter Tubing and loss of ETCO2 readings.

F. Maintenance

1. For repairs and replacement, contact an EMS Field Supervisor.

ALS

1. Prepare equipment:

a) Salem sump tube

1. Only vented tubes may be used.
2. Available in 10, 12, 14, and 16 French sizes.
3. Size used is dependent on size of nasal passage.
4. 8 French unvented feeding tubes may be used for newborns and small infants using the same procedure as follows.

b) Catheter tip syringe (Toomey syringe)

c) Suction

d) Stethoscope

e) Lubricant

2. Size and measure the tube:

a) Always choose the largest tube to fit into the nares.

b) Measure the distance a nasogastric tube is to be passed to ensure placement in the stomach.

1. Measure the distance on the tube from the patient's ear lobe to the bridge of the nose, PLUS, the distance from the bridge of the nose to the bottom of the xiphoid process.

2. Mark the distance with a piece of tape or note the tube markings.

3. Placement of the tube:

a) Lubricate the tube.

b) Gently insert the tube into one nostril, directing the tube downward along the floor of the nose.

c) Insert the tube until the marked area is at the nares. Encourage the patient to swallow, if able.

d) Secure the tube in place with tape, taking care not to pull the tube upward on the nostril. Do not block the other nostril.

e) Restrain the patient as needed to prevent tube dislodgment.

4. **Test for tube position:**

   a) Gently aspirate the tube with the syringe. Correct placement is obtained if stomach contents are obtained.

   b) Gently instill 5-15 mL of air into the tube while listening over the stomach for a "whooshing" sound, using a stethoscope.

General Information

1. For suctioning, use only the Toomey syringe. DO NOT use the suction machine.
2. The sump vent is to be left open during transports and while suctioning.
3. Keep the vent above the patient's midline to prevent reflux (back flow) through the vent.
4. If reflux occurs, inject 5-10 mL of air through the vent tube, repeat if necessary.

Intravenous (IV) access shall be established anytime a patient requires fluid/medication therapy or in the event that the need for fluid/medication therapy may arise during care of the patient. In the event peripheral IV access cannot be established in the hemodynamically unstable critically ill or injured patient, intraosseous (IO) access Procedure 14 will be utilized. Patients treated under this procedure will be transported ALS via Miami-Dade Fire Rescue.

A. Procedure

ALS

1. Choice of sites:

    a) For maintenance infusions (KVO) use peripheral sites such as the hand, wrist, and forearm.

    b) For fluid administration, use the largest applicable vein

    c) For patients with reduced cardiac output (shock, cardiac arrest, etc.) every attempt should be made to establish access in a vein above the diaphragm, i.e., the antecubital or external jugular.

    d) Precautions - Avoid using veins in extremities affected by:

        - Burns
        - Rashes or skin infections
        - Fractures or dislocations
        - Mastectomy
        - Dialysis shunts and fistulas

2. Inserting an IV

    a) Assemble and prepare the necessary equipment:

        1. Constricting band(Tourniquet)
        2. IV Catheters
        3. Alcohol preps
        4. Sharps container
        5. Veniguard
        6. IV extension set (Saline Lock) with prefilled saline flush syringe.

            a. Attach the syringe to the saline lock and flush with 1-2mL to fill the tubing with saline and remove air from tubing.

    b) Use aseptic technique and clean the insertion site with an alcohol prep

    c) Apply a constricting band above the insertion site

d) Insert the IV

1. Hold IV catheter hub in dominant hand with bevel side up at 10-15 degree angle.
2. Advance catheter into vein until blood returns into lumen of needle or flashback chamber of catheter. Then advance catheter 1/4 inch farther into the vein.
3. Advance the catheter over the needle into the vein until hub is at venipuncture site.
4. Release tourniquet.
5. Apply pressure above catheter insertion site and remove needle.
6. Dispose of needle in sharps container.

e) Attach saline lock with attached saline flush syringe to the catheter hub.

f) Flush the IV with 3-5mL of saline

g) Secure the IV with the veniguard device creating a loop in the saline lock.

3. A primary IV line will be established as follows:

a) For patients **not** requiring intravenous fluid boluses or medication administration, the saline lock will be the primary IV line.

b) For patients requiring intravenous medication administration, a 10ml saline flush syringe shall be used after each administration of medication. A Normal Saline bag should not be used for these patients.

c) For patients requiring intravenous fluid administration, use a regular drip (10 drops/mL or 15 drops/mL) infusion set and a 1000ml bag of Normal Saline. For patients requiring volume replacement in excess of 1-2 liters, use the "Y-type" infusion set **(FOR ADULTS ONLY**).

d) Use a mini-drip (60 drops/mL) for all intravenous infusions of medication (i.e. Amiodarone, Dopamine, Magnesium and Diltiazem). The 50ml, 100ml, and 500 mL bags of Normal Saline are available for mixing IV medication infusions.

Intraosseous (IO) access is an option only when IV access is unavailable. Once established, IO is as effective in delivering medications and fluids as IV.

Indications:

Intraosseous (IO) access is only for use during cardiac arrest, the hemodynamically unstable critically ill or injured patient, or authorization from MCP. In pediatric cardiac arrest, IO is the preferred route if no IV access has been established.

Contraindications:

-Fracture of the bone at the proposed intraosseous site.
-Infection at the area of insertion.
-Excessive tissue (severe obesity) and/or absence of adequate anatomical landmarks
-Previous intraosseous insertion or attempt within previous 48 hours in the targeted bone
-Prosthesis or orthopedic procedure near the insertion site.

A. Procedure-EZ-IO

ALS

APPROVED SITES:

Proximal Tibia- (adult and pediatric patients)

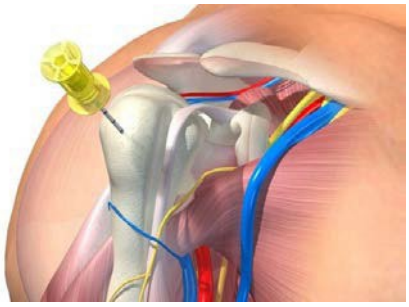
The proximal tibia insertion site is approximately 2 cm below the patella and approximately 2 cm medial to the tibial tuberosity (depending on patient's anatomy). Aim the needle set at a 90-degree angle to center of the bone.

Proximal Humerus- (Adults only)

The proximal humerus insertion site is located directly on the most prominent aspect of the greater tubercle. Ensure that the patient's hand is resting on the abdomen and that the elbow is adducted (close to the body). The hand may be pronated on the side of the body if unable to bend or move the arm. Slide thumb up the anterior shaft of the humerus until you feel the greater tubercle, this is the surgical neck. Approximately 1 cm (depending on patient anatomy) above the surgical neck is the insertion site. This is the preferred site for patients who are responsive to pain. Once the insertion is completed secure the arm in place to prevent movement and accidental dislodgement of the IO catheter. Point the needle set tip at a 45-degree angle to the anterior plane and posteromedial.

Distal Femur-(Pediatric only)

Secure the leg **outstretched** to ensure the knee does not bend. Identify the patella by palpation. The insertion site is just proximal to the patella (maximum 1cm) and approximately 1-2 cm **medial** to midline. Aim the needle set at a 90-degree angle to center of the bone.



Proximal Humerus-(Adults only)



Proximal Tibia



Distal Femur (Pediatric only)

PLACEMENT:

1. Locate an insertion site.

2. Clean the insertion site.

3. Select the appropriate needle.

   Medium (blue) 25 mm needle: weight 40 kg or less

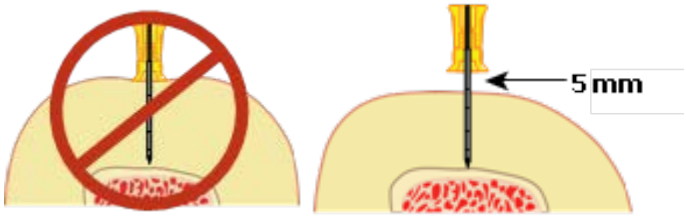
   Large (yellow) 45 mm needle: weight less than 40 kg and patients with excessive tissue over insertion sites.

4. Remove the needle from the case. Attach the needle onto the power driver, and make sure that it is securely seated.

5. Remove and discard the needle set safety cap from the needle.

6. Insert the EZ-IO needle onto the site.

7. Prior to pressing the trigger, push needle through skin until tip touches bone. Five (5) mm of the catheter (at least one black line) must be visible outside the skin.



8. Squeeze trigger and apply moderate steady pressure.

Pediatrics:

Release trigger when sudden “give” or “pop” is felt, indicating entry into medullary space.

Adult:

Advance Needle Set approximately 1-2 cm after entry into medullary space; in Proximal Humerus for most adults Needle Set should be advanced 2 cm or until Hub is flush or against the skin.

9. Remove the power driver and needle stylet.

10. Confirm that the catheter is stable and secure with EZ-Stabilizer.

11 Attach a primed EZ-connect extension set to the Hub, firmly secure by twisting clockwise.

12. Flush the EZ-IO with normal saline (0.9% Sodium chloride) (5-10 ml for adults; 2-5 ml infant/child).

    a. Prior to flush, aspirate slightly for visual confirmation of bone marrow.

    b. Failure to appropriately flush the EZ-IO Catheter may result in limited or no flow. Repeat flush as needed.

    c. Once EZ-IO Catheter has been flushed, administer fluids or medications as indicated.

13. Attach a pressure infuser (if needed).

14. Following the administration of any IO medications, flush the IO line with IV fluid.

15. Document the procedure, on the electronic patient care report (ePCR)

A. Introduction

The proper use of a stretcher is a vital component of both comfort and continued safety of patients being transported by Miami-Dade Fire Rescue Units. Utilizing all straps outlined in this procedure is mandatory to ensure the safe operation of the stretcher.

B. Types of Restraints

1. Stryker's manufacturer supplied strap assembly
2. Orange backboard straps
3. Ferno Pedi Mate® PLUS Pediatric Restraint System

C. Procedure

BLS

The manufacturer's recommendation for this stretcher is the use of all straps that come with the assembly. This includes 1 strap above each shoulder, a waist strap, and a leg strap. Proper utilization of all securing straps reduces the chance of a patient sliding off the stretcher.

Stryker Stretcher

1. Place patient onto stretcher in the recommended position or position of comfort.

2. Pull each shoulder strap over the patient's shoulder, leaving the individual connectors by the patient's waistline.

3. Utilizing the waist strap buckle, use the male end and insert through the two separate shoulder connectors. Once inserted through the connectors, secure the waist strap by inserting the male end into the female portion on the buckle. Pull down on all straps to ensure a snug but comfortable fit.

4. Finally, secure the patients legs with the strap located on the lower portion of the stretcher. Adjust as needed according to patients' size and differences in anatomy.

Ferno stretchers are not equipped with stock straps. Orange backboard straps are used to secure patient. The location of this strap is across the patient's waist. Other straps may be added on different locations of the stretcher if necessary.

Ferno Stretcher

1. Place patient onto stretcher in the recommended position or position of comfort.
2. Place orange backboard strap over the patient's waist, then pull snug.
3. Utilize additional straps as needed to secure the patient.

Ferno Pedi-Mate® PLUS - Pediatric Restraint System

Ferno Pedi-Mate® PLUS Pediatric Restraint System is designed for the restraint of pediatric patients in a range of sizes, 10 – 100 lbs. (4.5 – 45 kg). The system provides a quick and efficient method to secure pediatric patients to nearly any stretcher without any other child-restraint seat. The system is a fully adjustable five-point harness that is able to secure a patient in a comfortable position for transport.

All attempts must be made to secure pediatric patients as outlined. Pediatric patients will **NOT** lap ride on a stretcher unless necessary to expedite emergency medical care. If a pediatric patient cannot be secured as outlined, the transporting Rescue OIC will determine the final method of restraint for safe transport.

a) Positioning and Securing to the Ferno Pedi-Mate® PLUS

1. It is recommended to remove any restraints attached to the stretcher.
2. Raise the stretcher backrest to an angle between 15 and 45 degrees to allow for the patient's shoulder to be higher than the pelvis and maintain the appropriate center of gravity.
3. Unroll the Pedi-Mate® PLUS and spread it flat across the stretcher mattress with all of the straps extended.
4. Center the restraint device on the mattress of the stretcher.
5. Position the device with the black backrest strap at the point where the patient's shoulder would rest. The base of the device should sit at the joint of the stretcher, where the patient will be seated.

6. Run the ends of the grey and black floating backrest strap around the back of the stretcher until they meet and fasten the buckle, while leaving some slack in the strap for final adjustment.

7. Fasten the straps to the center fixed-frame of the stretcher on both sides, leaving slack in the straps for final adjustment.

b) Securing the Patient to the Ferno Pedi-Mate® PLUS

1. Place the patient onto the Pedi-Mate® PLUS. If the black backrest strap is not at the patient's shoulder level, adjust the position of the blanket.

2. Tighten the backrest strap by pulling firmly on the free end until it is compressing the stretcher mattress.

3. Pull the lower center strap buckle up between the patient's legs and lay the strap on the patient's abdomen.

4. Wrap the black chest strap of the grey and black floating strap around the patient's chest and fasten it under the shoulder straps, tighten snugly but allowing space for normal chest expansion.

5. Lift the shoulder strap over the patient's shoulder and place the patient's arm through the strap and lock the buckle half into the center buckle. Repeating on the other side.

6. Thread the shoulder strap on the patient's left side through the chest clip and slide the chest clip up to rest on top of the black chest strap.

7. Tighten the harness straps:

    a. Snug the shoulder strap against the shoulder and chest by pulling the lower part of the strap with one hand while holding the buckle steady with the other hand. Repeat on the other side.

    b. Snug the torso strap by pulling the tail ends of the straps on both sides.

    c. Snug the crotch strap by pulling on the free end.

c) Storing the Pedi-Mate® PLUS

1. Detach the Pedi-Mate® PLUS from the stretcher and spread it flat across the mattress of the stretcher.

2. Attach the shoulder straps to the central buckle and adjust the straps so that they lay smoothly against the blanket.

3. Fold the backrest straps across the blanket.

4. Fold up the lower center strap buckle towards the center of the blanket.

5. Fold the two lower stretcher main-frame straps and the lower blanket panels across the center of the Pedi-Mate® PLUS.

6. Start from the lower center strap panel and roll the Pedi-Mate® PLUS upward tightly and secure the roll with the fixed hook-and-loop straps.

d) Disinfecting and Cleaning the Pedi-Mate® PLUS

1. Disinfect the Pedi-Mate® PLUS after each use by wiping or spraying disinfectant throughout the restraint system surfaces and straps, allowing for the appropriate contact time as per the directions of the disinfectant.

2. Cleaning can be performed as needed. The Pedi-Mate® PLUS blanket and straps can be washed with warm, soapy water and a clean cloth or soft brush. Rinse thoroughly with clean water and dry the blanket with a towel and allow the straps to air dry.

   NOTE: Do not immerse the buckles in water.

A. Introduction

In the rare event of a patient entrapment in which all resources have failed to successfully extricate the patient due to a trapped extremity or in which the patient's life is in immediate danger, field amputation of the trapped extremity and/or field blood transfusion should be considered.

B. Procedure for Requesting

General Care

1. Prior to instituting a request with the Fire Alarm Office, the Incident Commander/Unit OIC will ensure that a TRT unit and EMS Field Supervisor have been dispatched and are en route.

2. The Incident Commander/Unit OIC will identify the closest appropriate Adult Trauma Center that the patient will be transported to and advise the FAO.

3. The Incident Commander/Unit OIC will contact the closest appropriate Trauma Center via Medcom radio at the earliest convenience and provide a brief overview of the situation.

4. FAO will contact the Trauma Center identified by the Incident Commander/Unit OIC and communicate the request for a field amputation or field blood transfusion to the facility staff.

5. The FAO will dispatch Air Rescue or the closest appropriate ground unit to respond to the Trauma Center to provide transportation of blood and personnel to the scene. A physician and/or appropriate staff from the Trauma Center will accompany the Fire Rescue unit to the scene and be responsible for the field amputation and/or administration of blood to the patient.

6. Once on scene, the physician will assess the situation at hand and make the final decision regarding amputation.

7. Upon completion of the amputation procedure and patient extrication, the designated physician will be transported with patient to the appropriate trauma center along with any unused blood.

Adult Care

ALS

1. Prepare equipment:
    a) 3 cc syringe with 22g 1½" needle.
    b) Desired medication.
    c) Antiseptic prep.
2. Draw the desired dose of medication into the syringe.
3. Chose the appropriate site:
    a) Deltoid muscle (upper arm).
    b) Gluteus muscle (upper/outer buttocks area).
    c) Vastus Lateralis (upper/outer thigh)*.
4. Clean selected site.
5. Stretch the skin overlying the muscle taut with two fingers.
6. Insert the needle at a 90° angle to the skin.
7. Aspirate the syringe checking for blood return. If blood is noted withdraw the needle and begin again at Step 5.
8. If no blood is noted, inject the medication.
9. Remove the needle and dispose of properly.

*This is the preferred site in children.

Pediatric Care

ALS

1. Intramuscular injection requires MCP approval, unless specified elsewhere within the MOM. If obtained, determine the following:
    a) Appropriate site. This should be the vastus lateralis (upper/outer thigh) unless otherwise specified by MCP.
    b) Appropriate gauge and length needle.
    c) Appropriate dose.

A. Introduction

The EpiPen and EpiPen Jr. are single-dose automatic injection devices for intramuscular use. They contain Epinephrine for allergic reactions as outlined in Protocol 17. The EpiPen Auto-Injector. is intended to be utilized by Miami-Dade Fire Rescue personnel for the care of patients and for self-administration in the case of an allergic reaction (anaphylaxis). Currently EpiPen and EpiPen Jr. Injectors are located only on BLS first response units.

B. Procedure

BLS

1. Expose the patient's thigh (preferred site) or upper arm.
2. Prep the site with an antiseptic prep.
3. Pull off gray safety cap.
4. Place the black tip of the Auto-Injector on the antero-lateral (front-outer) aspect of the thigh or upper-outer arm, at a right angle to the leg or arm.
5. Press hard into the thigh or arm until the Auto-Injector mechanism functions. Hold the Auto-Injector in place for ten seconds.
6. Remove the device and dispose of properly.
7. Massage the injection area for ten seconds.

C. Precautions

1. The EpiPen Jr. contains 0.15 mg of Epinephrine and the EpiPen contains 0.30 mg.
2. Patients 15 to 30 kg (33 lbs to 66 lbs) utilize the EpiPen Jr® 0.15 mg.
3. Patients ≥ 30 kg (66 lbs) utilize the adult EpiPen® 0.3 mg.
4. Protect the pens from exposure to light and extreme heat.
5. Note the expiration date on each unit.
6. Replace the unit if the solution is discolored or contains a precipitate. The auto-injector is designed with a see-through window to allow for periodic examination of its contents.

Note: The EpiPen Jr. is not indicated for patients < 15 kg (33 lbs).

A. Introduction

The Glucometer TRUE METRIX™ is designed for obtaining capillary blood samples. Any patient with an altered level of consciousness not explained by history or injury or any patient with a history of diabetes will have a blood glucose level checked and documented Protocol 36 Additionally, any patient with a complaint of a seizure, weakness, fatigue, dizziness, nausea, vomiting and all other vague medical complaints patients will receive a glucose test.

B. Procedure

BLS

1. Assemble the equipment:
    a) TRUE METRIX™ Blood Glucose Meter
    b) Alcohol wipe
2. Remove a test strip from the bottle. Tightly close the bottle immediately after removing the test strip.
3. With meter off, insert test strip contact end (contact blocks facing up) into test port. Meter will turn on. Obtain a blood sample by performing a finger-stick (**See D**).
4. Touch and hold the test end **(tip)** of the test strip to the drop of blood until after the meter "beeps". Do not press the tip against the skin or place the blood on top of the strip tip. Blood will automatically be drawn into the test strip. The timer will then begin counting down.
5. If unable to obtain blood from a finger-stick, venous blood from an IV site may be used. Be aware that venous blood glucose may be as much as 25% higher than capillary blood glucose.
6. After you test the strip release button will flash. Hold the meter over a waste can with the strip side pointing down. Press strip release button to discard strip. Meter will turn off. Result will store in memory with day, date, and time.

C. Performing a Finger-stick

1. Select a puncture site:
    a) The sides of a fingertip are preferred. There are fewer nerve endings and the skin is less callused.
    b) Other sites on the fingertip.
2. Wipe the area with an Alcohol wipe and allow the fingertip to dry thoroughly.
3. Prepare the Automatic Lancing Device.

4. Remove the protective cap from the lancet by twisting (do not pull). ***Do Not*** use the lancet if the protective cap has been previously removed.

5. Position the Automatic Lancing Device:

    a) Place the device on finger with the lancet opening resting against the selected puncture site.

    b) For a shallow puncture, place the device so that the ribs on each side of the lancet run across the finger.

    c) For a deeper puncture, place the device so that the ribs on each side of the lancet run in the same direction as the finger.

NOTE: This technique is usually used for individuals with thicker than average skin, for callused skin, or if the blood flow is difficult.

WARNING: The Automatic Lancing Device should be used with caution on small children (under 55 pounds). For these children, the device should be used only in the shallow orientation, and should be pressed against the finger or heel with light pressure when performing the puncture.

6. With the device correctly positioned on the finger, push the release button, without moving either the device or finger. Remember, the harder you press the deeper the puncture.

7. Wait a few seconds and then gently stroke the hand from the palm to the distal end of the tested finger to encourage blood flow through the puncture, forming a large drop of blood on the fingertip. Avoid squeezing around the puncture site.

8. Touch the tip of the test strip to the drop of blood.

9. Wipe the puncture site with clean gauze, and apply direct pressure until bleeding stops.

10. Remove the used lancet and dispose of it in the needle box as soon as possible.

D. Test Results

1. Normal test values are 80-100 mg/dL.

2. If the display shows “LO”, the blood glucose level may be below 20 mg/dL.

3. If the display shows “HI”, the blood glucose level may be above 600 mg/dL.

4. When test results are questionable or inconsistent:

    a) Be sure the drop of sample completely filled the tip of the test strip.

    b) Confirm that the test strips are within the expiration date by checking the expiration date on the test strip bottle or box.

c) Do not use test strips after 6 months (180 days) of first opening the bottle.

d) If doubt persists, perform a control test as described in **section E.**

E. Control Test

A control test will be performed each Saturday following the prescribed procedure that follows. This test should be documented in the truck/equipment log on the apparatus.

1. Gather the testing supplies: Glucometer, test strips, and a bottle of Control Solution.
2. Insert a test strip into the test slot of the meter as described in **B-3.**
3. Check the Control Solution:
   a) If the solution is cold, do not use until the solution has warmed to room temperature.
   b) Use before the unopened expiration date shown on the bottle OR within six months of the first opening expiration date.
   c) To maintain a first opening expiration date, write the date on a piece of tape and place on the bottle when it is first opened.
4. Gently rock the control bottle before opening to ensure the control solution is mixed well. Squeeze a small drop of control solution on a clean nonabsorbent surface. **DO NOT APPLY CONTROL SOLUTION TO THE TEST STRIP DIRECTLY FROM THE BOTTLE.**
5. Touch the **tip** of the test strip to the drop of control solution. The control solution is automatically pulled into the strip through the tip. Hold until the meter beeps.
6. When the control test result is displayed, compare it to the specific range printed on the test strip bottle label.
7. If the meter displays "LO" or the test result is not within the range listed on the Control Range Card, there may be a problem with the Test Strip, Meter, or your testing procedure. Contact EMS R&D for a replacement.

F. Cleaning of Glucometer

1. The display window can be cleaned with moistened gauze using fresh water.
2. For blood contact on the meter, use mild detergent moistened gauze.
3. For heavy blood contamination, contact EMS R&D for replacement.

A. Introduction

All Care Centers at the Homestead Miami Speedway have the capability of providing first aid and BLS care to employees, race participants and guests. The Care Centers may be considered for ambulatory BLS patients who request to seek further treatment at a Care Center. It is incumbent upon all Fire Rescue personnel involved, to act in the patient's best interest. Proper screening and accurate patient assessment must be utilized to determine the appropriate level of care needed.

This procedure is for various types of patients encountered in the event setting and will apply to ALL patients **(including race drivers that are injured)** treated by Miami-Dade Fire Rescue. This procedure is a supplemental document to Protocol 4 and all other applicable Medical Operations Manual requirements.

B. Procedure

1. After a complete evaluation, the unit OIC **may** release an ambulatory BLS patient to seek further care at one of the onsite Care Centers. The patient's decision to seek further care at a Care Center will be documented in the Narrative section of the electronic Patient Care Report.
2. At no time will an ALS patient be released to a Care Center. ALS patients will be transported in accordance with Protocol 4.
3. If there is any doubt or concern about a patient's condition the patient will be transported by an MDFR Rescue unit to a hospital, as defined on the "Hospital Capability Chart".
4. All transport decisions and/or transport destinations as directed by the EMS Field Supervisor assigned to the event are final.

A. Introduction

Miami Dade Fire Rescue Paramedics will comply with all law enforcement agencies' requests by withdrawing blood for test purposes under the specific conditions set forth in Florida Statutes 316.1932, 316.1933, 322.63, 327.352, and 327.353.

B. Indications

1. When a law enforcement officer is at an incident involving a vehicle and/or vessel crash or vehicle/vessel stop, and the officer has probable cause to believe that a person involved is under the influence of alcohol or controlled substances, they may request a paramedic to withdraw a blood sample for testing. This request is valid and must be complied with, and performed in a reasonable manner and within the parameters established by Florida Statutes and this procedure.

2. Priority must be given to the examination and treatment of all injured persons. If a person is injured, or has signs/symptoms of a potential medical emergency, the person (patient) is to be treated and transported according to the appropriate Medical Operations Manual (MOM) Protocols/Procedures.

3. If the suspect resists the taking of a blood sample, it is the law enforcement officer's responsibility to inform the suspect of the provisions in Florida Statutes 316.1932 and 316.1933 that permit the use of reasonable force by law enforcement officers to restrain a person in an effort to obtain a blood sample. If, in the judgment of the paramedic, the person is still too combative even after restraint, the blood will not be withdrawn and the law enforcement officer will abide by that decision.

C. Procedure

ALS

1. A blood glucose test will be performed on the suspect/patient prior to the law enforcement blood draw for the purpose of assessing the suspect/patient for impaired consciousness Protocol 36

2. The law enforcement officer will provide the approved blood collection kit. These are the only kits that will be used for the purpose of blood draw under the Florida Statutes (no MDFR blood tubes shall be utilized).

3. Only the items provided in the law enforcement approved and provided blood collection kit will be used for this procedure. Once used, all items will be returned to the kit with the Betadine prep pad being sealed in the plastic bag provided. The investigating officer will seal the blood collection kit, maintain the chain of custody and complete the documentation.

NOTE: Dispose of the used needle properly. DO NOT return the used needle to the blood collection kit.

4. The paramedic is to ensure that the investigating law enforcement officer observes every action of the paramedic withdrawing the blood during these procedures.

D. Documentation

1. Documentation of the request to withdraw blood is required in all cases, if it was successful or failed. It will be reported in the narrative section of the ePCR with the following information:

    a) The name of the Paramedic who performed the procedure.

    b) The name and agency of the requesting officer.

    c) The reason for withdrawing blood.

    d) The procedure/site used for withdrawing blood.

2. Should the paramedic receive an on-scene request for identification and technical certification credentials, the paramedic will advise the law enforcement officer that these certificates are on file and available through Miami-Dade Fire Rescue Department Headquarters.

A. Introduction

Bidirectional bacterial and viral filters for in-line use on airway devices provide bacterial and viral efficiencies upwards of 99%. There are no filters in the market that provide the promise of 100% efficiency, therefore there will always be a small risk of cross-contamination and other safety measures should be considered. The filter is a disposable, single-patient use, outfitted with the standard 15mm-22mm size fitting connectors for the appropriate fit on airway management devices not minimizing airflow.

B. Indications

1. Non-invasive PPV via BVM or CPAP applications ensuring a constant tight-fitting seal.
2. An in-line filter is applied for the bidirectional flow in the application to mechanical ventilation via an advanced airway (Supraglottic Airway – iGel, ETT).

C. Procedure

EMR/BLS

1. Upon determination of the need to provide assisted ventilations, attach an in-line filter between the bag-device and mask.
2. Form a tight-fitting seal with the mask on the patient prior to assisted ventilations, keeping the tight-seal at all times to prevent any air escape.
3. If insertion of a supraglottic airway device is required, attach an in-line filter to the end of device prior to the attachment of the BVM to provide the first ventilation.
    a) Ensure that the gastric channel of the iGel is taped/sealed off.

ALS

4. When the CPAP is used for NIPPV, the mask is fitted and secured on the patient, attach the in-line filter prior to the attachment of the CPAP valve.
5. Insertion of an iGel airway device and attach the in-line filter, then the EtCO2 FilterLine set prior to the attachment of the BVM to provide the first ventilation.
    a) Insert an NG tube to seal off the gastric channel, ensuring that the NG tube is capped off at the proximal end.
6. Upon intubation of the patient with an ETT, attach an in-line filter and then the EtCO2 FilterLine set prior to the attachment of the BVM to provide the first ventilation.

A. Procedure

ALS

1. Apply the limb leads to the patient.
2. If the patient is conscious, consider administering **Versed (midazolam) 5mg SLOW IV / IO / IM** for sedation. DO NOT delay pacing to establish an IV or obtain the medications.
3. Apply the Quick-Combo pads.
4. Note the patient's heart rate prior to turning on the pacer.
5. Turn on the pacer. Note on the oscilloscope whether the patient's intrinsic rate is being sensed. This is detected by a "marker" on each R-wave. If the marker is not noted, increase the QRS size.
6. Confirm the pacer rate is set to 80 bpm.
7. Start the pacer by increasing "current".
8. Begin to adjust the milliamps (mA) up in 10mA increments until electrical capture is achieved. Complete electrical capture will be achieved when each pacer spike is associated with a paced beat (usually a widened QRS and broad T-wave). If any spikes are seen not associated with a beat, complete capture is not obtained, continue to increase the mA.
9. Once complete electrical capture is obtained, assess the patient's pulse (see note) and blood pressure. If no pulse is felt, treat the patient as EMD/PEA. If a pulse is palpable and the patient is hypotensive, treat with fluids and/or dopamine per protocol.

B. Other Notes

1. It must be stressed that TCP only affects the electrical stimulus of the myocardium and does little, if anything, for the mechanical (pumping) force of the heart. Just because complete electrical capture is obtained, actual myocardial contraction is not necessarily happening. Supportive treatments such as CPR, epinephrine, fluids and dopamine may still be required.

A. Battery Inventory

1. Each LIFEPAK® 12 will be supplied with five Ni-Cad batteries.

2. Each LIFEPAK® 15 will be supplied with four Lithium-Ion batteries.

B. Battery Status Indicators

LIFEPAK® 15

a) **Active Battery**: Battery status indicators display up to four green bars. Each green bar represents 25 % remaining charge.

b) **Low Battery**: A yellow bar indicates a 5% to 10% remaining charge .

c) **Very Low Battery**: One Red flashing bar indicates 0 to 5% remaining charge. If both batteries show red bars, the **REPLACE BATTERY** voice prompt occurs.

d) **Unrecognized Battery**: Battery communication failed. May power up the defibrillator but the level of charge is unknown and low battery messages and prompts will not occur.

e) **No battery installed** *or* **fault detected**: When battery well shows grey no battery was installed or a fault was detected and the device will not use the battery.

C. Battery Maintenance

LIFEPAK® 12

1. Rotate all batteries in active use so that they are used with equal frequency.

2. Condition batteries every three months.

3. Perform shelf life tests every six months.

LIFEPAK® 15

1. Lithium –ion batteries are low maintenance and require no scheduled cycling to prolong battery life.

2. When storing the LIFEPAK® 15 monitor/defibrillator for an extended period of time, the battery should be removed from the device.

D. Battery Storage

1. Do NOT store batteries on a metal shelf.

2. Keep batteries and charging unit in a cool, well ventilated area at temperatures between 68° to 77° F.

NOTE: Batteries will self-discharge during storage

E. Battery Replacement

Replace LIFEPAK® Batteries if:

1. The LIFEPAK® 12 Ni-Cad battery is over two years old or the LIFEPAK® 15 Lithium–ion battery is over three years old.

    a) This may be determined by looking at the 4-digit number imprinted on the back of each battery. The first two numbers represents the year and the 2nd two numbers represent the week. For example, “1110” is a battery that is from 2011 during the 10th week.

2. There is physical damage to the battery case i.e. cracks or a broken clip.

3. The battery is leaking.

4. If the charger displays “DISCARD”.

5. If no lights are seen after a full charge on the NiCad battery.

6. The battery charger indicates **Discard** (LP12) or **fault (**LP15).

7. The battery fuel gauge indicates two or fewer LEDs (bars) after the battery completes a charge cycle.

8. The battery fuel gauge shows two **flashing** LED lights

NOTE: Replacement batteries can be obtained by contacting EMS R&D and submitting an EMS service request.

A. General Guidelines

1. Verify that the Battery Support System and LIFEPAK® defibrillator/monitor case, paddles, cables, and Quick-Combo cables are clean.

2. Ensure that all supplies and accessories are present and in operating condition, including but not limited to: batteries, ECG paper, patient cables, pacer cables, electrodes, Quick-Combo pads, ePCR connection cable and $ETCO_2$ Filter Tubing.

3. Do not immerse any portion of the LIFEPAK® in water.

4. Do not use alcohol or ketone products (MEK, acetone, etc.) for cleaning.

5. Avoid using abrasives (for example, paper towels) on plastic display lens.

B. Testing the LifePak Monitor/Defibrillator

Daily Test

1. Make certain all cables are attached to the monitor and remain attached unless cleaning.

2. Attach Quick-Combo cable to the simulator and turn the monitor on.

3. Verify 3 leads with dashed (-----) lines appearing on screen. Verify the correct time is displayed on the top of the screen (see Setting Time and Date below).

4. Turn the simulator on and chose "Asystole".

5. Change the Leads Selector to "Paddles". Verify that there is a flat line. Gently shake the Quick-Combo cable to ensure no artifact appears.

6. Charge the defibrillator to 200 joules. When charge is reached, press SHOCK and observe the screen for "ENERGY DELIVERED".

7. Attach all four patient leads to the simulator. Set the simulator on "Brady".

8. Press the Lead Selector to highlight II, III, CO2. Gently shake the patient leads to verify no artifact appears.

9. Press "PACE" to start the pacer. Confirm that the R waves are being marked with a triangle.

10. Perform a simulated pacer operation (**Procedure 23**) and confirm proper operation.

11. Remove a Quick-Combo cable from the simulator and observe the alarm.

12. Press "PACE" to turn the pacer off

13. Attach the V Leads to the simulator and select "NSR" on the simulator.

14. Press "12-LEAD" and confirm acquisition and printout:

    a) Input the word “test” where the patient’s last name would be.

    b) On Monday's, all units must verify correct time and date on the printout.

15. Press "OPTIONS", chose "USER TEST" and press the selector switch. Confirm printout and screen displays "USER TEST PASSED".

16. Check battery status and turn the unit off.

17. Ensure that the following supplies are on hand:

    a) Two sets of adult Quick-Combo pads.

    b) One set of Pediatric Quick-Combo pads.

    c) ECG Paper

    d) ECG electrodes, minimum of 10.

    e) Spare battery.

    f) Two ETCO2 filter line sets

NOTE: Quick-Combo pads should be stored flat and expiration dates must be checked.

Setting Time and Date

1. With power on, press "OPTIONS".

2. Highlight "DATE/TIME" and press.

3. Highlight any required corrections using the Selector Wheel and press.

4. Make any required changes and press. Turn unit off.

5. Change will take effect on the next power up.

C. Checking the LIFEPAK® 500/ LIFEPAK 1000®, SAED

Daily Check

It is not necessary to power up the LP 500/LP1000 daily. This will only prematurely drain the battery.

1. Inspect the housing for visual service indicators or damage. If an audible alarm is sounding or if the battery or wrench icons are illuminated or flashing, contact an EMS Captain.

NOTE: If a loaner is received or your regular unit is returned, perform a monthly test as described below.

2. Ensure that two sets of adult Quick-Combo electrode pads are with the unit at all times.

Monthly Check

1. On the first day of the month, power the unit up and allow It to complete a self-test.

2. If the battery or wrench icons are illuminated or flashing, contact an EMS Captain.

3. Turn the unit off.

E. Malfunctioning or Damaged Equipment

Any problems with the above daily testing procedures should be reported immediately to an EMS Field Supervisor.

Purpose

This procedure describes the appropriate methods to apply, operate, and discontinue the LUCAS device in patients > 12 years of age requiring mechanical chest compression related to cardiac arrest.

Indications

The Lucas may be used in patients 12 years of age and older who have suffered cardiac arrest, where manual CPR would otherwise be used.

Contraindications

a. Patients who are too large and with whom you cannot attach upper part to back plate without compressing chest.

b. Patients who are too small and with whom you cannot pull the pressure pad down to touch the sternum 3 quick beeps will be heard if patient is too small

Placement

1. All therapies related to the management of cardiopulmonary arrest should be continued as currently defined.

2. Initiate resuscitative measures following Protocol 9.

3. Early defibrillation should be considered and provided as indicated based on clinical presentation.

4. Manual chest compressions should be initiated immediately while the LUCAS device is being placed on the patient.

5. Limit interruptions in chest compressions to 10 seconds or less.

6. Do not delay manual CPR for the LUCAS. Continue manual CPR until the device can be placed.

7. While resuscitative measures are initiated, the LUCAS device should be removed from its carrying device and placed on the patient in the following manner.

Backplate Placement

1. The backplate should be centered on the nipple line and the top of the backplate should be located just below the patient's armpits.

2. In cases for which the patient is already on the stretcher, place the backplate underneath the thorax.
3. This can be accomplished by log-rolling the patient or raising the torso (Placement should occur during scheduled discontinuation of compressions [e.g., after five cycles of 30:2 or two minutes of uninterrupted compressions).

Position the Compressor

1. Initiate CPR, Maintain high-quality compressions.
2. Hold handle on bag with left hand and Pull red handle on bag to open.
3. To activate, push ON/OFF button for one second to start self-test and power up.
4. The green LED adjacent to ADJUST illuminates.
5. Take the back plate out of the bag. Pause manual CPR. With one rescuer on each side of patient, grab the patient's arm to lift the upper body. One person should lift the patient and support the head, and the other person should lift the patient and slide the back plate below the armpits.
6. Continue manual compressions.
7. Take the upper part of the LUCAS 2 unit out of the bag. Hold the LUCAS 2 device by the handles on the support legs and make sure the support legs have reached their outer position.
8. Pull once on green release rings to check that the claw locks are open and then remove fingers from rings.
9. Interrupt manual chest compressions and connect the upper part to back plate, starting on side closest to user. Listen for the CLICK when attached.
10. Check by pulling upward that both support legs are locked onto the back plate.
11. Center the suction cup over the chest with the lower edge of the suction cup placed immediately above the end of the sternum.
12. Push the suction cup down using two fingers (V pattern), making sure you are in the ADJUST MODE and the green led is lit.
13. The pressure pad should touch the patient's chest. If pad does not touch or LUCAS 2 does not fit properly, remove and continue manual compressions.
14. Press PAUSE to lock the start position then remove your fingers from the suction cup.
15. Check for proper position and press ACTIVE (continuous) or ACTIVE (30:2).
16. Attach stabilization strap by fully extending the buckles and placing cushion under patient's neck.
17. Connect buckles on support cushion straps to straps on device support legs and tighten firmly.
18. Check for proper position of suction cup and adjust if needed.
19. Delay the application of the stabilization strap when it might prevent or delay treatment.

20. Attach the wrist straps to each of the patient's wrists to assist with securing the arms during movement/transportation. Use caution to determine that the intravenous site is not compromised due to a slight bend that will occur in the patient's arm. If this does occur release the arm.

21. Press PAUSE to stop compressions during ECG analysis.

22. Keep interruptions to a minimum.

23. After successful resuscitation or termination of activities, Press and hold the ON/OFF button for one second.

Patient Adjuncts

Place the neck roll behind the patient's head and attach the straps to the LUCAS device. This will prevent the LUCAS from migrating toward the patient's feet. Place the patients arms in the straps provided.

Defibrillation

1. Defibrillation can and should be performed with the LUCAS device in place and in operation. One may apply the defibrillation electrodes either before or after the LUCAS device has been put in position.

2. The defibrillation pads and wires should not be underneath the suction cup If the electrodes are already in an incorrect position when the LUCAS is placed, you must apply new electrodes.

3. Defibrillation should be performed according to ems protocols and following the instructions of the defibrillator manufacturer. If the rhythm strip cannot be assessed during compressions, one may stop the compressions for analysis by pushing the PAUSE BUTTON (The duration of interruption of compressions should be kept as short as possible and should not be > 10 seconds. There is no need to interrupt chest compressions other than to analyze the rhythm).

4. Once the rhythm is determined to require defibrillation, the appropriate ACTIVE BUTTON should be pushed to resume compressions while the defibrillator is charging and then the defibrillator should be discharged.

Pulse Checks/Return of Spontaneous Circulation (ROSC)

1. Pulse checks should occur intermittently while compressions are occurring.

2. If the patient moves or is obviously responsive, the LUCAS Device should be paused and the patient evaluated.

3. If there is a change in rhythm, but no obvious indication of responsiveness or ROSC, a pulse check while compressions are occurring should be undertaken. If the palpated pulse is asynchronous, one may consider pausing the LUCAS Device. If the pulse remains, reassess the patient. If the pulse disappears, one should immediately restart the LUCAS Device.

Device Management

1. If disruption or malfunction of the LUCAS device occurs, immediately revert to Manual CPR.

2. When fully charged, the Lithium Polymer battery should allow 45 minutes of uninterrupted operation. There is an extra battery in the Lucas Device bag.

3. When last green bar/LED on battery turns orange, you have 10 minutes left and should replace battery or connect to wall outlet.

Care of the LUCAS Device after use

1. Remove the Suction cup and the Stabilization Strap inspect for wear and contamination (if used, remove the Patient Straps).
2. Clean all surfaces and straps with a cloth and warm water with an appropriate cleaning agent.
3. Let the device and parts dry.
4. Replace the used Battery with a fully-charged Battery.
5. Remount (or replace) the Suction Cup and straps if they are not damaged. Note: *If the suction cup can be cleaned, inspected, & it's without holes, AND can hold suction on a flat surface….then it's "reusable*".
6. Repack the device into the carrying bag.
7. An EMS service request is needed for replacement parts, or some spare parts are available in the EMS equipment depots.

A. Introduction

Patient restraint is a means of modifying a patient's physical activities to protect the patient or others from injury. Restraints should only be used when less restrictive means of controlling a patient's behavior have been exhausted.

B. Indications

1. A patient exhibiting violent behavior towards themselves or others as defined under "The Baker Act", FS 394.463 Protocol 2.

2. An Incapacitated patient who requires emergency medical treatment and/or transportation as defined under FS 401.445 Protocol 2.

C. Types of Restraints

1. Manual restraints.

2. Soft-type restraints:

    a. Must be > 1" wide and non-binding.

    b. Towels, sheets, and blankets.

    c. Commercially available extremity restraints.

NOTE: Police handcuffs/flex-cuffs may be left in place as long as the patient is in the custody of, and accompanied by, a law enforcement officer who can remove the restraint in case of an emergency. This action must be closely coordinated with law enforcement officers both on the scene and during transport.

D. Procedure

EMR/BLS

1. Manual Restraint

    a) Physically restraining a patient or persons who are violent or in harm's way may be necessary at times.

    b) The use of as many fire rescue or law enforcement personnel as possible is preferred in order to reduce the chance of injury to personnel or the person being restrained.

    c) Care should be taken not to injure the person being restrained. Continually reassess the patient's circulatory and respiratory status. Be prepared to modify or release physical restraint in the event the patient experiences any respiratory or circulatory compromise.

2. Soft Restraint

   a) Place the restraint around the wrist or ankle and form a bight holding the running pieces together and close to the patient.

   b) Secure the running pieces together with tape. DO NOT tie a knot unless the device is specifically made as an extremity restraint.

   c) If needed, additional restraints such as a rolled sheet or blanket may be used around the chest and under the armpits, over the hips, or over the legs.

   d) After restraints are applied, assess distal circulation via capillary refill and document its presence a minimum of once after the restraints are applied and upon release at the hospital.

   e) Continually monitor the patient's circulatory and respiratory status. Always keep scissors on hand to release restraints in the event the patient experiences any respiratory or circulatory compromise.

3. Patient Positioning:

   a) Immobilize patients who meet spinal motion restriction criteria **Protocol 40**.

   b) If the patient is to be restrained in the sitting position, secure restraints by tying or taping around the sidebars of the main stretcher frame. DO NOT secure to the fold-down side rails.

   c) For patients who need to be placed supine, first place them on a backboard and secure the restraints to the board. If the patient vomits, the patient can be turned as a unit.

ALS

4. Chemical Patient Restraint as indicated in **Protocol 39**.

A. Introduction

1. Listed are some, but not all, indications for replantation. If, in your judgment, there is a possibility for replantation, then treat as such.
   a) Clean guillotine-type amputations
   b) Digit amputations
   c) Amputation of an extremity
   d) Penis amputation
   e) Scalp amputations
   f) Amputations of a foot or hand
   g) Amputation of the nose or ear
   h) Bilateral amputations

B. Procedure

BLS

1. Wash amputated part(s) in Normal Saline.
2. Wrap part in sterile gauze moistened with Normal Saline. Use a bulky dressing to protect the part(s).
3. Place dressing in dry plastic bag and squeeze air from the bag.
4. Place the bag in a container, on top of ice. DO NOT FREEZE. If ice is unavailable, use cold packs.
5. If amputation is incomplete, splint the attached portion and cool the devitalized portion.

C. Precautions

1. Never freeze the part, pack or place directly on ice.
2. Never float the part in a solution.
3. If ice is not available, use a cold pack.
4. Do not delay patient transport. A second unit may search for amputated part.

A. Introduction

Occasionally, patients suffering from an injury may sustain a complete avulsion of a tooth or teeth (tooth knocked out). Salvage of an avulsed permanent tooth is of low priority when other injuries are present; however, when it exists as an isolated injury, the timely salvage of permanent teeth should be considered. To maximize tooth survival, replantation (replacement of tooth in socket) of an intact permanent tooth should take place within 30 minutes of the injury, although replantation may be successful up to three hours after the injury.

B. Procedure

BLS

1. Identify intact avulsed permanent tooth/teeth.
2. Handle tooth only by crown (biting surface). Avoid contact with root of tooth.
3. Remove gross contamination by irrigation with Normal Saline. DO NOT rub tooth with gauze or any materials.
4. Place the tooth in a tooth recovery container if available or a red top tube with the patient's saliva or Normal Saline.
5. If not transporting the patient for another reason, inform the patient of the three hour salvageability window. Encourage the patient to call their dentist (if they have one) or seek further medical attention.

A. Introduction

The Airtraq SP is a single-patient, ready-to-use visual laryngoscope that is designed to facilitate intubation. The Airtraq SP allows for full visualization of the airway during 100% of the course of intubation. It does not require for the patient's neck to be hyperextended, permitting for intubation of patients in virtually any position encountered. The visualization can be performed directly through the eyecup or connecting it to the Airtraq A-390 Wi-Fi Camera that may be attached to the device for video laryngoscopy.

Sizes

- Regular: A-011/ATQ-011 Blue
  For use with ETT 7.0 – 8.5
- Pediatric: A-031/ATQ-031
  For use with ETT 4.0 – 5.5





B. Procedure

EMR/BLS

Preparation and Test

1. Airway Management Protocol 7. Provide assisted ventilations via BVM to hyperoxygenate the patient and attach ETCO2 filter line Procedure 11.
2. Select the appropriate size Airtraq SP according to the size of ETT to be inserted.
3. Press the orange switch that is located below the battery cover to turn on the light.
4. After 30 seconds, ensure that the light is steady. When the light remains steady, the anti-fog system is fully activated.

NOTE: If the light automatically turns off or does not remain steady, the unit has become defective and must not be used.

5. If using the A-390 Wi-Fi Camera, simply pull the eyecup from the Airtraq SP to remove and replace with the camera by inserting at the proximal end until fully seated.

6. Inflate and check the distal cuff of the ETT for leaks and punctures, deflate and remove stylet.

7. Lubricate the ETT and place into the lateral channel of the Airtraq SP without contact to the lens.

8. Align the tip of the ETT with the end of the lateral channel of the Airtraq SP.

ALS

Airtraq SP Placement

9. Insert the Airtraq SP into the midline of the patient's mouth. Take special care to avoid pushing the tongue inside the oropharynx.

10. Before it reaches the vertical plane, begin to look and identify the airway structures.

11. Continue the insertion until the epiglottis is identified. Place the tip of the Airtraq SP in the vallecula.

    a) Alternatively, the tip can be placed under the epiglottis, lifting it out of the way.

12. Gently lift the Airtraq SP to expose the vocal cords.

ETT Insertion

13. Align the vocal cords in the center of the visual field by gently moving the tip of the Airtraq SP as necessary.

14. Gently advance the ETT inside the channel and check the depth of insertion.

15. Inflate the ETT cuff as performed normally and check for proper positioning.

16. Separate the ETT from the Airtraq SP blade by pulling it laterally or to the side of the mouth, while manually holding the ETT in its position.

17. Remove the Airtraq SP from the patient's airway following the midline.

18. Confirm proper placement of the ETT and attach ETCO2 filter line.

19. Secure ETT with commercially available tube securing device.

C. Video Laryngoscopy – A-390 Wi-Fi Camera

Mounting the A-390 Wi-Fi Camera onto the Airtraq SP



1. Remove the eyecup from the Airtraq SP by simply pulling the eyecup to remove and replace with the camera by inserting at the proximal end until fully seated.

Turning the Camera On/Operation

2. The A-390 camera will automatically turn on and start in “live video” mode once securely inserted into Airtraq SP blade. Boot up process takes approximately 3 seconds.

    a. Camera can be manually powered on by pressing the automatic power button.

3. If during intubation, the camera accidentally becomes dislodged from the Airtraq SP blade, a warning message will appear on the screen indicating “blade detached.”

    a. If the blade is accidentally detached while recording video, if reattached within (5) seconds back on the blade securely, the recording will automatically restart and saved under the same video file.

4. Press the action icons on the screen to select an action. Touch panel works when icons are depressed using gloves.

5. When in live video, pressing the ‘back’ icon on the screen will make the camera return to the main menu.

A-390 Battery Charge and Charge Status Check

The A-390 can operate for 240 minutes when Wi-Fi is deactivated and for 180 minutes when Wi-Fi is activated. A complete recharge takes approximately 110 minutes. Without use, the battery will discharge at a rate of less than 2% per day. If the A-390 can be turned on and low on battery, there will still be a minimum of a 10-minute operating time guaranteed.

1. When the A-390 is turned on, the battery charge status icon and available minutes of operating time will appear on the screen.

2. If charging is necessary, connect the camera via the USB cable directly to a power source.

3. Once connected to a power source to begin charging, the A-390 will automatically shut off.

NOTE: The A-390 does not work when it is being charged.

D. Usage Tips for Success

1. Initial experience should be gained in non-difficult airways.
2. Insert the Airtraq SP, avoiding the tongue, and slide it softly and slowly.
3. Keep the Airtraq SP in the mouth's midline.
4. Look into eyecup or camera before the Airtraq SP gets to the vertical plane.
5. Once the tip is located at the epiglottis, either at the vallecula (Macintosh Method), or under the epiglottis (Miller Method), gently lift up the Airtraq SP (do NOT tilt or use a lever action).
6. Advance the ETT slowly and do not insert too deep.
7. If needed rotate the ETT inside the channel by twisting the Airtraq to center the vocal cords/glottis.

A. Indications

1. Signs/symptoms or suspicion of ocular exposure to chemicals.
2. Signs/symptoms of ocular foreign body without obvious or suspected penetrating injury or lacerations of the cornea or globe.

B. Contraindications

1. Age less than 8 years, unless approved by Medical Control.
2. Obvious penetrating injury to globe, with or without visible imbedded/impaled object.
3. Obvious corneal/globe laceration or hyphema (blood in anterior chamber).
4. Known allergy to Tetracaine HCl or similar "caine" anesthetics.
5. Known allergy to contact lens materials.
6. Recent ocular surgery.

C. Procedure

ALS

1. Insertion of the lens:
    a) Assemble equipment:
        1. Normal Saline IV solution and IV tubing.
        2. Tetracaine HCl 0.5% solution, 1cc unit dose vial.
        3. Morgan Lens® for each affected eye.
        4. Towels.
    b) Assess and record gross visual acuity (**Protocol 21**).
    c) Place patient in supine position, or (if there is no suspicion of spinal injury) seated with head tilted back.
    d) Irrigate affected eye(s) with NS IV solution for two minutes for gross decontamination, or until visible particulate matter has been removed.
    e) Instill 1-2 drops of Tetracaine HCl 0.5% in affected eye(s). Inform patient that there may be a slight burning sensation.
        1. Anesthetic effect may be confirmed soon after instillation by asking the patient if symptoms have improved or have been completely relieved.

f) Attach a Morgan Lens® to the IV set-up/bag assembly and "prime" the tubing through the lens(es).

g) Have the patient look down and insert the lens under the upper lid then, have the patient look up. Retract the lower lid and insert the lower portion of the lens in place.

h) Once the lens(es) is/are in place, adjust the flow of the NS solution to obtain a rapid stream of solution over the eye.

i) Tape the tubing to patient's forehead to prevent accidental lens removal. Absorb fluid outflow from eye(s) with towels.

2. Upon completion of treatment or Medical Control direction, remove the Morgan Lens® as follows:

a) Have the patient look up, then retract the lower lid.

b) Slide the lens out.

c) Reassess and record gross visual acuity.

D. Possible Adverse Effects

1. Corneal abrasion secondary to insertion or removal procedure.

2. Apparent allergic reaction to Tetracaine HCl or lens material in patient's without previously known allergy.

A. Introduction

This protocol applies to the management of all patients who have a ventricular assist device (VAD) implanted. A ventricular assist device is a mechanical pump that is used to support heart function and blood flow in people who have weakened hearts. **When a VAD patient is encountered, remember that these patients, along with their families, have been well trained in the care of themselves and their devices. LISTEN TO THEM!** The patient, family and/or the device will have the phone number for the VAD coordinator on call. **Call immediately for assistance.**

B. Assessment and care

BLS

1. Initial Assessment **(Protocol 1)***

   a) In a majority of these patients, a pulse and blood pressure may not be palpable.

   b) A pulse oximetry reading may not be possible to obtain when assessing the VAD patient.

2. Establish and maintain a patent airway **(Protocol 7)**

3. Administer supplemental oxygen via the most appropriate means **(Procedure 1) ****

4. If the patient is unconscious and / or unresponsive to stimuli, listen to the patient's chest (epigastric region). **If you hear the whirling sound of the VAD, DO NOT PERFORM CPR.** The VAD device has been surgically placed into the left ventricle and CPR could dislodge this device, causing death.

5. Locate the device usually found at the patient's waist.

   a) Look at the controller and identify which device is in place.

   b) Locate the colored sticker and match this to the color coded EMS guide found in the attachment to this protocol.

   c) Consult with the VAD coordinator to intervene appropriately based on the type of alarm and device.

   d) If the VAD coordinator cannot be contacted, follow the instructions on the color coded EMS guide to perform the following tasks:

      - Assess all connections and ensure that they are secured
      - Check battery status and replace as needed according to the EMS guide
      - If battery replacement fails, locate the patient's secondary controller and follow the instructions on the EMS guide to replace the controller.

ALS

1. Establish IV access **(Procedure 13).**

2. Perform a 12 Lead ECG with continuous cardiac monitoring **(Procedure 22)**

3. DO NOT administer Aspirin or Nitroglycerin. Treat cardiac signs and symptoms as needed **only** after consulting with the VAD coordinator.

Note: When to perform CPR:

CPR must be considered a LAST RESORT for VAD patients. Only when connections are confirmed to be secure, battery replacement fails and the secondary controller fails is CPR an option. When this occurs, AND the patient is unresponsive, pulseless, and apneic AND there is no activity auscultated from the device, follow (PROTOCOL 9) and attempt resuscitation.

C. Transport

1. ALL VAD patients will be transported **by RESCUE** to **the nearest VAD Center** regardless of their complaint, hemodynamic or airway status. The on call VAD coordinator will provide notification to the VAD team in addition to your radio report. There are 2 VAD centers in South Florida:

    a) Ryder Trauma Center

    b) Memorial Regional Hospital

2. Consider Air Rescue when the VAD patient is assessed to be critically ill or injured and the transport time is extended. **(Protocol 4)**

3. When performing the radio report, inform the staff at Ryder Trauma that this is NOT A TRAUMA ALERT. Only declare a trauma alert if the patient is injured and meets trauma alert criteria.

4. Patients always carry a “backup bag” which contains 2 extra fully charged batteries, and a second controller. Be sure to always bring this emergency backup equipment with them to the hospital.

***NOTE:**

In a majority of these patients, a pulse and blood pressure may not be palpable.

** ***NOTE:***

A pulse oximetry reading may not be possible to obtain when assessing the VAD patient.

A. Introduction

To provide a resource for acquiring antivenin serum of venomous reptiles from around the world that will be available to any municipality within Miami Dade County and areas elsewhere.

B. Procedure

General Care

1. When a call is received reporting a person that has sustained a suspected venomous reptile injection, Venom 1 will be contacted.

2. The OIC on scene will advise Venom 1 of the situation at which time it will be determined whether the Antivenin Bank will be activated.

3. If it is determined to be a non-native venomous snakebite, Venom 1 or a designee will respond to the Antivenin Bank and select the appropriate serum and quantity needed.

4. Venom 1 or designee will contact the Receiving Hospital's Emergency Department Physician to verify the need and quantity of serum prior to packaging and shipping.

5. If the incident occurs within Miami Dade County, the following resources can be used to transport the serum to the Receiving Facility:
   a) Venom 1 or designee
   b) Closest Fire Rescue unit
   c) Closest EMS Field Supervisor or Battalion Chief
   d) Air Rescue (for critical cases only)
   e) Miami-Dade Police helicopter

6. If the incident occurs outside of Miami Dade County, the following resources can be used to transport the serum to the Receiving Facility:
   a) Agency requesting serum
   b) Venom 1 or designee
   c) Florida Highway Patrol
   d) Air Rescue (if critical and < 150 miles)
   e) Other air transport

7. Long distance transfers will be handled through prior arrangements with commercial airlines.

8. Under no circumstances will antivenin serum be administered outside the hospital unless a physician administers it.

A. Introduction

To efficiently triage, treat, and transport victims of multiple casualty incidents (MCI's). The following procedure is applicable to all multiple victim situations. This procedure is intended for use when the number of injured exceed the capabilities of the first arriving unit.

B. MCI Levels

- MCI Level 1 (5-10 victims)
- MCI Level 2 (11-20 victims)
- MCI Level 3 (21- 100 victims)
- MCI Level 4 (101 - 1000 victims)
- MCI Level 5 (Over 1000 victims)

1. The minimum number of units required to manage a specific MCI Level is outlined in Policy and Procedures III-E-51 Strategy for Alarm Assignments.
2. Fire Alarm will dispatch the appropriate units for a declared MCI level to bring to a total the number of units required as outlined in Policy and Procedure III-E-51.
3. All units will respond to the staging area unless otherwise directed by COMMAND.

C. Procedure

1. First arriving unit:
   a) Establishes COMMAND.
   b) Performs a size up:
      1. Estimate the number of victims
      2. Request the appropriate MCI Level response
      3. Request additional units as needed
   c) Identify a staging area that will permit an orderly flow in and out without creating congestion.
   d) Assume control of Triage and then:
      1. Direct remaining crewmembers to initiate triage (**Procedure 35**).
      2. Direct the walking wounded to a place away from the incident. These persons shall be triaged as soon as resources permit.
   e) As additional units arrive, Command will designate Group Leaders and assign personnel to the following areas:
      1. Triage. The OIC of the first arriving unit will remain the Triage Group Leader after Command is transferred.
      2. Treatment
      3. Transport

f) Additional functional groups may be required depending on the complexity of the incident. These may include but are not limited to: Staging, Landing Zone, Extrication, Haz Mat, Rehabilitation, Manpower, PIO.

D. Incident Management Responsibilities

1. Command

a) Use the radio designation COMMAND.

b) Follow the appropriate Field Operational Guide (FOG).

c) Established initially by the first arriving unit OIC.

d) Perform the initial size-up as well as an ongoing evaluation of changing conditions.

e) Request the appropriate level of response and augment as necessary.

f) Maintain a visible presence, staying in a fixed location.

g) Control resources.

h) Encourage Group Leaders to provide frequent updates reflecting manpower needs, equipment requirements, and total numbers of patients.

2. Triage Group Leader

a) Use the radio designation, TRIAGE.

b) Follow the appropriate FOG.

c) Organize the Triage personnel to begin the initial triaging of victims using the colored ribbons.

d) Advise COMMAND as soon as possible as to the total number and category of victims.

e) Coordinate with TREATMENT to ensure that priority victims are moved to the treatment area.

f) Ensure that all areas around the scene have been checked for potential victims, walking wounded, ejected victims, etc., and that all victims have been triaged.

g) Report to COMMAND upon completion of duties for further assignments.

3. Treatment Group Leader

NOTE: The goal of MCI management is to rapidly triage and transport victims. If transport is available, consideration must be made to coordinate transport of the critical patient (s), bypassing a formal treatment area.

a) Use the radio designation, TREATMENT.

b) Follow the appropriate FOG.

c) Complete a "Treatment Log".

d) Obtain a "Documentation Aide" to assist with the log.

e) Direct personnel to either begin treatment on the victims where they lie when there are only a few victims involved OR establish a centralized Treatment Area.

f) Ensure that all victims are re-triaged through a secondary exam and the assessment is documented on the Triage Tag.

g) Personnel assigned to the Treatment Area that physically assess and/or treat a patient will document pertinent information on the Triage Tag, affix the tag on the patient in a visible location and remove the ribbon.

h) Ensure that adequate equipment and personnel are available to effectively treat the victims.

i) Considerations for a Treatment Area:

1. Capable of accommodating the number of victims and equipment.
2. Consider weather, safety and the possibility of hazardous materials (decon runoff, wind direction, etc.).
3. Designate entrance and exit areas that are readily accessible.
4. On large-scale incidents, divide the treatment area into three distinct areas based on triage priority (red, yellow, green).

j) Communicate with TRANSPORT to coordinate proper transport of the appropriate patients.

4. Transport Group Leader

a) Use the radio designation, TRANSPORT.

b) Follow the appropriate FOG.

c) Maintain a "Transport Log".

d) Obtain a "Documentation Aide" with a second radio to assist with the log and communications.

e) Retain the “Transport” section of the Triage Tag.

f) Establish continuous contact with FAO and advise them to begin a “Tally” of hospitals close to the affected area.

g) Coordinate the transport of all victims from the treatment area(s).

1. Ground transported patients should be assigned to hospitals on a rotating basis.

h) Communicate with the LZ Group the number of patients to be transported by air.

1. Air transported patients should be assigned to distant hospitals, unless patient needs dictate otherwise (Trauma Center, burn unit, etc.).

i) When units are prepared to transport, TRANSPORT or their aide will contact MedCom and supply them with the following information:

1. The transporting unit number.

2. The number of patients going to a specific facility and,
3. Their priority, RED, YELLOW, or GREEN.
4. If any GREEN patients are immobilized on backboards, the receiving facility must be notified

j) Once FAO receives the information from TRANSPORT, they **will notify** the appropriate hospital and then update the "Hospital Capability Sheet".

k) Transporting fire rescue units **will not** contact the receiving facility on their own unless there is a change in condition OR further Medical Control is required.

5. Staging Group Leader

a) Use the radio designation, STAGING.

b) Follow the appropriate FOG.

c) Maintain a "Unit Staging Log".

d) Ensure that all personnel stay with their vehicles unless otherwise directed.

e) If personnel are directed to assist in another function ensure that the keys to the vehicles stay with each vehicle.

f) Determine from TRANSPORT a location for loading BLS and ALS patients.

g) Maintain a reserve of at least 1 BLS and 1 ALS transport vehicles. When the reserve is depleted, advise COMMAND.

E. Fire Alarm Office (FAO)

1. Once notified of an MCI, begin notification to area hospitals as indicated below, unless otherwise directed by COMMAND or TRANSPORT:

   a) **If a Level 1 MCI is declared**: notify the 2 closest hospitals geographically to the incident AND the nearest Trauma Center.

   b) **If a Level 2 MCI is declared:** notify the 3 closest hospitals geographically to the incident AND the 2 closest Trauma Centers.

   c) **If a Level 3 MCI is declared:** notify the 4 closest hospitals geographically to the incident AND the 3 closest Trauma Centers.

   d) **If a Level 4 or Level 5 MCI is declared:** notify all hospitals AND all Trauma Centers.

2. The hospital will be advised of the total potential victims involved based on the level and of the generic nature of the incident, i.e. traffic accident, chemical exposure, etc.

3. Once a TRANSPORT Group is established, FAO will pass on the amount and type of patients that can be handled by each hospital as indicated on the Hospital Capability Chart “MCI” section. This information will be maintained and updated for the duration of the incident.

4. FAO will also advise the receiving facility to keep the Triage Tag with the patient(s) for our future documentation.

F. Documentation

1. The Incident Commander will, at the completion of the incident, coordinate the gathering of all pertinent documentation. This can be facilitated with the assistance of an EMS Field Supervisor and MedCom.
2. The EMS Division OIC or their designee will conduct a Post Incident Analysis (PIA) according to Policy and Procedure III-E-50 on any MCI Level 2 or greater.

G. MCI Supplies

Portfolios are red zippered folders containing information and equipment to assist each group officer.

1. A **Triage** kit is issued to each Operation's unit and contains:

   1 TRIAGE Field Operation Guide (FOG).
   1 TREATMENT FOG with, 1 Treatment Log.
   1 TRANSPORT FOG with, 1 Transport Log.
   1 STAGING FOG with, 1 Unit Staging Log.
   1 Clipboard.
   1 Triage identification vest.
   3 Rings of triage ribbons
   50 Triage Tags

2. A **Treatment** kit is issued to each Battalion and EMS Field Supervisor and contains:

   1 TREATMENT FOG
   5 Treatment Logs.
   1 each Red, Yellow, Green tarp
   1 Clipboard.
   1 Treatment identification vest.
   50 Triage Tags

3. A **Transport** kit is issued to each Battalion and EMS Field Supervisor and contains:

   1 TRANSPORT FOG.
   5 Transport Logs.
   1 Clipboard.
   1 Transport identification vest.

4. A **Staging** kit is issued to each Battalion and EMS Field Supervisor and contains:

   1 STAGING FOG.
   5 Unit Staging Logs.
   1 Clipboard.
   1 Staging identification vest.

5. An EMS Tactical Command Worksheet is issued to each Battalion and EMS Field Supervisor.

A. Introduction

This procedure is based on the Simple Triage and Rapid Treatment or START method. The START method of triage is designed to assess a large number of victims rapidly and can be used by all personnel regardless of their medical training. This procedure is intended for use by the first arriving unit whenever an MCI is declared and/or a Casualty Collection Point (CCP) is established. Due to physiological differences in children, an adaptation of the START triage method is used called JumpSTART.

B. Procedure

EMR/BLS

1. Initial Triage:

    a) Locate and direct all the walking wounded to one location away from the incident if possible. Assign someone to keep them together and for triage. Direct casualties to control bleeding by self-aide if available.

    b) Begin assessing **all non-ambulatory victims** where they are found.

    c) Use the START Method (**Section C**) for adult patients and JumpSTART (**Section D**) for pediatric patients.

    d) Use Triage Ribbons. Three rings of ribbons are located in the Triage kit.

    e) One ribbon should be tied to an upper extremity in a visible location. The ribbon colors represent the universal colors for triage:

        1. RED - First priority/Immediate Care
        2. YELLOW - Second priority/Delayed Care
        3. GREEN - Third priority/Ambulatory (minor)
        4. BLACK – Deceased (non-salvageable)

    f) Triage to the most urgent priority (e.g., for a Green/Yellow patient, tag as Yellow), when in doubt.

C. START System

1. Corral all the "walking wounded" into one location away from the incident if possible. DO NOT forget to triage these patients. Direct casualties to control bleeding by administering self-aide if available.

2. Begin assessing all non-ambulatory victims where they lay if possible. Each victim should be triaged in **60 seconds or less**.

3. Using the START System, use RPM (**R**espirations, **P**erfusion, **M**ental status) :

a) Assess RESPIRATIONS:

1. If respiratory rate is less than or equal to 30/minute, go to PERFUSION assessment.

2. If respiratory rate is greater than 30/minute, prioritize as RED.

3. If victim is not breathing open the airway, remove obstructions if seen, if patient starts breathing insert OPA/NPA and prioritize as RED.

4. If victim is still not breathing, prioritize as BLACK.

b) Assess PERFUSION:

1. Any major external bleeding should be controlled at this time.
    a. Apply a tourniquet to life-threatening bleeding in limbs. May apply tourniquet over clothing, proximal to the bleeding site, to save time. **(Procedure 48).**
    b. Ensure that the time of tourniquet application ("TK 20:30") is written on the tourniquet itself or written directly on the patient's forehead.

2. Palpate a radial pulse or assess capillary refill time (CR).

3. If radial pulse is present or CR is less than or equal to 2 seconds, go to MENTAL assessment.

4. If no radial pulse or CR is greater than 2 seconds, prioritize as RED.

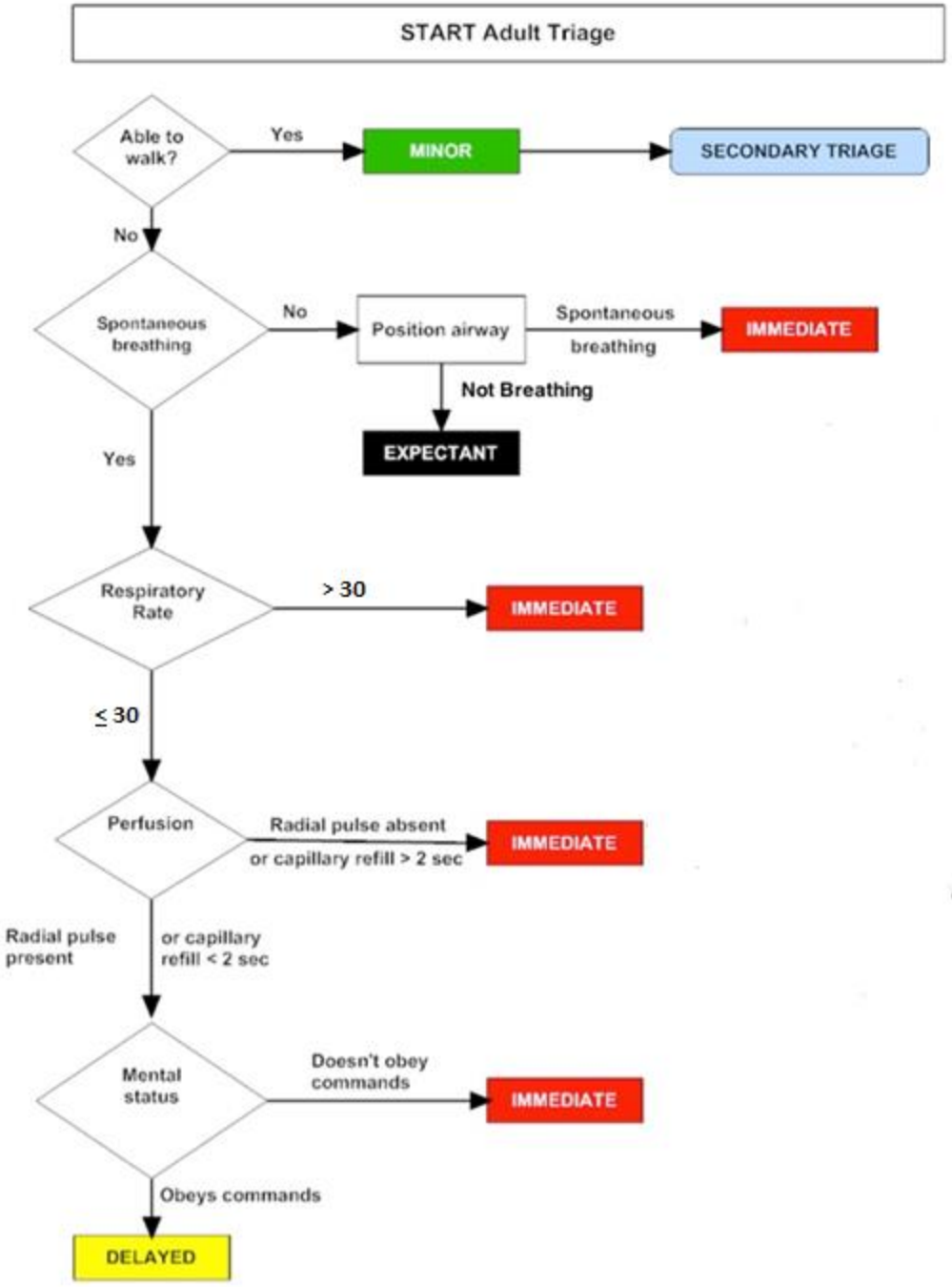
c) Assess MENTAL STATUS:

1. Assess the victim's ability to follow simple commands and their orientation to time, place, and person (Oriented X3).

2. If the victim is walking following commands and is (Oriented X3), prioritize as GREEN.

3. If the victim is **not** ambulatory following commands and is (orientedx3), prioritize as YELLOW.

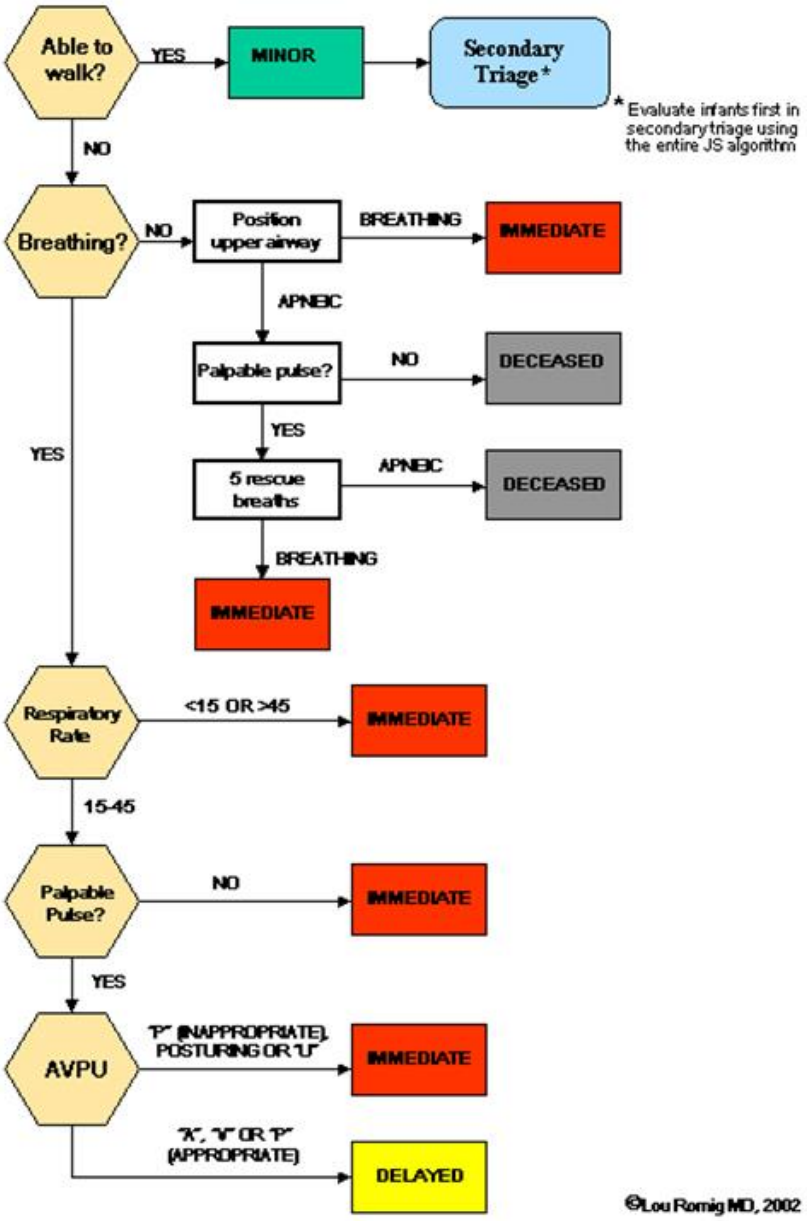
4. If the victim does not follow commands, is unconscious, or is disoriented, prioritize as RED.


START Adult Triage
Able to walk?
Yes
MINOR
SECONDARY TRIAGE
No
Spontaneous breathing
No
Position airway
Spontaneous breathing
IMMEDIATE
Not Breathing
EXPECTANT
Yes
Respiratory Rate
> 30
IMMEDIATE
≤ 30
Perfusion
Radial pulse absent or capillary refill > 2 sec
IMMEDIATE
Radial pulse present
or capillary refill < 2 sec
Mental status
Doesn't obey commands
IMMEDIATE
Obeys commands
DELAYED

D. JumpSTART- Pediatrics

1. Move the 'walking wounded.'
2. Stable RPM/Walking, prioritize as GREEN.
3. Stable RPM/non-ambulatory, prioritize as YELLOW.
4. If encountered with an infant and unable to walk or being carried, use JumpSTART. If the infant does not meet the RED criteria and has no signs of significant injury, infant may be prioritized as GREEN.
5. Using the JumpSTART System, use RPM (**R**espirations, **P**erfusion, **M**ental status) :
    1. Assess <u>RESPIRATIONS</u>:
        1. If respiratory rate is less than or equal to 45/minute or greater than or equal to 15/minute, go to PERFUSION assessment.
        2. If respiratory rate is greater than 45/minute or less than 15/minute, prioritize as RED.
        3. If pediatric victim is not breathing with pulse, open the airway and give 5 ventilations, if respirations RESUME, prioritize RED.
        4. If victim is still not breathing, prioritize as BLACK.
    2. Assess <u>PERFUSION</u>:
        1. Any major external bleeding should be controlled at this time.
            1. Apply a tourniquet to life-threatening bleeding in limbs. May apply tourniquet over clothing, proximal to the bleeding site, to save time. **(Procedure 48).**
            2. Ensure that the time of tourniquet application ("TK 20:30") is written on the tourniquet itself or written directly on the patient's forehead.
        2. Palpate a radial pulse or assess capillary refill time (CR).
        3. If radial pulse is present or CR is less than or equal to 2 seconds, go to MENTAL assessment.
        4. If no radial pulse or CR is greater than 2 seconds, prioritize as RED.
    3. Assess <u>MENTAL STATUS</u>:
        1. Assess Mental Status using (AVPU) Alert/Verbal, prioritize as YELLOW.
        2. Pain/Unresponsive, prioritize as RED.

JumpSTART Pediatric MCI Triage©



E. Special Considerations

1. The first assessment that produces a RED Ribbon stops further assessment. Tag the patient and move on to the next patient.

2. Only correction of life-threatening problems, such as airway obstruction or severe hemorrhage that can be controlled with tourniquet treatment should be managed during the triage phase.

3. Direct casualties to control bleeding by self-aide if available.

4. Triage personnel should carry only minimal equipment limited to ribbons, bandages, tourniquets/bleeding control kits and possibly airway adjuncts (oropharyngeal airways).

5. Do not waste time cutting off clothing to assess/locate the wound site of life-threatening bleeding during the triage phase. Apply tourniquet over clothing, proximal to the site of bleeding, and as high up the limb, tight as possible ("high & tight").

6. The use of wound packing, chest seals and needle decompression shall be instituted ONLY AFTER initial triage of accessible patients and tourniquet application in appropriate patients.

7. Bleeding control measures properly applied by non-MDFR personnel will be reassessed only AFTER all accessible patients have been triaged.

A. INTRODUCTION

1. The following is the procedure for the proper completion of a Florida EMS Report as required by Florida Statute 401 and the Miami-Dade Fire Rescue (MDFR) Department and when directed by an EMS Field Supervisor. Procedure 36 ONLY applies when an ePCR is NOT available AND a paper report is authorized by an EMS Field Supervisor. In all other circumstances, Procedure 40 shall direct EMS documentation.

2. An individual Florida EMS Report will be completed for each EMS related call received. This includes special assignments, such as falling out of bed, any call where no patient is found, where the patient was gone on arrival (GOA), or calls where a person refuses treatment for any reason. The minimum information required on these calls will be completion of the INCIDENT INFORMATION SECTION and an entry in the NARRATIVE SECTION listing all available information that clarifies your actions or inaction's. If your assessment of an individual's condition suggests that it is non-emergent in nature, a complete Florida EMS Report is still required.

   Unit Captains are responsible for ensuring that a Florida EMS Report is completed for every EMS related call.

3. There are only two instances in which a Florida EMS Report is not required. These are:

   a) A unit is canceled prior to arrival by the FAO.

   b) A unit is canceled after arrival by another MDFR unit.

Note: If your unit is canceled after arrival by a non-MDFR unit, you must complete a Florida EMS Report documenting in the narrative section the name and/or unit I.D. of the canceling party. This includes law enforcement officers, ambulance attendants, on-scene doctors and nurses, etc.

4. Information provided in the "Boxed" areas of the Florida EMS Report will be printed in CAPITAL letters.

5. Reports will be clear, legible, filled out in black ink only and completed by end of shift.

6. A complete Florida EMS Report will be given to any Squad accepting a patient.

B. INCIDENT INFORMATION SECTION

1. INCIDENT NUMBER - Enter the alarm number.

2. DATE - Lead zeros are required on all dates.

3. LICENSE # - Enter license number, the first person listed will be the one signing the report. If the MDFR personnel is a First Responder only, enter their name in the narrative section. When two units respond to an incident, the crew identification numbers of the personnel providing hands on care, or at least both units OIC's I.D.#'s will be entered.

4. UNIT # - Enter the three digit unit number followed by the shift.

Forty-hour staff will use "D" for forty-hour shift. This does not include special events or any peak load units.

5. TIMES - Use military time and complete as required. Lead zeros are required. The times specified with an asterisk (*) will be provided by Fire Alarm or CAD.

   a) CALL RECEIVED* - Enter the time the call was received by FAO.

   b) DISPATCH* - Enter the time your unit was notified to respond to the call.

   c) DEPART - Enter the time your unit departed its location and was en route to the scene of the incident.

   d) ARRIVAL * - Enter the time your unit arrived at the location of the incident or LZ.

   e) PT. CONTACT - Enter the time the EMT or Paramedic began patient assessment.

   f) ALERT TIME* - Time Trauma, STEMI, Stroke Alert is declared.

   g) TRANS ARRIVED* - Enter the time the transporting or transferring vehicle arrived. This includes the arrival of Air Rescue.

   h) PATIENT DEPART - Enter the time the patient actually leaves the scene to a hospital or LZ. If your unit is dispatched to another call before the patient leaves the scene enter: "9999" for the time.

   i) UNIT DEPART* - If your unit is transporting, enter the time your unit departed the scene.

   j) ARRIVED* - Enter the time your Rescue unit arrived at the hospital or landing zone with the patient.

   k) AVAILABLE* - Enter the time that your unit is in service and ready to respond to another call.

6. DEPARTMENT ID - Enter the last appropriate number. Miami Dade Fire Rescue is 1312, Air Rescue is 1313.

7. ALERTS - Fill in the appropriate box to indicate if a Trauma, STEMI, Stroke Alert was declared

8. TRANSPORT BY - Fill in the appropriate box.

9. ID # - Insert the appropriate ID number (found on the EMS Reference Sheet) for ambulance transfers/other agency or hospital transports.

10. STUDY - Fill in the designated number for a specific ongoing study that the report qualifies for.

11. NUMBER OF PATIENTS TRANSPORTED - Enter the number of patients transported by the same unit at the same time. Lead zeros are required.

12. PATIENT DISPOSITION - Fill in the appropriate box.

    a) TREAT/TRANS. GEN HOSPITAL - MDFR treated and transported patient to a non-trauma center.

    b) TREAT/TRANS PRIVATE VEHICLE - MDFR treated and released patient for private transport.

    c) TREATED NO TRANS. REQ - MDFR treated and the patient required no further emergency care.

    d) NO TREATMENT REQUIRED - MDFR evaluated the patient and no treatment was required.

    e) CALL CANCELLED - Call cancelled prior to arrival or on-scene.

    f) TREAT/TRANS. TRAUMA CTR. - MDFR treated and transported patient to a trauma center.

    g) TREAT/TRANSFERRED CARE - MDFR treated and released patient to another agency.

    h) TREATED/REFUSED TRANS - Patient treated by MDFR and then refused transport.

    i) REFUSED CARE - Patient was at the scene and refused treatment, whether injured or not.

    j) DEATH ON SCENE - Patient "pronounced" dead at scene (Protocol 27), whether or not treatment was attempted.

    k) NO PATIENT FOUND - No person found upon arrival.

    l) DNRO - MDFR upon arrival found patient with valid Do Not Resuscitate Order.

    m) INTERFACILITY TRANSFER - MDFR transported a patient from hospital to hospital.

13. RESPONSE/TRANS. MODE - Fill in the appropriate box for "To Scene" and "From Scene".

14. CALL LEVEL - Call level must be indicated as ALS, BLS or OTHER. A missed IV will be ALS. Exam only or exam with oxygen only will be indicated as BLS. Assessment using a glucometer and/or ECG will be BLS. Standby with PSD or public assist are examples of "other".

15. MILEAGE - Indicate total miles of transport from the scene to a medical facility, or total miles transferring from scene to LZ.

16. INCIDENT LOCATION - Address or location where patient contact is made. You may NOT enter "SAME" in this area.

17. INCIDENT ZIP CODE - Enter postal zip code of INCIDENT LOCATION (required for all responses).

C. PATIENT INFORMATION SECTION

1. PATIENT LAST NAME - Enter the patient's last name. In cases where the patient's LAST NAME is not obtainable, document "UNKNOWN".
2. PATIENT FIRST NAME - Enter the patient's first name. In cases where the patient's FIRST NAME is not obtainable, document "UNKNOWN".
3. PATIENT ADDRESS - Document the patient's home mailing address. In cases where the patient's address is not obtainable, document "UNKNOWN". In the event the address does not fit in this section, enter the address in the narrative section and document "SEE NARRATIVE".
4. ZIP CODE - Enter the patient's zip code. Use the four boxes that follow ZIP CODE for Country if other than USA.
5. SOCIAL SECURITY NUMBER - Enter the patient's Social Security number on all patient's transported by your unit. If not available, explain in narrative and document "N/A".
6. GENDER - Fill in the appropriate box.
7. DATE OF BIRTH - Required on all patients if available. In cases where the patient's DATE OF BIRTH is not obtainable, document "UNKNOWN".
8. AGE - Enter the patient's age, either as provided by the patient or the best estimate by field personnel. If age is given in months, completely mark the M box.
9. PATIENT # - Enter the patient number, when more than a single patient is involved with a single incident (i.e., "1 of 3").
10. ETHNIC ORIGIN - Fill in one category only.

D. PATIENT ASSESSMENT SECTION

This section should indicate the findings of the patient exam, history and condition and should be supported by the documentation in the narrative area of the report. Entries in these fields should reflect the relevant clinical findings, or lack of findings, for the proper assessment and treatment of the patient. The information boxes contained in this section are for data collection.

1. CHIEF COMPLAINT - What the patient tells you, or why others such as family or bystander called. This section requires an entry for all patients.
2. ALLERGIES - Indicate none, unknown, or specific allergy.
3. CURRENT MEDS - Indicate none, unknown or list all medications the patient is currently taking. Do not write “see list”.
4. INITIAL VITALS -
    a) Time taken - Time initial vitals are taken. Lead zeros are required in the time box only.
    b) Systolic - Document systolic BP.

c) Diastolic - Document diastolic BP. If BP was obtained via palpation, fill in PALP box.

d) Capillary Refill - Required for all pediatric patients.

e) Pulse - Document the patient's palpable pulse. This box will not contain any electronic readings.

f) Resp. - The patient's respiratory rate without assistance.

g) Glucose - Document the initial glucose reading when required.

h) SaO2 - Document SaO2 per Procedure 10.

i) Pupils - Fill in the appropriate boxes for left and right pupils. If "Normal" is selected, no other selection is required.

5. MEDICAL HISTORY - Fill in all boxes that are applicable. If no medical history, fill in "none". If other, fill in "other" and utilize the space provided.

6. AIRWAY - On initial assessment, indicate if the patient's airway is Patent or Obstructed.

7. BREATHING - Fill in the appropriate box.

8. BREATH SOUNDS - Fill in the appropriate box.

9. CIRCULATION - Fill in the appropriate box.

10. LOCATION - Indicate the location you used to check for a pulse. Only one box is required to be filled in.

11. SKIN TEMP - Fill in the appropriate box.

12. SKIN PERFUSION - Fill in the appropriate box. If "other" is used, must be documented in narrative section.

13. SKIN MOISTURE - Fill in the appropriate box. If "other" is used, must be documented in narrative section.

14. GLASGOW COMA SCORE - Complete for all patients older than 5 years. For younger patients indicate the level of consciousness and type of response in the Narrative Section.

E. VITALS SECTION

Record any ECG monitoring and treatment. Any medications (exceeding oxygen and IV fluids) must be documented according to time administered, dose and route of administration. A second set of vitals will be required for all patients transported, transferred, refusing transportation, or if the initial vital sign is outside the normal limits, or if relevant to the patient’s history, condition, or after a medication is administered. If any part of the vital signs cannot be assessed or re-assessed indicate the reason in the narrative section.

Capnographer readings will be required anytime a MDFR unit transports a patient that is intubated. One reading will be documented during initial intubation, or in the case of an inter-hospital transport, upon initial receipt of an intubated patient. A second reading will be documented upon release to an approved health care facility.

F. INTERVENTIONS SECTION

1. ECG - Fill in the appropriate box for the initial rhythm and rhythm upon release.
2. AIRWAY INTERVENTIONS - Indicate the intervention(s) attempted/used to stabilize the patient's airway. The boxes to the right allow you to record the number of attempts and if the attempt was successful (S), or unsuccessful (U). The (3+) indicates that 3 or more attempts of this intervention were made by your crew. When oxygen is delivered, fill in the appropriate device and liters-per-minute (LPM).
3. CIRCULATION INTERVENTIONS - Indicate the intervention(s) attempted/used to assist the patient's circulation. Indicate what ECG monitoring was done - if any.
4. MCI - Fill in if a multiple causality incident was declared.
5. INCAPACITATED - Fill in if the Incapacitated Person's Law was implemented (Protocol 2).
6. SECONDARY INTERVENTIONS - Fill in all applicable.
7. COMMUNITY SERVICE REFERRAL - Fill in if when an Elder Links / Community Service Referral form is completed (Protocol 29).
8. FLUIDS - Fluids must be recorded as to the access location, route, the attempts, and success/unsuccessful of the IV attempt, the type of fluid and the rate and volume administered. Medicated drips will be recorded in the "Treatment" area of the VITALS section and/or the "P" - plan section of the narrative.
9. MEDICATIONS - Insert all applicable medication codes (found on the EMS Reference Sheet) administered.
10. AED ONLY PRIOR TO EMS - Refers to the incidents where an AED was administered prior to the arrival of MDFR (i.e., lay public, PSD, etc.). Excludes incidents in which CPR was administered in combination with the use of an AED.
11. AED AND CPR PRIOR TO EMS - Refers to the use of an AED in combination with CPR prior to the arrival of MDFR (i.e., lay public, PSD, etc.).
12. CPR ONLY PRIOR TO EMS - Refers to the use of CPR prior to the arrival of MDFR (i.e., lay public, PSD, etc.). Excludes incidents in which an AED was administered in combination with CPR.
13. AED ONLY BY EMS - Refers to incidents where an AED was administered by MDFR. Excludes incidents in which CPR was administered in combination with the use of an AED.
14. AED & CPR BY EMS - Refers to the use of an AED in combination with CPR by MDFR.
15. CPR ONLY BY EMS - Refers to the use of CPR by MDFR. Excludes incidents where an AED was administered in combination with CPR.

NOTE: Numbers 14-17 address the Return Of Spontaneous Circulation (ROSC). This category contains information on whether or not spontaneous circulation (palpable pulse or blood pressure) was restored in the field and present upon delivery from EMS to an Emergency Department (ED). Fill in only one box if appropriate for numbers 14-16.

16. AED ADMINISTERED PRIOR TO EMS & ROSC AT ER - Fill in "yes" if the cardiac arrest patient was in a shockable rhythm when an AED was administered prior to the arrival of MDFR and ROSC present at ED release.

17. AED ADMINISTERED BY EMS & ROSC AT ER - Fill in "yes" if the cardiac arrest patient was in a shockable rhythm when an AED was administered by MDFR and ROSC present at ED release.

18. NO AED ADMINISTERED AND ROSC AT ER - Fill in "yes" if the cardiac arrest patient was in a shockable rhythm, no AED was used and ROSC present at ED release.

19. ROSC PRESENT AT ER - Fill in "yes" if the cardiac arrest patient was NOT in a shockable rhythm but ROSC present at ED release.

G. TRAUMA INFO SECTION

This area must be completed if the nature of call is trauma related or if a medical patient sustained an injury secondary to the medical complaint.

1. INJURY SITE/TYPE - Indicate injury(s) the patient has sustained by filling in the corresponding boxes(s) in the matrix for site and type of injury (choose up to five). If there is no injury, completely fill in the "none" box in the upper left corner.

2. CAUSE OF INJURY - Write in the injury code number (from the EMS Reference Sheet) that best describes the injury (choose up to three).

3. DATE OF INJURY - Enter the date on which the injury occurred.

4. PROTECTION - Entry is required in this area when the cause of injury is motor vehicle crash, marine vehicle crash or bicycle crash. Fill in all applicable.

5. PATIENT LOCATION - Fill in the box that denotes the location of the patient in or the vehicle. If "other" is chosen, explain in the narrative.

6. VEHICLE DEFORMITY - An entry is required in this area when the cause of injury is motor vehicle crash and a deformity to the vehicle is suspected to be the result of the patient’s impact with any of the surfaces indicated.

7. PARAMEDIC JUDGMENT - Must be filled-in when a Trauma Alert is declared using paramedic judgment (only to be used if patient does not meet category 1 or 2 criteria).

8. ADULT CATEGORY #1 - Fill in one box if the patient is a Trauma Alert and meets one of the criteria (choose only one).

9. ADULT CATEGORY #2 - Fill in two boxes if the patient is a Trauma Alert and meets two of the criteria (only to be used if patient does not meet category 1 criteria).

10. PEDIATRIC CATEGORY #1 - Fill in one box if the patient is a Trauma Alert and meets one of the criteria (choose only one).

11. PEDIATRIC CATEGORY #2 - Fill in two boxes if the patient is a Trauma Alert and meets two of the criteria (only to be used if patient does not meet category 1 criteria).

NOTE: A Trauma Alert Criteria must be selected if a Trauma Alert is declared.

H. NARRATIVE SECTION

The narrative should be completed as the sequence of events took place, from arrival until the patient's release. All treatment initiated by BLS and ALS units on each patient will be documented on each report. All components of the SOAP format are required when completing the narrative section.

1. PROVIDER ASSESSMENT - Fill in the most appropriate code from the EMS Reference Sheet (required on all calls).

2. S SUBJECTIVE - What the patient, family, or bystanders tell you about the condition.

3. O OBJECTIVE - Your findings or non-findings upon arrival and from the completion of a thorough patient assessment. This information must be complete, including information that is relevant to the chief complaint even though it may have been covered in previous sections.

4. A ASSESSMENT - This information is reflected in the above PROVIDER ASSESSMENT code boxes.

5. P PLAN OF ACTION - Describe your patient management. Document all treatments given to the patient in the order in which they were given as well as changes in the patient's condition that are observed following treatment. This area should also indicate the condition of the patient upon release.

   If in the SOAP format information is received after the appropriate section is completed, denote the applicable SOAP letter with a circle and add the information to the left edge of the narrative section.

6. If additional space is necessary, complete a Supplemental Narrative form and attach it to the Florida EMS Report.

I. LEAD CREW & REVIEWER AREA

1. LEAD CREW (SIGNATURE) - Signed by OIC or acting OIC. If acting for training purposes, both unit OIC and FF must sign report. When two units provide patient care, each OIC must sign the report.

2. LEAD CREW (PRINT NAME) - OIC is to clearly print their name with rank. Acting OIC's will enter A/Lt. or A/Capt. If acting for training purposes, both unit OIC and FF must print their name report. When two units provide patient care, each OIC must print their name on the report.

3. REVIEWER (PRINT & INITIAL) – Not utilized.

J. ABBREVIATED REPORT

1. If an MDFR non-transport unit releases a patient to a Rescue prior to completion of a Florida EMS Report, the non-transport unit OIC must complete and pass-on, at minimum, an Abbreviated EMS Report.

2. If an MDFR unit releases a patient to an ambulance (non-MDFR) prior to completion of a Florida EMS Report, the non-transport unit OIC must complete and pass-on, at minimum, an Abbreviated EMS Report.

3. When a Rescue is requested to clear from a hospital for a call and the report is not completed, the unit OIC must pass-on the HOSPITAL copy of the report which will contain, at minimum, an Abbreviated EMS Report. The Rescue unit will then have the report completed by the end of shift.

An Abbreviated EMS Report will be completed on a Florida EMS Report form and will contain, at minimum, the following:

1. Unit #
2. Alarm #
3. Cause and anatomy of injury if traumatic
4. Two complete set of vitals
5. Chief complaint
6. Narrative covering the minimum of SUBJECTIVE and OBJECTIVE
7. Original signature of LEAD CREW
8. Trauma Alert Criteria if applicable

*Remember an abbreviated report is not a substitute for a completed Florida EMS Report.

K. MAKING CORRECTIONS

If a correction is necessary on the Florida EMS Report:

1. Making corrections of a filled-In box, correct the error by "X"ing out the incorrect box and filling-in the correct box.

2. When correcting an error in the write-in "boxes" area, strike through the incorrect response using a single stroke, not an "X". Then place correction above strikeout.

3. Do not initial corrections.

4. Do not write on the margins of the report. You may write on the perforated edge only.

5. If a major part of a report requires a re-write, use a complete new form (both pages). Attach both reports and forward through normal channels. If the original report is contaminated, try to utilize an uncontaminated page, (yellow, green). If the complete report is unusable, include the original report's ID#, (such as M 0505387), in the narrative of the second report.

6. Reviewers shall not mark or write on completed reports, except for Reviewer's Box.

L. DISTRIBUTION OF COPIES

1. HOSPITAL COPY - Distributed to transporting unit or left at hospital upon patient release. If the copy is eligible, a photo copy may be left. Should there be no transport, the copy is to be left attached so that Central Records can destroy it. Do not dispose of any part of a complete report in the regular garbage.

Florida Statue 401 requires that a completed, legible Florida EMS Report be provided to the receiving hospital. Upon completion of patient care transfer to the receiving facility, if the completed Florida EMS Report Hospital Copy is not legible, photo copy the complete document and provide a legible copy. A completed report requires all dispatch times.

2. STATION COPY - To be retained at the units ‘05’ station. Copies will be filed separately by each unit in a station for a one-month period of time.

3. Remaining Report - Forwarded to the specified reviewer.

4. At no time will copies of a report be distributed from the individual station or unit to any member of the public including family, attorneys or law enforcement investigators. Central Records is the sole source for copies of reports. All interested inquires will be directed there.

M. EMS Signature Form: Assignment of Benefits / HIPAA Acknowledgement / Patient Release (refusal)

1. HIPAA ACKNOWLEDGEMENT - A signature must be obtained for any patient treated by MDFR. If the patient is a minor, obtain parent/guardian signature in Section “A” of the EMS signature form and document their name and relationship next to the signature, refer to Protocol 3 for Treatment of Minors.

   If the patient is physically unable to sign, write "PUTS" (Patient Unable To Sign) on the signature line, the physical condition must be reflected in the EMS report.

   This option may only be exercised on patients who were NOT transported and who did NOT refuse treatment.

   Federal Law as well as Department Policy and Procedure, Protected Health Information I-H-1, requires that every patient must sign the Florida EMS Report acknowledging that they received their HIPAA Privacy information.

   a. Provide the patient or guardian a MDFR HIPAA NOTICE OF PRIVACY PRACTICES form.

   b. Print patient's name in the space provided.

2. ASSIGNMENT OF BENEFITS – All patients transported by MDFR are required to sign an assignment of benefits, this will be done in section “A” of the EMS signature form.

   If the transported patient is unable to sign, there are two options:

i. Request a signature from a representative, as detailed below. If signed by a representative, it must be stated what their relationship is to the patient and the reason the patient could not sign.

Federal Regulations state any one of the following may sign, as a representative, on behalf of the patient in section "B" of the EMS signature form:

a) The beneficiary's legal guardian

b) A relative or other person who receives Social Security or other governmental benefits on the beneficiary's behalf.

c) A relative or other person who arranges for the beneficiary's treatment or exercises other responsibility for his or her affairs.

ii. If no representative is available, an MDFR care provider must sign section "C" of the EMS signature form AND complete section "D1" or "D2" of the EMS signature form.

Section D1 allows for a representative of the receiving facility to sign, affirming that the patient was transported to the stated hospital.

Federal Regulations do not define who is or is not a representative of the receiving facility but it would generally be accepted that a nurse or other staff who received the patient is adequate. The name of the facility, date and time must also be completed.

For clarification, a signature from a receiving facility representative does NOT place any responsibility for payment on that individual or the receiving facility. The signature only confirms that the patient was transported to the facility.

If you are unable to obtain a signature from a facility representative, "D2" must be completed in addition to a signature in section "C" of the EMS signature form. "D2" requires documentation from the receiving facility be collected and attached to the EMS signature form.

Acceptable forms of documentation include the hospital registration or admissions sheet.

Attachment A has also been provided to detail this process.

3. PATIENT REFUSAL - A signature and initials must be obtained for any patient that refuses treatment and/or evaluation and/or transport (to the most appropriate facility) and/or additional treatment as recommended by MDFR.

There are three options for release/refusal on the signature form. Only the adult patient or parent/ legal guardian of a minor may refuse for a minor. Refer to Protocol 3, Care of Minors, for additional direction in the case of refusal of treatment and/or transport for a minor.

A family member may not refuse treatment and / or transport for an adult patient regardless of any legal paperwork presented on-scene.

Three options on signature form for release/refusal:

1. The patient refuses treatment and transport, OR
2. The patient accepts transport but refuses any recommended treatment(s), OR
3. The patient accepts treatment but refuses transport to the closest appropriate hospital as discussed in Protocol 4.

Any adult patient who requires treatment and/or transport who does not meet the following three conditions must be treated and/or transported.

MDFR Refusal Assessment:

1. Patient is alert to person, place and time
2. Patient denies ETOH or drug use
3. Patient denies suicidal/homicidal ideation

The patient must meet all the criteria of the MDFR Refusal Assessment to sign AND initial any of the release/refusal options.

If the patient is unable to sign and under ordinary circumstances due to a handicap would not be able to sign, write "PUTS" on the signature line and document appropriately in the narrative section. The patient's inability to sign must not be connected in any way to the present illness.

Patient refuses to sign release/refusal:

If a patient meets the MDFR Refusal Assessment criteria but refuses to sign the release/refusal form, it must be clearly documented in the narrative section that the patient refused to sign the release/refusal signature form. In addition to the OIC's signature in the MDFR Refusal Assessment section, attempt to obtain a signature from a family member, witness, or police officer. When all other attempts fail, have a crew member sign as a witness. Have the family member, witness, police officer or crew member sign on the patient signature line and print their name afterward.

N. ECG Strips

All 12 Lead ECG strips will be attached to the Station Copy.

O. Trauma Alert

A completed Florida EMS Run Report should accompany a patient to the Trauma center. If, due to patient care necessity, a completed Florida EMS Run Report is not available upon release to the transporting unit – a complete report will be faxed to the appropriate number below upon returning to the station. If technical difficulties are encountered while attempting to fax the report – forward a copy of the completed report to your EMS Field Supervisor via Interoffice mail with a note explaining the specific technical difficulty encountered.

JMH Ryder Trauma Center FAX: 305-585-0031

Miami Children's Hospital FAX: 305-669-7130

Memorial Regional Hospital FAX: 954-985-1493

P. Conclusion

Documentation of every call is important, regardless of the service level provided. It is the justification of our actions, or non-actions, and proof of the continued, quality care given to the patients seen by Miami Dade Fire Rescue personnel. The need to complete an EMS Report should never delay or interfere with patient management. Remember that the patient report is part of the person's permanent medical record and can be subpoenaed in court. The purpose of the report is to answer questions from the receiving hospital, doctor, police investigator, attorney, or judge.

NOTE:

1. Lead zero's are required for all dates.
2. All times are to be in 24-hour "military time" format.

This procedure is designed to provide for the record keeping, security and distribution of Controlled Substances by Miami-Dade Fire Rescue personnel in accordance with current Federal laws, Florida Statues and Florida Administrative Code 64J. It is the responsibility of each unit OIC or Acting OIC to ensure the security of their controlled substances and that the Electronic Controlled Substance eLog (CS eLog) is completed entirely and accurately.

A. Daily OIC Exchange of Responsibility
B. Controlled Substance Security
C. Medication Administration
D. Operations Inventory
E. EMS Field Supervisor Inventory
F. Special Events Inventory
G. Headquarters Master Inventories
H. USAR Inventory
I. Haz-Mat Inventories
J. Unit-to-Unit Transfers
K. Expired Medications
L. Damaged Medications
M. Lost, Missing, or Stolen Medications

A. Daily OIC Exchange of Responsibility

1. At shift change, or anytime there is a change of responsibility, both off-going and on-coming Officers-in-Charge (OIC), will do a face-to-face OIC Exchange of the CS eLog.

2. A Daily successful OIC Exchange must be completed for each MDFR unit that carries controlled substances, even if the controlled substance count is zero (0). Any changes in OIC throughout the shift will also require a successful OIC Exchange.

3. Both off-going and on-coming Officers-in-Charge (OIC) will visually inspect the controlled substances for security and accuracy.

4. This inspection is to include an examination of each vial for tampering, color, clarity, consistency and expiration date.

5. Drug keys to all locked areas are to be exchanged at the time of the OIC face-to-face drug inspection. Drug keys are to be kept on the OIC's person at all times.

6. A successful OIC Exchange will be documented within the CS eLog. The log will be initiated by the OIC taking responsibility of the controlled substances. The relinquishing OIC must affirm via digital signature, the accuracy of the CS eLog to successfully complete the exchange.

7. The appropriate EMS Field Supervisors will be notified via e-mail daily at **0800, 1100, and 1700** of incomplete CS eLog. The EMS Field Supervisor and/or the appropriate Battalion Chief will contact the Unit OICs immediately upon notification to complete their incomplete daily CS eLog.

8. Battalion Chiefs will be notified via e-mail daily at **0800 and 1700** of incomplete CS eLogs. The appropriate Battalion Chief will make sure Unit OICs complete their daily CS eLog.
9. Company Officers working on the same unit at shift change must complete the OIC Exchange at shift change. One of the on-coming EMTs or paramedics assigned to the unit can witness the log.
10. In the event that a face-to-face drug inspection and OIC Exchange is not possible with the off-going OIC, the inspection and OIC Exchange will be completed and witnessed by an EMT or paramedic assigned to that unit. This procedure is intended to serve as an exception rather than standard practice.
11. If any discrepancies are found and/or a successful OIC Exchange cannot be completed, an EMS Field Supervisor will be contacted to resolve the Controlled Substance Log issues. Do not attempt to take ownership of the CS eLog by using drug counts other than what is on hand.

B. Controlled Substance Security

1. After completing an OIC Exchange, the unit officer owns all responsibility for the CS eLog until the next successful OIC Exchange. The owner of the CS eLog is responsible for any damage, lost, missing, or stolen medications, along with any discrepancies discovered during their time of ownership.
2. For the safety and security of medications, all narcotics will be locked in the unit's onboard security cabinets.
3. All portable narcotics will be kept in their assigned small boxes and stored in the onboard security cabinets. Deployment of portable narcotics will occur under the following conditions:
    a) Referenced alarm necessitates the use of Controlled Substances
    b) Occupancy dictates the need to deploy portable (i.e. High Rise, Warehouse, Mall)
    c) Any other anticipated operational needs that enhances patient care dictated by the OIC

C. Medication Administration

1. To perform a medication administration entry in the CS eLog, the closed ePCR must reflect the correct incident number, patient's name, the correct controlled substance and the correct dose(s) administered.
2. The information from the closed ePCR must be imported by clicking the "ADD" button. The CS eLog entry will include the incident number, the patient's name, officer in charge of medication administration, name of the witness, the dose given and the amount wasted.

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3. The unit OIC will confirm that the information is accurately documented within both the ePCR and the CS eLog.

4. If a successful medication administration entry cannot be completed because the controlled substance was not entered in the ePCR, the following must be done:

    a. The unit OIC will add an addendum to the closed ePCR on the SafetyPad website.

    b. The EMS Field Supervisor will verify that the addendum was added prior to completing an "Administer Override" within the Units CS eLog.

D. Operations Inventory

1. All transport units shall maintain a standard operational cache of **five (5)** units of each controlled substance. The cache may be adjusted as needed based on call volume and medication utilization.

2. All non-transport units shall maintain a standard operational cache of **three (3)** units of each controlled substance. The cache may be adjusted as needed based on call volume and medication utilization.

3. Mandatory notification and re-ordering is required, through an EMS Field Supervisor, when the inventory is less than half (½), of the standard operational cache.

4. Upon delivery of the controlled substance, a face-to-face visual inspection of the medication must be completed by the issuing EMS Field Supervisor and the receiving unit's OIC.

5. A Unit-to-Unit transfer must be completed for each type of controlled substance transferred between the EMS Field Supervisor and a unit. The receiving unit's OIC will witness the transfer and confirm the correct receiving unit, medication and count transferred.

E. EMS Field Supervisor Inventory

1. EMS Field Supervisors will have a standard operational cache of **forty (40)** of each type of controlled substance. This cache may be adjusted as needed based on call volume and medication utilization.

2. A Unit-to-Unit transfer must be completed for each type of controlled substance transferred between the EMS Field Supervisor and a unit. The receiving unit's OIC will witness the transfer and confirm the correct receiving unit, medication and count transferred.

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3. Discrepancies between the EMS Field Supervisor's on hand and CS eLog drug count number will be resolved by contacting the EMS OIC or the EMS Division Chief.

F. Special Events Inventory

1. Special Events units will have a standard operational cache of two (2) of each type of controlled substance.

2. Obtaining any controlled substances for a special event unit will be the responsibility of the Special Events Bureau.

When a Special Events unit is placed into service, the controlled substances are to be inventoried, verified by two personnel and an OIC Exchange of the CS eLog will be completed to reflect the inventory.

3. All Special Events units will be inventoried and an OIC exchange of responsibility must be completed at least once every seventy-two (72) hours.

4. The Special Events Bureau OIC will ensure that Special Events personnel complete their OIC exchange of responsibility.

G. Headquarters Master Inventories

1. The EMS Division's appointed designees shall inventory and maintain the Headquarters controlled substance master inventories utilizing the CS eLog.

2. A Unit-to-Unit transfer must be completed for each type of controlled substance transferred to or from the Headquarters master inventories.

3. The Headquarters master inventories will be inventoried and an OIC exchange completed at least once every week.

4. The EMS OIC will ensure that the appointed designee completes their OIC exchange of responsibility.

H. USAR Inventory

1. The Special Operations Division's appointed designees shall inventory and maintain the USAR controlled substance inventory utilizing the CS eLog.

2. A Unit-to-Unit transfer must be completed for each type of controlled substance transferred to or from the USAR inventory.

3. The USAR inventory will be inventoried and an OIC exchange completed at least once every week

4. The USAR Bureau OIC will ensure that the appointed designee completes their OIC exchange of responsibility.

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I. Haz-Mat Inventories

1. The Special Operations Division's appointed designees shall inventory and maintain the Haz-Mat controlled substance inventories utilizing the CS eLog.

2. A Unit-to-Unit transfer must be completed for each type of controlled substance transferred to or from the Haz-Mat inventories.
3. The Haz-Mat inventories will be inventoried and an OIC exchange completed at least once every week.The Haz-Mat Bureau OIC will ensure that the appointed designee completes their OIC exchange of responsibility.

J. Unit-to-Unit Transfers

1. Only complete and un-opened controlled substances may be transferred between units. Partially used medication will not be transferred between units. This transfer between units may occur without an EMS Field Supervisor present.
2. A Unit-to-Unit transfer must be initiated and completed on the sending unit's CS eLog.

3. The receiving unit's OIC will witness the transfer and confirm the correct receiving unit, medication and count transferred.

4. A witness signature will be required by the receiving unit's OIC to complete the sending unit's CS eLog.

K. Expired Medications

1. Controlled substance medications that are expired must be reported to the EMS Field Supervisor immediately upon determination.

2. The EMS Field Supervisor will collect and return the expired medications to the headquarters expired inventory. A successful Unit-to-Unit transfer will be documented for each type of expired controlled substance exchanged with the EMS Field Supervisor.

L. Damaged Medications

1. Controlled substance medications that are deemed damaged/unusable must be documented in the CS eLog immediately upon determination.

Note: *Medications opened in anticipation of administering to a patient that are not used are considered damaged/unusable.*

2. The unit OIC will enter the information using the "Damaged/Unusable Meds" button on the "Administer" page within the Units CS eLog.

3. Once the unit OIC has completed the Damaged/Unusable Med form, an EMS Field Supervisor will be contacted immediately.

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4. The EMS Field Supervisor will enter the information using the “Fill” button next to the completed “Damaged/Unusable Med” in the “Administer Override” page within the Units CS eLog.

5. After contacting an EMS Field Supervisor, the unit OIC along with a witness, will safely and properly dispose of the remaining medication.

M. Lost, Missing, or Stolen Medications

1. Controlled substance medications that are lost, missing or stolen must be reported to the EMS Field Supervisor and Battalion Chief/Bureau OIC immediately upon determination.

2. The EMS Field Supervisor will initiate the investigation. The Battalion Chief/Bureau OIC will be notified immediately of the discrepancy.

3. After investigating, if the discrepancy is found to be suspicious or found to be unexplained, the Battalion Chief/Bureau OIC will notify the appropriate Division Chief and the EMS Division Chief. The EMS Division Chief will notify the Medical Director.

4. Contact will be made with the proper law enforcement agency having jurisdiction by the Battalion Chief/Bureau OIC.

5. The EMS Field Supervisor will enter the information using the, “Lost, Missing, or Stolen” button in the “Administer Override” page, within the Units CS eLog.

6. The Battalion Chief/Bureau OIC will prepare the final report, with input from the EMS Field Supervisor, appropriate field personnel, and if necessary, the law enforcement agency having jurisdiction. The final report on the incident will be sent to the Assistant Chief of Operations.

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A. Introduction

Nerve Agent Antidote Kit (DUODOTE™). A DUODOTE™ kit is an alternative way to administer atropine and 2-PAM Chloride in response to symptomatic nerve agent (or similar toxin) exposure. It replaces the MARK I kit in all situations. Unlike the MARK I kit, the DUODOTE™ is a single auto injector. The DUODOTE™ contains 2.1 mg of Atropine Sulfate and 600 mg of 2-PAM Chloride (Pralidoxime) **Protocol 25.** The DUODOTE™ Auto-Injector is intended to be utilized by Department personnel for self-administration in the case of an exposure with symptoms of a chemical nerve agent.

B. Procedure

Adult Care

BLS

1. Remove the DUODOTE™ kit from the protective pouch. Hold unit in dominant/strong hand by its “body”.
2. Keep GREEN tip pointed down. This is the “needle” end of the auto-injector.
3. REMOVE THE GRAY “SAFETY” CAP. If the gray safety cap is in place, the auto injector will not fire.
4. Chose the location to inject. It should be a large muscle mass; the outer thigh is the most common site. Remove any wallets, pocket guides, or other potential obstructions. The DUODOTE™ should be able to deploy through light clothing.

   NOTE: For thinner individuals, use the upper-outer buttocks as an injection site.
5. Grasp the unit and position the green tip of the injector on victim's outer thigh at an approximately 90 degree angle
6. Push firmly until auto-injector fires.
7. Hold in place for 10 seconds to ensure medication has been properly delivered.
8. Remove the DUODOTE™ auto injector and inspect for the (now visible) needle from the green tip. If the needle is not visible, the auto injector has not fired. Make sure the gray safety cap is removed and repeat the process.
9. Dispose of the DUODOTE™ properly.
10. Complete evacuation and decontamination procedures. Re-evaluate for need of further intervention.

C. Precautions

1. The Auto-Injector is designed for the adult only.

2. The kit may function improperly in temperatures below 32°F. Keep it close to your body in colder temperatures. Do not use kits that have frozen.

3. Note the expiration date on each unit and replace as necessary.

A. **Procedure**

General Care

EMR/BLS

1. Prepare Equipment:
   a) 1cc syringe w/removable needle
   b) MAD® 300 (Mucosal Atomization Device)
   c) Medication:
      a. Narcan (naloxone**)** Medication 26
2. Calculate the appropriate dose.
3. Place the proper dose of selected medication in the syringe.
4. Expel any air within the syringe.
5. Attach the MAD® to the syringe making sure it is secured firmly to the syringe.
6. Insert the MAD® into the left nostril until it seals against the edges of the nostril.
7. Deliver medication by briskly compressing syringe, deliver during inhalation if possible.
8. If second dose is required, administer the medication in the right nostril.

ALS

   b. Versed (midazolam) Medication 24
   c. Fentanyl Medication 16

NOTES:

Start with the left nostril first. Only utilize one nostril at a time.

No more than 1 mL of medication should be administered per nostril for adults.

No more than 0.5 mL of medication should be administered per nostril for children ten (10) years of age or under.

If being used for seizures, once seizure activity has stopped or lessened, IV access Procedure 13**.** MUST be established or at least attempted in case future medication maybe required. *IV access is an ALS skill*

A. Introduction

This procedure is used for the completion of an electronic patient care report (ePCR) as required by Florida Statute, Florida Administrative Code and the Miami-Dade Fire Rescue (MDFR) Department. An ePCR must be completed for every patient on every 911 call with an EMS dispatch signal, as well as any non-EMS dispatch signals where a person requires medical assistance. **A "patient" is any person for whom a 911 call for assistance has been made for any medical reason, regardless of whether that person has made the call for themselves, or whether someone else made the call, with or without the person's knowledge/consent. If a 911 call was made, or an alarm number generated, with the intent to provide a person with medical assistance, then an EMS report with the appropriate disposition must be completed.** If assessment of a patient's condition suggests that it is non-emergent in nature or no treatment is required, a complete ePCR is still required. This includes DOA's or calls where a person refuses evaluation, treatment, and/or transport for any reason. **An ePCR report that has been started must be completed, and in a "Closed" status by the end of the OIC's shift.**

NOTE: All Elements listed below with an asterisk (*) will be highlighted in red on the tablet and are mandatory either all the time, or conditionally based upon previous entries. These mandatory elements may be subject to change with updates to the ePCR application.

B. Crew Change

NOTE: ePCR devices should be "Powered Off" and restarted at the beginning of every shift change.

Logging into the MetroPCR Application

A "Sign Out" must be performed from the Menu within the MetroPCR application at every change of shift, or anytime there is a change in the OIC. This will clear out the previous crew for all **new** reports started, and will allow the new OIC to log in.

1. **Unit*** - Confirm or select the correct unit designator as identified within CAD.

2. **Shift*** - Select the correct shift.

3. **Transport/Equipment Capability*** - Confirm or select the correct transport and equipment capabilities of the Unit.
4. **Attached Device*** - Confirm or Enter the LifePak 15 serial number in the correct format; LP15######### (the "LP" must be capitalized, followed by 15 and the eight-digit serial number of the LifePak).
5. **Crew Members*** - Select the crew using "Add Crew Member". Anytime personnel on the unit change, the crew setup must be modified to accurately reflect the current staffing. For example, if a unit is riding short due to training, the crew member who is absent must be removed (and added upon their return). The Officer in Charge, or Acting Officer in Charge will be the first person added to the crew list with their "role" set as Officer in Charge, or Acting Officer in Charge respectively.

NOTE: If a report is started prior to the "Sign Out/Sign In" step, or additional crew members need to be added or removed from a report; the Crew on an "Open" report must be edited from the Crew section in the navigation panel at the top of the left side.

C. CAD Times

NOTE: Depending on the final disposition of the report, not all CAD times will be required. If a CAD "push" is not received, or information from the CAD "push" is missing, the elements highlighted in red on the tablet must be completed manually in order to close the report.

1. **Dispatched** - Enter the date/time the responding unit was notified by dispatch.
2. **En Route*** - Enter the date/time the unit responded.
3. **At Scene*** - Enter the date/time the responding unit arrived on the scene.
4. **At Patient*** - Enter the date/time the responding unit arrived at the patient's side. This is not pushed by the CAD and must always be manually entered.
5. **Depart Scene*** - Enter the date/time the responding unit left the scene.
6. **At Destination*** - Enter the date/time the responding unit arrived with the patient at the destination.
7. **Dest Transfer (PX Time)*** - Enter the date/time the patient was transferred from this EMS agency to another agency for care.
8. **In Service** - Enter the date/time the unit back was back in service and available for response

D. Dispatch

NOTE: If a CAD "push" is not received, or information from the CAD "push" is missing, the elements highlighted in red on the tablet must be completed manually in order to close the report.

Dispatch

1. **Incident Number*** - Enter the seven-digit incident (alarm) number assigned by Dispatch.
2. **Incident Type** - Select the incident type.
3. **Incident Location Type** - Select the appropriate kind of location where the incident happened.
4. **Location Name** - Enter the name of the facility, business, building, etc. associated with the scene of the EMS event.
5. **Street Address*** - Enter the street address where the patient was found, or if there is no patient, then the address to which the unit responded.
6. **Apt, Suite or Room** - Enter the number of the specific apartment, suite, or room where the incident occurred if applicable.
7. **City*** - Enter the city where the patient was found or to which the unit responded (or best approximation)

8. **State*** - State defaults to Florida.
9. **Zip Code*** - Enter the ZIP code of the incident location.
10. **Cross Street** - Enter the nearest cross street to the incident address or directions from a recognized landmark or the second street name of an intersection.
11. **Mile Marker or Major Roadway** – Enter the mile marker or major roadway associated with the incident location.

E. Response

1. **Unit Call Sign*** - The EMS unit number used to dispatch and communicate with the unit (Defaults to Crew Setup).
2. **Shift*** - The shift on which the call occurs (Defaults to Crew Setup).
3. **Service Requested*** - Select the appropriate type of service or category of service requested of the EMS agency responding for this specific EMS event.
    a) **Emergency Response (Primary Response Area)**: Emergent or immediate response to an incident location, regardless of method of notification (e.g., 911, direct dial, walk-in, flagging down, etc.)
    b) **Emergency Response (Mutual Aid)**: Response of emergency medical services, and other emergency personnel and equipment, to a request for assistance from an outside agency.
    c) **Hospital-to-Hospital Transfer**: Any transfer, after initial assessment and stabilization, from and to a healthcare facility, to include specialty hospitals, for the purpose of continuation of acute care, this would also include emergent transfer requests (e.g., hospital or free-standing ED to hospital, clinic to hospital, urgent care center to hospital).
    d) **Standby**: Initial request for service was for purposes of being available in case of a medical/traumatic emergency (e.g., sporting/public events, fires, police action)
    e) **Support Services**: The unit responded to provide support not otherwise specified, with no patient care.
4. **Unit Capability*** - The level of care (BLS or ALS) the unit is able to provide based on the unit's treatment capabilities for this EMS response. (Defaults to Crew Setup).
5. **Response Mode to Scene*** - Select the appropriate response, indicating whether the response was emergent or non-emergent. An emergent response is an immediate response (typically using lights and sirens).
6. **Delays***
    a) **Type of Response Delay** - Select the response delays, if any, for the EMS unit associated with the EMS event.
    b) **Type of Scene Delay** – Select the scene delays, if any, for the EMS unit associated with the EMS event.
    c) **Type of Transport Delay** – Select the transport delays, if any, for the EMS unit associated with the EMS event.
    d) **Type of Turn-Around Delay** – Select the turn-around delays, if any, for EMS unit associated with the EMS event.

7. **Mass Casualty Incident?** - Indicator if this event would be considered a mass casualty incident. A selection of "Yes" will require additional elements to be selected:
   a) **Triage Tag Color*** - Select the color associated with the initial triage assessment/classification of the MCI patient.
   b) **Number of Patients at Scene*** - Select the Indicator of how many total patients were at the scene.
   c) **Triage Tag Number** - Enter the Triage Tag Number.

F. Patient

NOTE: The "No" symbol ⊘ can be used if unable to obtain (select the appropriate reason). If scanning the patient's Driver License (DL), review all patient information after import to ensure entries are accurate.

1. **Last Name*** - Enter the patient's last (family) name.
2. **First Name*** - Enter the patient's first (given) name.
3. **Middle Initial/Name** - Enter the patient's middle name or initial, if any.
4. **Address*** - Enter the patient's address of residence.
5. **State*** - Select the state, territory, or province where the patient resides.
6. **City*** - Select the patient's primary city or township of residence.
7. **Zip Code*** - Enter the patient's ZIP code of residence.
8. **SSN*** - Enter the patient's social security number. If unable to obtain SSN, **do NOT enter all nines or zeros. Always use the ⊘ symbol if the SSN is not available.**
9. **Gender*** - Select the patient's gender.
10. **Race** - Select the patient's race.
11. **Native Language** - Select the native language spoken by the patient.
12. **Date of Birth*** - Enter the patient's date of birth in this format: mm/dd/yyyy.
13. **Age*** - Enter the patient's approximate (or known) age if no date of birth was entered.
14. **Age Units*** - Select the appropriate age unit if no date of birth was entered.
15. **DL Number** - Enter the patient's driver license number.
16. **Patient Phone Numbers** - Phone number(s) can be added by clicking "Add Patient Phone Number".
17. **Patient's Email Address** - An email address can be added by clicking "Add Patient's Email Address".

Payment

1. **Primary Method of Payment*** - Select the primary method of payment or type of insurance associated with this EMS encounter (Use auto insurance when transporting from an MVA).

2. **Insurance Information**

a) **Insurance Company Name*** - Select the name of the patient's insurance company (Use auto insurance information when transporting from an MVA). There is a write-in option if the company is not shown in the drop-down.

b) **Policy#*** - Enter the policy number of the patient's insurance or enter “Photo” and take a Photo of the Insurance Card (Use auto insurance information when transporting from an MVA).

c) **Insurance Group Name***- Enter the patient's insurance group name if not taking a Photo of the Insurance Card.

d) **Patient’s Employer*** – Enter the patient’s employer’s name.

e) **Photo*** - Add a legible photo of the insurance card via the menu if not entering the policy number (Use auto insurance information when transporting from an MVA).

F. Situation

1. **Cardiac Arrest*** - Select the appropriate response for the presence of a cardiac arrest at any time during the EMS event. The arrest data is required when the following responses are selected: “Yes, Prior to Any EMS Arrival” or “Yes, After Any EMS Arrival.”

Situation: Arrest Data

a) **Date/Time of Cardiac Arrest*** - Enter the date/time of the cardiac arrest (if not known, please estimate).

b) **Cardiac Arrest Etiology*** - Select an indication of the etiology or cause of the cardiac arrest (classified as cardiac, non-cardiac, etc.)

c) **AED Use Prior to EMS Arrival*** - Select if an AED was used and if a defibrillation was delivered prior to EMS arrival.

d) **Who First Applied the AED*** - Select who used the AED prior to this EMS unit's arrival.

e) **Who First Defibrillated the Patient*** – Select who first defibrillated the patient.

f) **First Monitored Arrest Rhythm of the Patient*** - Select what the first monitored arrest rhythm was found.

g) **Resuscitation Attempted By EMS*** - Select if an attempt to resuscitate the patient who is in cardiac arrest (attempted, not attempted due to DNR, etc.)

h) **Who First Initiated CPR*** – Select who first initiated CPR for this EMS event.

i) **Date/Time of Initial CPR*** – Enter the initial date and time that CPR was started by anyone.

j) **Type of CPR Provided*** – Select the type/technique of CPR used by EMS.

k) **Therapeutic Hypothermia by EMS*** – Select if there was an EMS initiation of Therapeutic Hypothermia

l) **Any Return of Spontaneous Circulation*** – Select whether or not there was any return of spontaneous circulation (ROSC).

m) **End of EMS Cardiac Arrest Event*** – Select the patient's outcome at the end of the EMS event.

n) **Cardiac Rhythm on Arrival at Destination*** – Select the patient's cardiac rhythm upon delivery or transfer to the destination.

o) **Reason CPR/Resuscitation Discontinued*** – Select the reason that CPR or the resuscitation efforts were discontinued.

p) **Date/Time Resuscitation Discontinued*** – Enter the date/time resuscitation was discontinued.

2. **Possible Injury*** - Select the appropriate indication whether or not the patient sustained a possible injury. Choose “Yes” if an injury is present or suspected.

Situation: Injury

a) **Cause of Injury** - Select the category or categories of the reported/suspected external cause of the injury.

b) **Mechanism of Injury*** - Select the mechanism or mechanisms of the event which caused the injury.

c) **Trauma Criteria – Alert Type** - Select only one type of the trauma alert.

d) **Trauma Alert – Age Group** – Select Adult or Pediatric Trauma Alert.

e) **Trauma Category 1 – Red** – Select the primary or first trauma alert assessment criteria for the adult injured patient. Any ONE (1) of these criteria constitutes a trauma alert.

f) **Trauma Category 2 – Blue** – Selecting any TWO (2) of these criteria constitutes a trauma alert.

g) **Area of the Vehicle Impacted (clock hours)** – Enter the area or location of initial impact on the vehicle based on 12-point clock diagram, with the front of the vehicle as 12 o’clock.

h) **Location of Patient in Vehicle** – Select the location of the patient in the vehicle at the time of the crash.

i) **Use of Occupant Safety Equipment** – Select safety equipment in use by the patient at the time of the injury.

j) **Airbag Deployment** – Select an indication of airbag deployment.

Complaint

1. **Complaint Type** - Select the type of patient healthcare complaint being documented. The first complaint added will default to “Primary”. Additional complaints can be added as “Secondary” if applicable.

2. **COMPLAINT** - Enter the complaint (the statement of the problem by the patient or the history provider).
3. **Duration of Complaint** - Enter a numerical value for the how long the complaint has been going on.
4. **Time Units of Duration of Complaint** - Select the time units for the numerical value entered for the duration of the patient's complaint (Minutes, Hours, Days, etc.)
5. **Complaint Anatomic Location** - Select the primary anatomic location of the chief complaint as identified by EMS personnel.
6. **Complaint Organ System** - Select the primary organ system of the patient's injury or medical complaint.
7. **Primary SYMPTOM*** - Select the primary sign and symptom present in the patient or observed by EMS personnel.
    a) **Date/Time of Symptom Onset** - Enter the date and time the symptom began, or the patient was last known to be well or in their usual state of health. This is described or estimated by the patient, family, and/or bystanders.
    b) **Provoked By** - Select any external factors listed that may have provoked the symptom.
    c) **Severity*** - If the symptom is pain-related, select a pain level (on a scale of 1 to 10). One is the least pain and ten is the worst possible pain.
    d) **Pain Quality** - If the symptom is pain-related, select the patient's description of the pain.
    e) **Radiates** - If the symptom is pain-related select if the pain radiates (extends) or moves to any other area.
8. **Associated Symptoms** – Select any other symptoms identified by the patient or observed by EMS personnel. Any pertinent negatives are also indicated here via the "Symptom Not Present" button.
9. **Provider's Primary Impression*** - Select the EMS personnel's impression of the patient's primary problem or most significant condition which led to any treatment given to the patient (treatments, medications, or procedures).
10. **Provider's Secondary Impressions** – Select the EMS personnel's impression of the patient's secondary problem or other significant condition which led to the treatment given to the patient (treatments, medications, or procedures).
11. **Date/Time Last Known Well*** – Enter the estimated date and time the patient was last known to be well or in their usual state of health. This is described or estimated by the patient, family, and/or bystanders.

12. **Narrative*** - Utilize the Narrative section for the documentation of the History of the Present Illness (HPI), which explains the full story of the patient's complaint(s) and what transpired with the patient prior to activating 911. The narrative should provide all necessary information to "paint the picture" and includes but is not limited to location, quality, severity, duration, timing, context, modifying factors, and any associated signs or symptoms of the present illness that was not previously recorded elsewhere within the ePCR. While detailed narratives are essential, they are not a substitute for accurately and completely entering all information in the required data fields. Complete and accurate data entry is crucial as this information is utilized for statistical analysis purposes. **NOTE: Each narrative must be a unique and detailed description of the incident, specific to each patient encounter. Extreme caution will be exercised when using narrative "templates", ensuring that specific details are added to make it a unique narrative. The report author is responsible for ensuring the final narrative is a factual and accurate description of the actual incident.**

G. History

1. **MEDICAL/SURGICAL HISTORY*** - Select the patient's pre-existing medical and surgery history. Use the "No" symbol ⊘ to indicate a pertinent negative.
2. **Medical History Obtained From** – Select type of person or persons the medical history was obtained from.
3. **Patient's Medications**

   Add Patient's Medications*

   a) **Medication** – Start typing the medication to search for a medication and select the medication to enter. Use the "No" symbol ⊘ to indicate a pertinent negative.

   b) **Other Medication** – Use "Other Medication" to manually enter patient medications not in the searchable list.

   c) **Dose** – Enter the numeric dose or amount for the patient's medication.

   d) **Dose Unit** – Select the dosage unit of the patient's medication.

   e) **Route** – Select the administration route of the patient's medication.

   f) **Frequency** – Select the frequency of administration of the patient's medication.
4. **Medication Allergies*** - Select the patient's medication allergies. Use the "No" symbol ⊘ to indicate a pertinent negative.
5. **Specific Agents/Other Medications*** - Required by some answers selected in Medication Allergies.
6. **Environmental/Food Allergies*** - Select the patient's known allergies to food or environmental agents.

7. **Immunizations**

   Add Immunization

   a) **The Patient's Type of Immunization** – Select the type of immunization.

   b) **Immunization Year** – Enter the year associated with each immunization.

8. **Barriers to Patient Care** – Select any indication of whether or not there were any specific barriers to serving the patient at the scene.
9. **Alcohol/Drug Indicators** – Select any indicators for the potential use of alcohol or drugs by the patient related to the patient's current illness or injury. Use the "No" symbol ⊘ to indicate a pertinent negative.
10. **Advanced Directives** – Select any presence of a valid State of Florida Do Not Resuscitate Order (DNRO), living will, or other document directing end of life or healthcare treatment decisions. **NOTE: the only advanced directive that supports MDFR withholding of resuscitation is a valid Florida DNRO on yellow paper.**
11. **Pregnancy** – Select an indication of the possibility of pregnancy by the patient's history.
12. **Last Oral Intake** - Enter a Date and Time of last oral intake, if known.

H. Exam

1. **Patient Position as Found*** - Select how you found the patient.
2. **ECG Attachment Method*** - This will auto fill when clicked once an ECG has been transmitted and attached to the report. If unable to transmit the ECG, select "Photo of ECG" and attach a photo of the ECG. Anytime an ECG is required by protocol/procedure or documented within the ePCR, the ECG **must** be transmitted and then merged and attached to the ePCR.
3. **Community Paramedic Referral** – Select if a Community Paramedic Referral is being made.
4. **Estimated Body Weight (lbs)*** – Enter the patient's body weight in pounds either measured or estimated.
5. **Assessments**

Add Assessment*

NOTE: Selecting "Normal" in the Assessments section auto-closes each entry and moves to the next question.

a) **Date/Time*** – Enter the date/time of the assessment (auto time stamped when added and may be edited at any time before closing the report).

b) **Mental Status*** - Select the assessment findings of the patient's mental status examination.

c) **Neurological*** - Select the assessment findings of the patient's neurological examination.

d) **Skin*** - Select the assessment findings associated with the patient's skin.

e) **Head*** - Select the assessment findings associated with the patient's head.

f) **Face*** - Select the assessment findings associated with the patient's face.

g) **Neck*** - Select the assessment findings associated with the patient's neck.

h) **Heart*** -The assessment findings associated with the patient's heart sounds.

i) **Pelvis/Genitourinary*** - Select the assessment findings associated with the patient's pelvis/genitourinary area.

j) **Eye*** – *Add Eye*

1. **Location** - Select the location of the patient's eye assessment findings.
2. **Assessment*** – Select the assessment findings of the patient's eye examination.

k) **Extremity*** – *Add Extremity*

1. **Location** - Select the location of the patient's extremity assessment findings.
2. **Assessment*** - Select the assessment findings associated with the patient's extremities.

l) **Chest*** – *Add Chest*

1. **Location** – Select the location of the patient's chest assessment findings.
2. **Assessment*** - Select the assessment findings associated with the patient's chest.

m) **Lung*** – *Add Lung*

1. **Location** – Select the location of the patient's lung assessment findings.
2. **Assessment*** - Select the assessment findings associated with the patient's lungs.

n) **Spine*** – *Add Spine*

1. **Location** – Select the location of the patient's back and spine assessment findings.
2. **Assessment*** – Select the assessment findings associated with the patient's spine (Cervical, Thoracic, Lumbar, and Sacral) and back exam.

o) **Abdomen*** – *Add Abdomen*

1. **Location** - Select the location of the patient's abdomen assessment findings.
2. **Assessment*** – Select the assessment findings associated with the patient's abdomen.

p) **FAST-ED Stroke Assessment*** - Select “Yes” to complete the Fast-ED Stroke Assessment and answer the required elements.

q) **Sepsis Assessment*** – Select “Yes” to complete the Sepsis Assessment and answer the required questions.

I. Vitals

NOTE: Use the "No" symbol ⊘ when a vital sign cannot be recorded

1. **Vital Group*** – *Add Vital Group*
   a) **Date/Time*** – Enter the Date/Time the vital sign(s) were obtained (auto time stamped when added and may be edited). This Date/Time must reflect the actual time the vital sign(s) were obtained or were attempted to obtain.
   b) **Vital Set*** - Enter which set of vital signs the Vital Group is (Initial, Second or Custom)
   c) **Heart Rate*** - Enter the patient's heart rate expressed as a number per minute.
   d) **HR Method*** - Select the method in which the Heart Rate was measured. Values include auscultated, palpated, electronic monitor.
   e) **Pulse Rhythm*** - Select the clinical rhythm of the patient's pulse.
   f) **Blood Pressure*** - Select the method of blood pressure measurement.
   g) **BP Systolic*** - Enter the patient's systolic blood pressure.
   h) **BP Diastolic*** - Enter the patient's diastolic blood pressure.
   i) **BP Orthostatic** – Select the patient's orthostatic position while the BP was obtained.
   j) **Respiratory Rate*** - Enter the patient's respiratory rate expressed as a number per minute.
   k) **Respiratory Effort*** - Select the patient's respiratory effort.
   l) **Pulse Oximetry*** - Enter the patient's SpO2 per **Procedure 10**.
   m) **Pulse Oximetry Status*** - Select if the SpO2 was obtained at room air or with oxygen being delivered.
   n) **GCS – Eye*** - Select patient's Glasgow Coma Score eye-opening response.
   o) **GCS – Verbal*** - Select the patient's Glasgow Coma Score verbal response.
   p) **GCS – Motor*** - Select the patient's Glasgow Coma Score motor response.
   q) **GCS – Total*** - Auto-populates based on previous entries.
   r) **GCS – Qualifiers** - Select any factors which make the GCS score more meaningful.
   s) **Blood Glucose Level*** - Enter the patient's blood glucose level. For glucometers with "High" and "Low" readings, report "600" for "High" and "20" for "Low".
   t) **Body Temp (F)*** – Enter the patient's body temperature in degrees Fahrenheit.
   u) **Temp Method*** - Select the method used to obtain the patient's body temperature.
   v) **ETCO2*** - The numeric value of the patient's exhaled end tidal carbon dioxide (ETCO2) level measured as a unit of pressure in millimeters of mercury (mmHg). Required on all intubated patients, or any time capnography is conducted, as directed in **Procedure 11**.
   w) **ECG Type* -** Select the type of ECG associated with the cardiac rhythm.

x) **ECG Result*** - Select the cardiac rhythm, ECG, and/or other electrocardiography findings of the patient as interpreted by EMS personnel.

y) **ECG Method*** - Select the method of interpretation (defaults to manual interpretation).

z) **Carbon Monoxide (CO)** - Enter the numeric value of the patient's carbon monoxide level measured as a percentage (%) of carboxyhemoglobin (COHb).

aa) **Level of Responsiveness (AVPU) -** Select the patient's highest level of responsiveness.

bb) **Pain Score** – Enter the patient's indication of pain from a scale of 0-10.

cc) **Stroke Scale*** – Select the type of stroke scale used.

dd) **Stroke Score*** - Select the findings or results of the Stroke Assessment used to assess the patient exhibiting stroke-like symptoms (Negative, Non-Conclusive, or Positive).

ee) **APGAR** – Enter the patient's total APGAR score (0-10).

J. Procedures

NOTE: Additional elements may be required depending on the procedure selected. All procedures provided by the unit must be entered in the procedure section of that unit's report.

1. **ADD PROCEDURE***

a) **Date/Time*** - Enter the Date/Time the procedure was performed on the patient. This Date/Time must reflect the actual time the procedure was performed.

b) **Procedure***- Select the procedure performed on the patient.

c) **Prior to this Unit's Care** - Indicates that the procedure which was performed and documented was performed prior to this EMS unit's care.

d) **Complications** - Select any complication/s (abnormal effect on the patient) associated with the performance of the procedure on the patient.

e) **Response** - Select the patient's response to the procedure.

f) **Successful*** - Indicates that this individual procedure attempt which was performed on the patient was successful.

g) **Performed By*** - Select the EMS crew member performing the procedure on the patient. This list is populated from the crew members listed in the Crew Setup of the report.

K. Airway

1. **Indications for Invasive Airway*** - Select the clinical indication(s) for invasive airway management.

a) **Complications Encountered –** Select the airway management complication(s) encountered, if applicable.

b) **Suspected Reasons for Failure –** Select the reason/s the airway was unable to be successfully managed, if applicable.

2. **Confirmation Methods***

a) **Add Confirmation Method***

I. **Date/Time of Placement Confirmation** – Enter the date and time the airway device placement was confirmed.

II. **Device Being Confirmed** – Select the airway device for which placement is being confirmed.

III. **Confirmation Methods –** Select the method/s used to confirm the airway device placement.

IV. **Tube Depth –** Enter the measurement at the patient's teeth/lips of the tube depth in centimeters (cm) of the airway device placed.

V. **Confirmed By –** Select the type of individual who confirmed the airway device placement.

VI. **Crew Member ID –** Select the EMS crew member confirming the airway placement.

L. Medication

NOTE: Additional elements may be required, and some elements may auto-populate depending on the medication selected. All medications administered by the unit must be entered in the medication section of that unit's report.

1. **ADD MEDICATION***

a) **Date/Time*** - The Date/Time the medication was administered to the patient. This Date/Time must reflect the actual time the medication was administered (times may be edited after initial entry).

b) **Medication***- Select the medication administered to the patient. You can use the "No" symbol ⊘ to indicate a specific medication was not given (refused, contraindicated, or that the medication was already taken.)

c) **Prior to this Unit's Care** - Indicates that the medication administered and documented was administered prior to this EMS unit's care.

d) **Route*** - Select the route the medication was administered to the patient.

e) **Dosage*** - Enter the dose or amount of the medication administered to the patient.

f) **Dosage Units*** - Select the unit of medication dosage administered to patient.

g) **Crew* -** Select the EMS crew member administering the medication to the patient. This list is populated from the crew members listed in the Crew Setup of the report.

h) **Comment** - Enter any additional relevant information not already documented.

i) **Response** - Select the patient's response to the medication.

j) **Complications** - Select any complications (abnormal effects on the patient) associated with the administration of the medication to the patient.

M. Disposition

NOTE: Elements will be required depending on the previous selections (Patient Contact Made, Cancelled on Scene, etc.).

Disposition* - There is an appropriate disposition for every situation on any 911 call, including cases where the patient did not call for help and does not need any assistance. The disposition of "No Patient Found" should **only** be used when a unit is dispatched to an incident where there is **no person physically present** for whom 911 was called. If the person is physically present, an EMS report must be completed, even if the person does not require any assistance.

1. **Patient Contact?*** - Select the patient disposition for an EMS event identifying whether patient contact was made.
   a) **Patient Contact Made** - This crew/unit arrived on-scene and made contact with a patient.
   b) **No Patient Contact or Assist Unit** - This crew/unit arrived on-scene, but this crew/unit made no contact with a patient. Generally, this will mean a patient was present with another unit having patient contact, but this unit did not have patient contact. This unit can still be providing rescue and support services to the incident.
   c) **Cancelled Prior to Arrival at Scene** - This crew/unit was cancelled before arriving on-scene; therefore, it is unknown whether there could have been a patient or not.
   d) **Cancelled on Scene** - This crew/unit arrived on-scene but was cancelled by FAO or another unit prior to having any patient contact or providing any services.
   e) **No Patient Found** - This crew/unit arrived on-scene and looked for a patient, but none was found. If a person is physically present, an EMS report must be completed, even if the person does not require any assistance.
   f) **No Complaint – Motor Vehicle Accident** – This disposition is strictly for use in motor vehicle accidents where multiple individuals deny any complaint. One ePCR is acceptable with all the persons denying complaint listed in the Signature section under "No Complaint". Note: This disposition is **not** appropriate if a person is examined and then subsequently refuses further care. In that case, a separate ePCR will be completed with the appropriate disposition. Additionally, "No Complaint" is not the same as refusing care. In situations where there are multiple patients refusing care, a separate ePCR with signed refusal must be completed for each patient. Furthermore, the "No Complaint" documentation of one patient should not be included in the ePCR narrative written for another patient.
2. **Patient Evaluation and Care*** - The patient disposition for an EMS event identifying whether a patient was evaluated and care or services were provided.
   a) **Evaluated and Care Provided** - A patient was present, evaluated, and care was provided by this crew. This is the standard situation where a patient was present and cared for or "treated", without refusal, by EMS.

b) **Evaluated, No Treatment Required** - A patient was present and was evaluated by this crew, but no care appeared to be required. Crews would need to evaluate someone in order to determine that no care was required. A classic example would be a patient only requiring a lift assist. **Note: This disposition should be used very rarely and with extreme caution. It is very difficult to determine that no care is required in the pre-hospital setting. Supporting details must be noted in the narrative.**

c) **Evaluated and Refused Treatment** - A patient was present and was evaluated by this crew, but the patient refused either all treatment or certain treatments. The patient may or may not be transported in combination with this value. Supporting details must be noted in the narrative.

d) **Refused Evaluation/Treatment and Transport** - A patient was present and refused any evaluation or care by this crew. This value should only be combined with "Patient Refused Transport" or "No Transport". Supporting details must be noted in the narrative.

e) **No Complaint – Motor Vehicle Accident** – Automatically fills from Patient Contact? when "No Complaint Patient – Motor Vehicle Accident" is selected.

f) **Support Services Provided** - This unit provided support services to another crew/unit providing care. Support services could include extrication, carrying bags or helping to move a patient with no patient care.

3. **Actions Taken*** - The crew disposition for this EMS event, identifying which crew provided primary patient care or whether support services were required.

a) **Initiated and Continued Patient Care** – This crew began primary care for this patient with no previous care provided on-scene and did not transfer the care to another unit.

b) **Initiated Patient Care, Transferred to Other EMS Unit** – This crew/unit began primary care for this patient with no previous care provided on scene and then transferred the care to another unit.

c) **Received Patient from Another EMS Crew –** This crew/unit assumed primary care of a patient that was initiated by another EMS Crew.

d) **Received Patient from Another EMS Crew and/or Transported to Landing Zone –** This crew/unit either received the patient from another unit and transported the patient via an MDFR transport unit to a Landing Zone for transfer to Air Rescue or the MDFR transport unit transported the patient to a Landing Zone for transfer to Air Rescue.

e) **No Care/Support Services Required** - This crew/unit is back in service as there was no patient care or support services required of the crew/unit at the incident.

f) **Care/Support Services Refused** - This crew/unit is back in service after patient care or support services were refused despite being offered. No care or support services were provided; however, an evaluation may have occurred prior to refusal of any care.

g) **Support Services Provided** - This crew/unit provided non-patient care support services to an incident in general, or to another unit/crew that is providing patient care. Support services may include extrication, carrying bags or equipment, helping move a patient, standby for police or a fire, or fire rehab services where nobody rose to the level of a patient.

4. **Transport Disposition*** - The transport disposition for an EMS event identifying whether a transport occurred and by which unit.

   a) **Transport by This EMS Unit** - A patient was transported by this unit. This would be a standard transport by an MDFR transport unit.

   b) **Patient Refused Transport** - Patient refused EMS transport. This would apply to a standard patient refusal of transport.

   c) **No Transport** - No transport of a patient occurred, for use in cases when no refusal is required. For example, following a lift assist that did not require a refusal. Note: This disposition should be used infrequently since most patients should be offered transport, and patient refusal would result in the more appropriate disposition of "Patient Refused Transport".

   d) **Transport by Another EMS Unit** - The patient was transported, but by another crew/unit. For example, a non-transport unit providing and transferring care to another crew/unit who then transports the patient.

5. **EMS Transport Method*** - Select the method by which the patient was transported.

   a) **MDFR Rescue** – MDFR Ground Transport Unit.

   b) **MDFR BTU** – MDFR BLS Ground Transport Unit.

   c) **MDFR Air Rescue** – MDFR Air Rescue.

   d) **AMR** – American Medical Response.

   e) **Other Ground Ambulance** – Any other transport agency that is not AMR.

6. **Final Patient Acuity*** – Select the acuity of the patient's condition after EMS care.

7. **ET3 Alternative Disposition Offer and Result*** – Select the offer and result of the ET3 Alternative Disposition option.

8. **Transport***

   a) **Type of Destination** – Select the type of destination/facility the patient was transported to.

   b) **Destination** – Select the destination/facility the patient was transported to.

   c) **Reason for Choosing Destination** – Select the reason the unit chose to transport or transfer the patient to the destination/facility, in accordance with Protocol 4.

   d) **Conveyances to Vehicle*** - Select the method by which the patient was moved to the transport unit.

   e) **Position of Patient During Transport*** – Select the position of the patient during transport.

f) **Transport Mode from Scene*** – Select whether the transport was emergent or non-emergent.

g) **Conveyances From Vehicle*** – Select the method by which the patient was moved from the transport unit to the destination or receiving unit.

9. **Pre-arrival Activation**

NOTE: Required for all Patients meeting STEMI, Stroke or Trauma Alert Criteria.

Add Pre-arrival Activation (Alerts)

a) **Date/Time of Destination Pre-arrival Alert or Activation** – Manually enter the Date/Time EMS alerted, notified, or activated the Destination Healthcare Facility via Dispatch prior to EMS arrival and possibly specified alert criteria.

b) **Destination Pre-arrival Alert or Activation** – Select the type of alert (or activation) that was called by EMS to the appropriate destination healthcare facility team via Dispatch,

N. Signatures

NOTE: Required Signatures and Signature Forms are based on the Disposition of the report. **A patient signature must be obtained from any patient evaluated by MDFR, especially in cases of refusal against medical advice (AMA). The routine use of "Patient Contaminated" as a reason for no signature is not acceptable.** In most cases, a patient can be given a glove to wear when they sign if they are contaminated, or the tablet can be decontaminated after the incident. Whenever a patient signature cannot be obtained for any reason, a witness signature will be required. Obtain a witness signature from a family member, police officer, or other non-MDFR witness on scene. When all other attempts fail, have a crew member that is not the report author sign as a witness. The routine practice of having crew members sign as witnesses is not acceptable. The report author must never sign as the witness. **Details of why a patient signature and/or non-MDFR witness signature was not available must be noted in the narrative.**

1. **Witness Signature*** – required whenever a patient does not sign their report for any reason. Can also be obtained by selecting a type of witness.

a) **Witness Signer*** – Used when a witness other than one of the Crew Members on the unit will be signing.

b) **Crew Member Witness*** - Used when a Crew Member from this unit will be signing.

2. **ADD Signature Form***

a) **Signature Date/Time*** - The date and time the signature was captured.

b) **Signature Reason*** – Select the reason for the individual's signature (e.g. Report Author, Witness, HIPPA acknowledgement/Release, Transfer of Patient Care, etc.)

c) **Signer*** - Select the type of person signing (e.g. Patient, Patient Representative, Witness, etc.)

d) **Status*** - Select whether the signature has been collected or attempted to be collected.

e) **Capture Signature*** - Capture the Signature.

O. Conclusion

Accurate and truthful documentation of every call is critical regardless of the service level provided. The patient report is required by Florida Statute and Administrative Code. It is a part of the patient's permanent medical record and can be used in litigation and other legal proceedings. It is the documented record of our actions or inactions, and proof of the continued quality care provided to the patient. The need to complete an EMS Report should never delay or interfere with patient management, but all information in the report must be reviewed and properly completed prior to closing. All reports must be closed by the end of the shift.

****For any issues with the ePCR application, please contact your EMS Field Supervisor or call the ePCR Hotline at 786-258-0088. This number is always shown on the ePCR lock screen.**

A. Introduction

A Free-Standing Emergency Department is a facility affiliated with a full-service hospital, licensed by the Florida Department of Health and approved by the Agency for Healthcare Administration (AHCA). Free Standing ED's are listed on MDFR's hospital capability chart and may be considered as a transport destination for patients who are not excluded by the parameters of this protocol.

Treatment and transportation will be accomplished by the most effective and efficient means possible to all patients with illness or injury in accordance with this procedure. It is incumbent upon all Fire Rescue personnel involved to act in the patient's best interest. Proper screening and accurate patient assessments must be utilized for all transport decisions.

This procedure is a supplement document to Protocol 4 and all other applicable Medical Operations Manual requirements.

B. Procedure

1. Patients exhibiting or complaining of any of the following will be **EXCLUDED**, and not considered eligible for transport to a Free-Standing ED.
    a) Stroke Alert – or neurological assessments consistent with stroke
    b) STEMI Alert
    c) Trauma Alert
    d) Chest Pain
    e) OB >20 weeks
    f) Patients in cardiac arrest or ROSC.

NOTE: The goal is to transport patients to a facility capable of managing their care through discharge. Consider bypassing the freestanding ED for patients who may require hospital admission. If there is any doubt or concern about a patient's condition the patient will be transported to a full-service hospital, as defined on the "Hospital Capability Chart" by a Fire Rescue unit.

The following are points to consider when caring for the helmeted patient with a suspected spinal injury. Suspected spinal injury should be based upon physical assessment and/or mechanism of injury.

A. Helmet Types and Indications for Removal

1. Football Helmets

When the helmet and shoulder pads are on, the spine is kept in a neutral alignment. If either piece of equipment is missing, you must either remove the other piece or place padding for the missing piece.

Indications for football helmet removal:

a) When the patient is wearing a helmet and no shoulder pads.

b) The patient has head and/or facial trauma.

c) The helmet is loose fitting upon the patient's head and the stability is compromised.

d) Patients requiring advanced airway management when removal of the face mask is insufficient.

e) Patients in cardiopulmonary arrest (the shoulder pads must also be removed).

*Note: The face mask can be removed from the football helmet using either a screw driver or commercially available cutting device.

2. Other Helmets

In the absence of off-setting padding such as football shoulder pads, all other helmets should be removed. Failure to do so will result in compromising the neutral alignment of the spine. Helmets that should be removed include:

a) Motorcycle helmets

b) Bicycle helmets

c) Skateboard / Ski helmets

d) Roller blading helmets

B. Steps for Helmet Removal

1. Stabilize the helmet in a neutral in-line position and have a second individual remove the chin strap

2. The individual that removed the chin strap will then support the occiput and mandible while the helmet is gently slipped up and forward.

3. Once the helmet is removed, standard c-spine control will take place and an appropriate sized cervical collar applied

*Note – If the helmet is too snug or you encounter significant resistance during removal attempt, then leave the helmet in place and pad the body. Make sure you can access the airway.

C. Special Notes

Always check the helmet for damage to help assess mechanism of injury. Transport the helmet with the patient whenever possible.

DISCONTINUED

A. General Information

The Masimo Rad 57 is a non-invasive, arterial oxygen saturation, carboxyhemoglobin saturation monitor. It can be used on pediatrics and adults by selecting the proper infrared probe. SpO_2 measures oxygen saturation of hemoglobin and SpCO measures levels of carbon monoxide concentration in arterial blood. Measurements are read as a percentage of carboxyhemoglobin (SpCO).

B. Procedure

1. Choose the appropriate probe and attach it to the unit.
2. Attach the finger probe to a finger as described, **1. Ring, 2. Middle, 3. Index**. Make sure the probe is positioned to allow the light to pass through the cuticle area of the nail. Remove dark nail polish.
3. Press the ⏻ button to power up the unit. Verify all front-panel indicators momentarily illuminate and an audible tone is heard. Wait for the oxygen saturation and pulse rate to be displayed.
4. Press the **DISPLAY** button to toggle between **SpCO** and the **$Sp0_2$** readings. The SpCO reading is displayed in "orange" with the indicator light illuminated in the top left corner of the unit.
5. Patients exhibiting signs and symptoms of respiratory distress will treated per the appropriate protocol.
6. To turn power off press and hold ⏻ button for 2 seconds.

C. Maintenance

After Each Use

1. Clean unit with a soft cloth moistened in water or a mild soap solution.
2. If disinfecting is necessary, wipe surfaces of the unit with isopropyl alcohol.

Batteries

1. Battery charge level is indicated by four LED indicators at the bottom of the front panel.
2. Use four "AA" alkaline batteries to provide up to eight hours of continuous use. Do not use any other type of batteries or power source to run the device. Non alkaline batteries may affect the accuracy of the meter. Batteries with more than 1.5 volts may damage the meter.
3. Remove the battery cover by depressing the small rectangular button at the bottom of the cover, and sliding the cover down off the bottom of the device.

4. Install the batteries in the directions indicated by the battery icons inside the battery compartment.

5. Replace the battery cover by sliding it back up from the bottom of the device until the rectangular locking button snaps back into position.

D. Special Considerations

1. Oxygen saturation values alone should not be used as the basis for assessing the clinical condition of the patient.

2. This device will not be used as a replacement or substitute for ECG based heart rate analysis and/or assessment of a pulse.

A. Introduction

Patient movement after an injury has the potential to worsen the injury, and/or increase a patient's pain. The scoop stretcher can be placed under a patient with minimum movement. It can then be lifted a few inches and a long spine board placed under the patient. This action can alleviate the need for logrolling a patient prior to placing them on a long spine board (LSB).

B. Indications

1. Patient with hip/proximal femur fracture.
2. Patient with pelvic injury.
3. Patient with suspected spinal injury, who needs placement on LSB.

C. Contraindications

1. Use as the sole immobilization device for spinal injuries.
2. As a lifting device in technical rescue situations.

D. Procedure: Hip/ Proximal Femur Fracture

BLS

1. Place padding (i.e., folded blanket) between the patient's legs. Secure legs together with triangular bandages or straps.
2. Adjust the Scoop EXL to the length of the patient.
3. Separate the Scoop EXL into right and left halves.
4. Position the stretcher halves on opposite sides of the patient.
5. Gently slide the stretcher halves under the patient on both sides. Slight rolling of the patient from side to side will facilitate rejoining of the stretcher halves.
6. After checking to prevent pinching, rejoin halves by opening and Engaging safety locks at both ends.
7. Apply at least three straps to secure patient to Scoop EXL.

E. Procedure: Spinal Injury

BLS

1. If the patient has a suspected spinal injury, manually immobilize the head and neck, and apply a cervical collar.
2. Adjust the Scoop EXL to the length of the patient.
3. Separate the Scoop EXL into right and left halves.
4. Position the stretcher halves on opposite sides of the patient.
5. Gently slide the stretcher halves under the patient on both sides.
6. After checking to prevent pinching, rejoin halves by opening and engaging safety locks.
7. With two rescuers on each side of Scoop EXL, lift stretcher 4 to 6 inches, and slide LSB under patient.
8. The Scoop EXL can be removed by reversing process, and patient immobilized to LSB.

Clinical Indications:

1. Patient meets clinical indications for oral intubation
2. Initial intubation attempt (s) unsuccessful
3. Predicted difficult intubation
4. To facilitate intubation without interruption of CPR

Contraindications:

1. Do not use with endotracheal tubes less than 6.0 mm

Technique:

1. Introducer may be lubricated with sterile lubricant such as surgilube.
2. Perform an optimal direct laryngoscopy. Visualization of vocal cords may be enhanced by an assistant using tracheal manipulation such as the BURP maneuver.
3. Introduce the bougie with the Coude Tip anteriorly positioned and visualize the tip passing through the vocal cords. An alternative technique if the cords cannot be visualized is to use the epiglottis as a landmark and pass the tip of the bougie directly below the epiglottis.
4. Tactile confirmation of tracheal clicking will be felt as the distal tip of the bougie bumps against the tracheal rings. This “clicking” will also be felt by the assistant performing tracheal manipulation such as the burp maneuver. If tracheal clicking cannot be felt, continue to advance the introducer until “hold- up” is felt. Tracheal clicking or “hold-up” are positive signs that the bougie has entered the trachea. No clicking or “hold-up” is indicative of esophageal placement. The distal tip of the bougie should lie at least 2-3 cm beyond the glottic opening.
5. While holding the introducer and holding the laryngoscope in place, have an assistant advance the endotracheal tube over the proximal end of the bougie (the bougie may be “pre-loaded” with the endotracheal tube prior to insertion). Once the endotracheal tube passes the teeth, rotate the endotracheal tube 90 degrees counterclockwise (1/4 turn to the left) so that the endotracheal tube does not get catch on the arytenoid cartilage.
6. Continue advancing the endotracheal tube to the proper depth.
7. Holding the endotracheal tube securely, remove the bougie.
8. Confirm endotracheal intubation (Procedure 3).
9. The bougie is not reusable.

The Oxygen Recovery Mask is indicated whenever there is a need to deliver supplemental oxygen therapy to an animal such as a dog or a cat.

A. Procedure

Animal Care

1. Prepare equipment:
    a) Oxygen Recovery Mask (select appropriate size)
    b) Oxygen tubing
    c) Connect the oxygen supply line to the Oxygen Recovery Mask.
    d) Oxygen fitting maybe removed to allow connection of a BVM.
2. Seal mask over animal's mouth and nose.
3. Set appropriate oxygen flow rate to at least 10 L/min.
4. Monitor animal to assure animal does not run off with mask attached.

B. Special Considerations

1. Masks come in three sizes: small, large, and feline.
2. Masks are reusable. Wash masks with soap and water. Air dry.
3. If the animal is combative do not force the mask on the animal.

A. INTRODUCTION

Tourniquets may be necessary to control bleeding from potentially fatal, hemorrhagic wounds after all other means of bleeding control have failed or in situations of significant extremity bleeding with the need for additional interventions.

PRECAUTIONS

A tourniquet applied incorrectly can increase blood loss and lead to death. Applying a tourniquet can cause severe nerve and tissue damage whether or not it was applied correctly. Proper patient selection for the use of a tourniquet is of the utmost importance. Permanent damage is unlikely if the tourniquet is removed by a physician within 2 hours. Lower risk of tissue damage is acceptable over death secondary to hypovolemic shock. Tourniquets should never be covered up by patient clothing.

B. PROCEDURE

BLS

1. Attempt to control hemorrhage with direct pressure or pressure dressing.

2. If unable to control hemorrhage using the above means, apply the Combat Application Tourniquet (C-A-T):

   a) The Combat Application Tourniquet is applied to the injured extremity 2 to 4 inches proximal to the wound, preferably on single-bone structures (humerous and femur) above wound. Do not place over joints.

   b) Apply the tourniquet proximal to the bleeding site. Route the band around the limb and pass the tip of the band through the inside slit of the buckle. Pull the band tight.

   c) Pass the tip of the band through the outside slit of the buckle. The friction buckle will lock the band in place.

   d) Pull the band very tight and securely fasten the band back on itself.

   e) Twist the rod until bright red bleeding has stopped and the distal pulse is eliminated.

   f) Place the rod inside the clip; locking it in place. Check for bleeding and distal pulse. If bleeding is not controlled, consider additional tightening or applying a second tourniquet proximal side by side to the first and reassess.

   g) Secure the rod inside the clip with the strap. Record the time of application.

   h) The time of tourniquet application (“TK 20:30”) should be written on the tourniquet itself or written directly on the patient’s forehead. Should also be documented on a triage tag (if applicable).

   i) The tourniquet should be left uncovered so that the site can be monitored for recurring hemorrhage.

j) Keep the tourniquet on throughout transport – a correctly applied tourniquet should only be removed by the receiving hospital.

k) Continue to monitor patient vitals and wound.

l) Ensure all receiving personnel are aware of tourniquet placement.

m) If the existing tourniquet is ineffective, tighten the existing tourniquet further or apply a second tourniquet side-by-side and if possible proximal to the first tourniquet.

C. TOURNIQUET DOWNGRADE OR CONVERSION

1. If there will be a more than **two (2) hours** delay in evacuating patient (e.g. Active shooter, MCI), consider tourniquet downgrade or conversion.

   The Four Criteria for tourniquet downgrade or conversion are:

   1. Patient is not in hemorrhagic shock;
   2. It is possible to monitor the wound closely for bleeding;
   3. The tourniquet is not being used to control bleeding from an amputated or partially amputated limb;
   4. There are **NO** prior unsuccessful attempts to remove the tourniquet.

2. To downgrade, expose the wound fully, identify an appropriate location at least 2-3 inches above the most proximal injury (not over a joint) and apply a new tourniquet directly to the skin. Once properly applied, the prior tourniquet can be loosened but left in place.

3. For conversion, expose the wound, fully pack the wound, apply a pressure dressing, and then the prior tourniquet can be loosened but left in place. Assess for bleeding.

The i-Gel & i-Gel plus is a supraglottic airway management device used as an alternate means of establishing an airway. i-Gel & i-Gel plus has a soft, gel-like, non-inflatable cuff, designed to provide an anatomical impression fit over the laryngeal inlet.

A. Indications:

1. Apneic patients without a gag reflex.
2. The patient in cardiac arrest.
3. A difficult airway is anticipated:*
    a) Small mouth which obstructs visualization.
    b) Short neck.
    c) Mallampati or Cormack-Lehane score of 3 or more.
    d) Any obstruction that could impair visualization of the glottic opening.
    e) Impaired neck mobility.
4. Access to the airway is impeded (entrapment, helicopter cabin etc.)

B. Contraindications

1. Patient has a gag reflex
2. Esophageal tissue damage from trauma, chemical ingestion or thermal injury.
3. Esophageal or airway obstruction.
4. Airway burns or chemical inhalation injury.

C. Procedure

Equipment

- Appropriate I-Gel & i-Gel plus (See sizing chart below)**
- Water based lubricant (surgilube)
- Suction
- ETCO2 attachment

Insertion Technique

1. Open and maintain the airway. Ventilate with 100% oxygen before attempting placement of the i-Gel or i-Gel plus.

2. Select the appropriately sized i-Gel or i-Gel plus based on weight. Open the i-Gel or i-Gel plus Package and take it out of the protective cradle.

3. Place the i-Gel or i-Gel plus in the palm of the hand holding the cradle. Place a generous amount of water-based lubricant onto the smooth surface of the protective cradle.

4. Lubricate the back, sides, and front of the cuff by rubbing it on the smooth surface of the protective cradle containing the water-based lubricant.



5. Remove dentures or removable plates from the mouth prior to insertion.

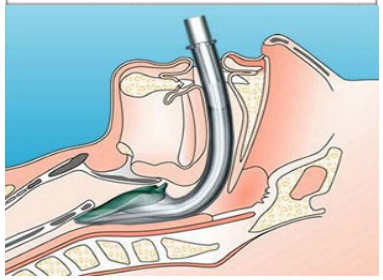
6. Grasp the lubricated i-Gel or i-Gel plus firmly along the integral bite block. Position the device so that the cuff outlet is facing towards the chin of the patient.

7. **Maintain the head in a neutral position for trauma patients.** For non-traumatic patients, the patient's head should be in the "sniffing" position with head extended and neck flexed. The chin should be gently pressed down before proceeding to insert the i-Gel or i-Gel plus.



8. Introduce the leading soft tip into the mouth of the patient in a direction towards the hard palate.

9. Glide the device downward and backward along the hard palate with a continuous but gentle push until a definitive resistance is felt.



10. The front teeth should be resting on the integral bite block (The Black line on the i-Gel or i-Gel plus).

11. Hold the i-Gel in place after insertion for about **30 seconds** so the I-Gel or i-Gel plus can adhere to the Airway. If it is not held in place the i-Gel or i-Gel plus will not secure properly.

12. **If the I-Gel displaces from its secured position, remove the I-Gel or i-Gel plus and insert a new one, or attempt a different airway management technique. <u>Do not attempt to secure the same I-Gel or i-Gel plus again</u>.**

13. Attach the End tidal CO2 Device to the i-Gel or i-Gel plus and BVM, and confirm placement

Securing the Device

1. Secure the i-gel with the endo-lock device or i-GEL plus with the airway support strap used to secure ET tubes.

OR

2. Secure the i-Gel with 1" tape:

   a) Wrap the tape around the bite block section right above the patients' lips

   b) Then encircle the patient's head and come back to the bite block section

   c) Tape around the bite block section once again then tear the tape

OR

3. Supplement the endo-lock device with 1" tape to secure the i-Gel when excessive movement of the patient is anticipated.

NG Tube:

Use a #10 NG tube for #1, # 1.5, #2, #2.5 i-Gel
Use a #16 NG tube for #3, # 18 NG tube for a #4 and # 5 for the i-Gel plus.

****i-Gel and i-Gel plus sizing Chart**

i-gel size	Patient size	Patient weight guidance (kg)
1	**Neonate**	**2-5**
1.5	**Infant**	**5-12**
2	**Small pediatric**	**10-25**
2.5	**Large pediatric**	**25-35**
3+	**Small adult**	**30-60**
4+	**Medium adult**	**50-90**
5+	**Large adult+**	**90+**

A. Introduction

Infrared thermometers are "non-contact" thermometers designed to capture the temperature of the temporal artery from a distance of approximately 2 inches from the forehead. The temperature range for infrared thermometers is similar to tympanic thermometers. It is faster than oral or rectal thermometers and causes no discomfort to the patient.

B. Procedure

1. For the first use of the thermometer, wait at least 15 minutes for the device to warm up to the ambient temperature
2. Push back hair from the forehead
3. Wipe away, or have the patient wipe away any perspiration from the forehead.
4. Avoid any airflow such as a fan, air conditioning, wind or the patient's respirations.
5. Aim at the forehead over the right temporal region.
6. Depress the trigger from a distance of about 2 inches (5 cm) for 1 second.
    a) When assessing more than one temperature, allow a minute interval between temperature measurements.
7. If there is a significant change in the ambient temperature due to a change in environment, allow 15 minutes for the thermometer to acclimate to the new, ambient temperature.

C. Maintenance

1. Protect the protective glass over the lens as it is very fragile and the most important part of the thermometer.
2. To clean the glass over the lens, use a soft cotton fabric with water or 70 proof isopropyl alcohol.
3. When the batteries are low and require to be changed, the LCD screen will display 'Battery.'
    a) Remove the lid
    b) Change the batteries only with AA alkaline batteries

D. Troubleshooting

1. To change the temperature of the between Fahrenheit and Celsius or vice-versa:
    a. Press the Program Setting button to get the F1 function key

2. The screen displays the body temperature lower than 89.6F

    a. In order to be able to take a body temperature, the function key F3 must be on 'Body mode.'

3. The screen displays the message 'HI'

    a. The temperature is above the range that the thermometer is selected (>109F in Body Mode/>140F in Surface Temp Mode)

4. The screen displays the message 'LO'

    a. The temperature is below the range that the thermometer is selected (<90F in Body Mode/<32F in Surface Temp Mode)

    b. Reading may be interfered by perspiration, hair, airflow, etc.

        i. Make sure that there is no interference with the infrared system of the thermometer

A. Introduction

Oncology patients and those in a hospice or palliative care program pose a unique challenge in the pre-hospital care setting. Not only due to their chronic condition and the possibility of new or worsening metastasis, which can create a variety of new signs and symptoms. Also, due to social issues, including who will handle their care, such as a proxy, home health care agency, or family.

Most oncology emergencies can be classified as metabolic, hematological, structural, or side effects of chemotherapy. Oncology patients also have pain related issues, which can be challenging to manage.

B. Definitions

- Breakthrough pain: A sudden flare-up of pain from a chronic condition such as cancer. Patients exhibiting this pain are already on pain medication. Still, due to the dynamics and physiology of their disease, the pain "breaks through" and becomes an unmanageable event for the patient. Treatment for this is typically a short-acting opioid to relieve the pain enough to where the patient's medication can pick up where it left off.

- Comfort Measures Only (CMO): Meaning the entire focus is on comfort and aggressive treatment of symptoms to provide comfort only. Used when no other therapies are warranted or wanted, and the patient is at the end of life. Patients typically receive fluids, basic oxygen management, and pain management. This term is most commonly used in the hospital environment.

- Palliative care: Any treatment plan used to control the symptoms of a disease. Palliative care can be during any phase of the disease, even while curative therapies are being pursued. Palliative care can be provided by the patients' primary medical team, a specialized palliative team, or a hospice agency. As the disease progresses and treatment options become limited, the focus often shifts to comfort, prioritizing pain, and symptom management.

- Hospice care: Hospice care focuses solely on symptom control, and curative treatments are no longer pursued. A hospice agency provides hospice care. Pain and other end-of-life symptoms are treated more aggressively to provide symptom management and quality of life. The patient is at end-of-life.

- Anti-cancer therapy: Includes any treatment the patient is taking or receiving for their current cancer diagnosis.

C. Procedure

General Care

EMR/BLS

1. Initial Assessment/Care **Protocol 1**.

    a) Gathering and documenting information regarding the status of the disease, involvement of the Palliative and/or Hospice agency, and the presence of a DNRO.

    b) Personnel should maintain a high index of suspicion due to the illness progressive nature and possible side effects of prescribed medications.

    c) Care should be directed at acquiring proper vital signs, which will include (glucose and body temperature) and to support these vital signs.

2. Monitor the level of consciousness and maintain a position of comfort.

3. Provide supplemental oxygen as needed and if necessary, initiate airway management **Protocol 7.**

NOTE: If agency personnel are en route with an ETA of less than 20 minutes, MDFR will remain on scene to transfer care when either the patient is alone and requires minor assistance or the proxy is uncomfortable managing care.

ALS

4. Monitor ECG rhythm, perform a 12-Lead ECG and consider monitoring capnography.

5. Establish IV access.

    NOTE: Do NOT access ports or existing lines.

6. If receiving anti-cancer treatment, and **if possible**:

    a) The patient's care team shall be contacted for further guidance.

    AND

    b) If transporting the patient to the hospital, a preferred facility that is currently managing care should be taken into consideration for reasons such as:

        1. Transplant Candidates/Recipients
        2. Recent surgery (within 30 days)
        3. Experimental medication used during a clinical trial

These reasons are some of the most common issues in which transport to the facility managing care would be beneficial in maintaining continuity in patient care.

NOTE: Any life-threatening emergency, regardless of current cancer treatment, will go to the closest or most appropriate facility according to Protocol 4. Appendix 2.1

7. Assess for and provide pain management in accordance with **Protocol 18.**

8. Assess for and treat systemic reactions in accordance of **Protocol 17**.

9. Maintain a high index of suspicion for the following conditions and treat appropriately as per MDFR protocols:

   - Hematological: Patients are at risk for DVT, Pulmonary Embolism, Arterial clots, and Disseminated Intravascular Coagulation (DIC). Cancer patients undergoing chemotherapy and/or radiation treatment are at a higher risk of bleeding and/or clotting up to 3 months (sometimes even longer) after completion of therapy. They are also more likely to be on anticoagulants. A high index of suspicion for severe intracranial or internal bleeding following a traumatic event may occur while on treatment and if on anticoagulants.

   - Infection/Sepsis **Protocol 42**: Oncology patients tend to be immunocompromised either because of treatment-related side effects or the tumor/cancer itself. **Any fever of 100.4 degrees F for over 1 hour or any measured temperature of 101 degrees F should be evaluated in ED to rule out sepsis.**

     NOTE: Patients SHOULD NOT be advised to take antipyretics.

   - Metabolic: Hyper/hypo-glycemia **Protocol 36**, hyper/hypo-: kalemia, magnesemia, calcemia, or natremia (generally diagnosed by blood, but ECG changes may be present in severe cases).

   - Neurological disorders: Stroke **Protocol 13**, spinal compression with bilateral or unilateral weakness (may be upper or lower extremities) paresthesia, or paralysis.

   - Structural: Cardiovascular- pericardial effusion, including tamponade, superior vena cava syndrome. Pulmonary- pleural effusion, bronchial obstruction, and pulmonary inflammation.

   - Generalized signs and symptoms include: Increased weakness and hypotension **Protocol 35** (typically from inadequate hydration, nutrition, nausea/vomiting, and diarrhea). Administer **Zofran 4 mg PO Medication 33** as necessary. Abdominal pain **Protocol 22** and constipation from disease, treatments, pain medication, or metabolic disorders.

A. Introduction

Continuous Positive Airway Pressure (CPAP) is a method of positive pressure ventilation used with patients who are breathing spontaneously. CPAP is applied to keep the alveoli open at the end of exhalation and thus increase oxygenation and reduce the work of breathing. CPAP has been shown to rapidly improve vital signs, gas exchange, and work of breathing, decrease the sense of dyspnea, and decrease the need for endotracheal intubation. Patients who suffer dyspnea from acute cardiogenic pulmonary edema, and drowning induced pulmonary edema may be a candidate for CPAP.

B. Indications

Patients presenting with dyspnea/hypoxemia secondary to acute cardiogenic pulmonary edema, or drowning with pulmonary edema who:

a. Have a respiratory rate $\geq$ 24 breaths per minute
b. Have a SP02 saturation > 90% (If SP02 is < 90% ventilate with a BVM for 2 minutes until saturation is above 90%, then CPAP may be utilized)

C. Contraindications

a. Glasgow Coma Score < 15
b. Inability to maintain open airway
c. Suspected pneumothorax or penetrating chest trauma
d. Respiratory arrest
e. Systolic blood pressure < 110mmHg (initial reading)
f. Persistent nausea/vomiting
g. Facial anomalies i.e. facial trauma

D. Procedure

1. Place patient in sitting position and explain procedure to patient.
2. Connect and record an initial ETCO2 reading via the Lifepak CapnoLine Smart™ cannula.
3. Connect CPAP and turn the oxygen supply regulator to **8 LPM**.
4. Have the patient hold or assist the patient with placing the mask over their mouth and nose.
5. Gradually increase the oxygen supply flow **every 2 minutes** to achieve a maximum Positive End Expiratory Pressure (PEEP) of **10cm H2O pressure** on the CPAP manometer.
6. Secure the mask with the provided head harness and straps.
7. Adjust the mask off the nose by squeezing the tabs on the forehead support.

8. Instruct patient to breathe in through their nose slowly and exhale through their mouth as long as possible and check for air leaks.
9. Monitor and document the patient's respiratory response to the treatment.
10. Continue to coach patient to keep mask in place and readjust as necessary.
11. **All patients on CPAP should have continuous Sp02 and ETCO2 monitoring**
12. Document the PEEP achieved and the final ETCO2 and SpO2 readings on the Electronic Patient Care Report (ePCR) prior to releasing patient to the Emergency Department.

Note: If respiratory status deteriorates **and/or** the initial ETCO2 rises more than 10 mm hg to an above normal ETCO2 level, remove the CPAP device and provide ventilations via BVM and/or endotracheal intubation.

DISCONTINUED

A. Introduction
B. Rigid/Tonsil (Yankauer) Tip Suction
C. Soft/French (Whistle) Tip Suction
D. Laerdal Suction Unit (LSU) Operation
E. Hand-Operated Suction (V-Vac Suction Unit)

A. Introduction

The importance of maintaining a clear airway is to avoid forcing secretions and fluids in the lungs that result in aspiration. Suctioning is a priority in any airway management, whether routine or an emergency, and must be readily available in order to avoid aspiration.

B. Rigid/Tonsil (Yankauer) Tip Suction

EMR/BLS

1. Turn on the assembled suction device with Rigid/Tonsil (Yankauer) suction catheter and ensure in proper working order.

2. Measure rigid tip catheter to ensure proper insertion depth from the corner of the mouth to the earlobe or corner of the mouth.

3. Open the mouth using the “scissor” or “crossed-finger” technique and insert the rigid tip only as far as you can visualize.

    a) Note any large foreign bodies or materials which may occlude the airway and remove with the Magill forceps.

4. Place a finger over the suction control opening of the rigid tip to occlude and apply suction. Begin suctioning in a circular motion while withdrawing the rigid tip.

    a) Monitor for the patient’s overall clinical appearance, heart rate, and SaO2.

    b) If the patient deteriorates or bradycardia occurs, administer high-flow O2 until the clinical appearance and heart rate improves to normal limits.

    NOTE: Airway suctioning can be performed simultaneously during airway management attempts (e.g. orotracheal intubation, visual/video laryngoscopy, etc.).

5. Continue oxygenation of the patient and perform airway management as necessary.

6. Document procedure time and result in the ePCR.

    NOTE: Rule-of-Thumb for airway suctioning – suction for no longer than:
    15 seconds for Adults, 10 seconds for Children, 5 seconds for Infants

Top

C. Soft/French (Whistle) Tip Suction

Utilize primarily for airway obstructions secondary to blood, secretions, or other substances in patients currently being assisted by an airway adjunct, endotracheal tube, nasotracheal tube, iGel, cricothyrotomy or tracheostomy tube (stoma). Can be used for suctioning thin secretions from the nose and inserting along the side of the cheeks for a patient with trismus.

EMR/BLS

1. Turn on the assembled suction device with Soft/French (Whistle) tip suction catheter and ensure in proper working order.

    a) Select the appropriately sized soft tip catheter (the size should less than 50% of the internal diameter of the endotracheal tube or stoma [common conversion 1 mm = 3 French]).

    b) Maintain the sterile plastic packaging over soft tip catheter and utilize as a keeper.

2. Measure soft tip catheter to ensure proper insertion depth by using the patient's suprasternal notch and the end of the airway as depth guides (clinical judgment of depth is required when suctioning cricothyrotomy and tracheostomy tubes).

3. If necessary, remove BVM from the airway adapter.

4. Insert the soft tip catheter suction through the airway device to the appropriate desired depth and place a finger over the suction control opening to occlude and apply suction. Begin suctioning while withdrawing the soft tip slowly.

    a) If difficulty suctioning is encountered, a small amount of Normal Saline solution (Max 10 mL) may be used to loosen secretions.

5. Continue oxygenation of the patient and assist ventilation as necessary with BVM.

6. Document procedure time and result in the ePCR.

NOTE: Rule-of-Thumb for airway suctioning – suction for no longer than:
15 seconds for Adults, 10 seconds for Children, 5 seconds for Infants

D. Laerdal Suction Unit (LSU) Operation

1. Ensure all necessary parts are accounted for and in a clean and serviceable condition.

2. Ensure the patient suction tubing is appropriately attached to the patient port on the suction canister lid.

    a) The most appropriate suction catheter shall be selected and attached to the other end of the suction tubing.

3. Release the patient suction tubing by release the blue strap on the right side of unit.

Top

4. Only operate the LSU in an upright position to prevent any overflow of the suctioned material.

5. Set the LSU operating knob to the desired vacuum level appropriate for the patient and the LSU will begin to operate and the green light power indicator will remain continuously lit while the unit is operating.

    a) Higher vacuum levels (> 200 mmHg) are generally selected for oropharyngeal suctioning.

    b) Lower vacuum levels (80 – 200 mmHg) are usually selected for suctioning of the trachea through an airway device, nose, children and infants.

    c) The suction canister is recommended to be replaced once it is 3/4 full or after each use.

Replacing the Suction Canister

1. Disconnect the angled connector from the vacuum port on the suction canister lid.

    a) Connect the “suction end” of the patient suction tubing in the vacuum port to avoid spillage.

    b) Do NOT dispose the LSU blue angled connector and tubing (replace if damaged and only as necessary).

2. Release the suction canister holder by pressing down on the release arm while sliding the holder outward.

3. Remove the canister from the holder.

4. Dispose of the suction canister with contents safely into a biohazard waste container.

5. Replace holder with a new suction canister with a properly seated lid and slide the holder back into the locked position.

6. Connect new suction tubing to the canister and secure tubing with the blue strap.

Unit Maintenance

1. If device is not used frequently, it is recommended that a device test should be performed on a monthly basis. This test allows for the end-user to initiate a device test to identify whether or not the LSU is operating satisfactorily, assembled correctly, or if service is necessary.

2. Prior to beginning test, ensure that the suction tubing is not occluded or bent.

3. Press and hold the TEST-button while simultaneously setting the operating knob to 500+ mmHg.

4. As soon as the second LED light of the Battery Status Indicator comes on, fully occlude to suction tubing with a finger.

Top

a) Maintain the tubing occluded until only the first LED light remains on.

5. To display the test results, cycle through the different steps by pressing the TEST-button once for each result.

6. To exit the device test mode, set the operating knob back to the off (0 mmHg) position.

Device Test Results

Test Step *On Battery Status Indicator*	**Test Result - Passed** *On Vacuum Indicator*	**Action** *If Test Failed*
STEP 1 - Occlusions	≤ 100 mmHg	Check for possible occlusions and run test again
STEP 2 – Vacuum Build-Up Efficacy (3 secs.)	≤ 300 mmHg	Check connectors, tubing, canister lid for air leakage/damage, and exhaust outlet for occlusion.
STEP 3 – Max Achievable Vacuum (10 secs.)	≥ 500 mmHg	Check connectors, tubing, canister lid for air leakage/damage, and exhaust outlet for occlusion.
STEP 4 – Air Leakage	≥ 450 mmHg	Check connectors, tubing, canister lid for air leakage/damage.

Cleaning the Unit

1. Disconnect the LSU from the external power supply or wall bracket.

2. Use a minimum amount of liquid disinfectant to avoid electrical shock hazard.

    a) Do not immerse the LSU or allow the unit to stand in water or any other liquids.

3. Use a cloth dampened with a mild detergent or disinfectant to clean the external surfaces of the LSU.

    a) Wipe the surfaces again with water again if a mild detergent is used.

4. Dry the surfaces using a clean cloth or paper towel.

Charging the Battery

1. Ensure the LSU operating knob is in the off position (0 mmHg).

2. Connect either the external AC- or DC-power to the LSU or lock LSU back in place into the mounted wall bracket to begin charging.

3. During charging operations, the battery status indicator will indicate the approximate achieved battery capacity.

    a) The LSU must be placed on charge for a minimum of 4 hours in order to reach the full battery capacity.

Top

b) It is recommended to store the LSU on continuous charge and immediately after use to maintain satisfactory operation of the battery.

c) The battery should be replaced via an EMS Service Request when it does not pass the Battery Quality Check. It is indicated for replacement when the unit does not operate continuously at 500 mmHg for 20 minutes or more.

d) The LSU battery does not charge while the unit is in operation.

E. Hand-Operated Suction (V-Vac Suction Unit)

A manual portable unit that is designed for quick and effective suction providing a variety of suction pressures from ~170 – 380 mmHg.

Excess Secretion/Large Particle Suctioning

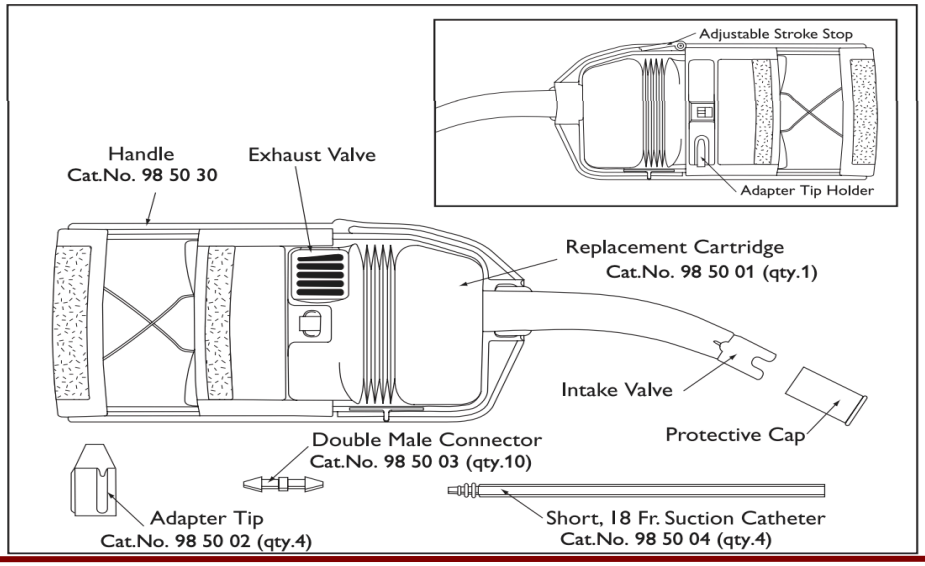
1. Measure V-Vac Intake Valve to ensure proper insertion depth.
2. Open the mouth using the “scissor” or “crossed-finger” technique and insert the V-Vac Intake Valve tip only as far as you can visualize.

    a) Note any large foreign bodies or materials which may occlude the airway and remove with the Magill forceps.

3. Create suction pressure by pulling back and squeezing on handle while slowly withdrawing out of the mouth. Repeat as necessary.

    a) To avoid clogging of the exhaust filter on the side cartridge when it is partially filled, do not point the V-Vac tip upward.

Components



Top

Adapter Tip

1. Provided for additional uses and applications and can be stored on the adaptor tip holder of the V-Vac handle.

2. A short, non-sterile 18 French suction catheter can be attached to the adaptor tip for use to suctioning thin secretions from the nose and/or inserting along the side of the cheeks for a patient with trismus.
3. Ensure the suction catheter is firmly seated into the adapter tip prior to use.

    a) The adapter tip should be pushed over the intake valve.

    b) A double male connector is also available to be used with the adapter tip with female-ended catheters.

Cartridge Removal and Installation

1. Place the protective cap over the intake valve.

2. Hold the handle of the V-Vac with the tip pointed away, use the heel of the left palm to push out the cartridge reservoir while maintaining a grip on the handle frame beneath the nozzle tip.

3. As the V-Vac cartridge pops out, hold firmly with the right hand and pivot it to a right-angle position to remove from the handle frame.

4. Replace with a new cartridge by holding on to the handle with the left hand and placing the new cartridge at a right-angle, inserting the oval-shaped hole into the clip of the handle.

5. Pivot cartridge forward and snap it in place firmly to seat the cartridge appropriately. The protective cap can remain in place on the intake valve until the next use.

Stroke Adjustment

1. Securing the stroke stop to achieve only a maximum of ~170 mmHg of suction pressure.

2. Squeeze the handle of the V-Vac handle and flip over the stroke stop on the top.

3. Push down the stroke top to lock it into place.

Cleaning

1. The V-Vac handle can be cleaned thoroughly by scrubbing with warm soapy water.

2. Rinse and dry before installing a new cartridge on the V-Vac handle.

3. Check the condition of the handle and the functionality of the unit prior to returning into service.

Top

A. Introduction

Individuals with autism spectrum disorders may respond differently to certain stimuli and medical examinations. It is crucial for EMS providers to be able to recognize certain signs that may indicate the patient is on the spectrum, and modify their treatment approach accordingly whenever possible. Reasonable accommodations should be made, without compromising patient care according to protocols.

B. Procedure

EMR/BLS

1. Initial Assessment/Care Protocol 1.

   NOTE: Remember to treat all patients with dignity and respect, and be mindful of the patient's individual needs and circumstances.

   a) **Ensure safety:** If the patient is in a dangerous environment, move them to a safe location. Be mindful of any environmental factors that could exacerbate the patient's condition, such as extreme temperatures, loud noises, or bright lights.

   b) **Assess the patient's condition:** Approach the patient calmly and assess their level of consciousness, breathing, pulse, and other vital signs. Be cautious of touching the patient. When possible, ask and proceed slowly. Take your time to show the equipment, and explain your actions. Demonstrate use of equipment if possible.

   c) **Determine the patient's special needs**: Ask the patient or their caregiver about any special needs or accommodations they require, such as communication devices, mobility aids, medications, or emotional support animals. Be on the lookout for medical bracelet/necklace, or other personal items that could have additional information.

   d) **Communicate effectively:** Speak clearly and calmly, use simple language, and be patient. If the patient has communication difficulties, use alternative communication methods such as written notes or sign language interpreters. Engage family members and/or caregivers to assist with communication.

      NOTE: Visual cues can be very helpful (i.e. pointing on yourself or someone else) or communication cards/devices.

   e) **Provide appropriate care:** Provide all necessary medical treatment according to protocols, while still taking into account the patient's special needs.

   f) **Consider transportation needs:** Determine the most appropriate method of transportation for the patient, taking into account their special needs. If necessary, arrange for a specialized ambulance or transport vehicle equipped with the necessary equipment and accommodations.

   g) **Document the patient's special needs:** Record the patient's special needs in the narrative section of the patient care report, along with any relevant medical information, treatment provided, or modifications needed.

2. Use the MDFR Sensory Bag to calm and reassure the patient.

    a) Headphones (Help patients filter out sensory input and reduce sensory overload)

    b) Fidget Toy (Help patients regulate emotions and reduce stress)

    c) Red Ball (Help patients regulate emotions and reduce stress)

    d) Communication Aids

C. Special Considerations

1. **Communication**: Patients with certain disabilities (deafness, nonverbal autism), may have difficulty communicating their needs or symptoms. Consider using alternative methods of communication such as written notes, drawings, caretaker, or interpreter to ensure that the patient receives appropriate care.

    a) **Written Communication**: Notes or text messages may be helpful tools for communication. Use simple language and keep sentences short.

    b) **Sign Language**: Sign language interpreters may assist with communication if on scene. Hand gestures such as thumbs up or pointing may assist patients who may be limited with verbal communication.

    c) **Picture Communication**: Section E.

    d) **Augmentative and Alternative Communication (AAC) Devices**:

    e) **Tactile Communication**:

        i. Be attentive and sensitive to the patient's specific needs and abilities when choosing the form of communication.

        ii. Be aware that it is common for them to repeat what you say or answer with the last option given.

    f) **Sensory Issues:** Patients may have a heightened sensitivity to noise, lights, touch or other sensory stimuli. Attempt to minimize any stimuli that may exacerbate patient's condition (lights and sirens, bright lights, loud noises).

    g) **Emotional Distress:** Be calm and supportive, provide emotional support as needed. Use caretakers to assist with patient care. Be aware of the patient's support network and involve them in the patient's care as appropriate.

D. Sensory Bag

A sensory bag for special needs patients may be a helpful tool to help calm them down in an emergency situation. These bags will be placed on all MDFR frontline response units.

1. **Fidget Toys:** Provide tactile stimulation and may help calm anxiety.

2. **Noise Canceling Headphones:** For patients sensitive to noise, these may reduce sensory overload.



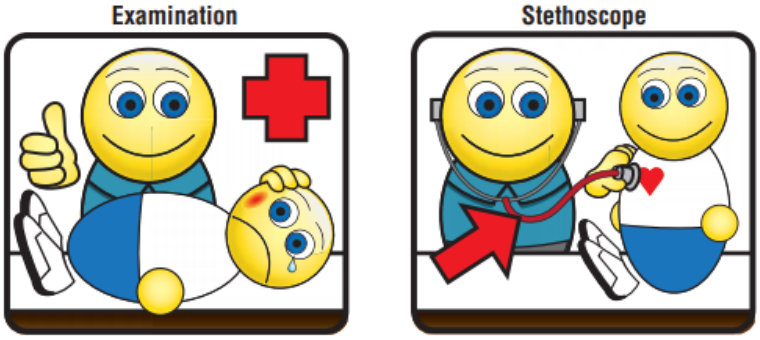
NOTE*:* Sensory bags are single use. Bags may be given to patients, family members or caregivers.

E. Communication Aids

Visual Aids/Communication Aids are picture boards or calming images on cards than can provide a focal point and help patients feel grounded. Picture cards or communication books can also help patients express their needs or emotions, and can help patients communicate with responders during patient assessment.

1. Communication aids will accompany the sensory bags to help nonverbal/autistic patients and their family members express their needs or emotions.

2. Communications aids will be available in both English/Spanish and English/Creole.



https://emlrc.org/flpedready/

3. These communication aids will come assembled in a binder clip, and may be provided in the Sensory Bags for patients to keep.



NOTE*:* Communication cards are single use. They may be given to patients, family members or caregivers.

F. Requesting Supplies

To obtain replacement Sensory Bags and/or Communication Cards after items have been issued to patients, complete an EMS Service Request.

TRAUMAGEL® HEMOSTATIC GEL INSTRUCTIONS FOR USE

TRAUMAGEL® is a single-use, hemostatic gel for temporary external use only.
TRAUMAGEL® is supplied as an individually pouched 30 mL hemostatic gel syringe, containing a sodium alginate and poly (N-acetyl-D-glucosamine, D-glucosamine) hydrogel and is enclosed in a protective pouch. Each syringe is terminally sterilized with gamma irradiation.
The hemostatic gel is viscous, opaque and tan in color. The polymer components, sodium alginate and poly (N-acetyl-D-glucosamine, D-glucosamine), are naturally derived and as a result syringe contents may appear darker over time.
All components of TRAUMAGEL® are non-animal derived.

INTENDED USE / INDICATIONS.

TRAUMAGEL® is a hemostatic gel indicated for temporary external use for controlling moderate to severe bleeding.

CONTRAINDICATIONS

- TRAUMAGEL® is for temporary external use only.
- TRAUMAGEL® is not intended for surgical use.
- TRAUMAGEL® is not intended to be used as a wound-closure device.
- **Do Not** utilize on wounds to the **Thoracic cavity**, **Abdominal cavity** or **Head wounds** with underlying suspected skull fracture.

WARNINGS

- TRAUMAGEL® is single use only. Do not reuse. Reuse could result in risk of infection and /or loss of efficacy if less than 30 mL of gel is used.
- Do not use TRAUMAGEL® on individuals with known sensitivity to sodium alginate or poly (N-acetyl-D-glucosamine, D-glucosamine). If irritation occurs, flush site with saline or water until all product is removed. Ensure the wound site is visibly clear of all the residue. If irritation still occurs, seek immediate medical attention and follow the facility guidance if irritation is observed.
- Do not inject TRAUMAGEL® intravascularly due to risk of embolization.

MECHANISM OF ACTION

TRAUMAGEL® is comprised of a proprietary blend of polyanionic and polycationic polysaccharides. Sodium alginate is the primary polyanionic polymer, and poly (N-acetyl-D-glucosamine, D-glucosamine) is the primary polycationic polymer. Sodium alginate forms a hydrogel in which poly (N-acetyl-D-glucosamine, D-glucosamine) particles are uniformly dispersed. When directly applied to a source of bleeding, the hemostatic gel rapidly adheres to the wound site. The hemostatic gel forms a mechanical barrier that stops the flow of bleeding and allows the body to create a natural clot.

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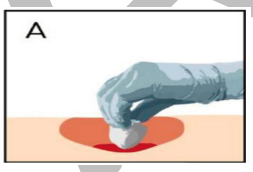


PROCEDURE

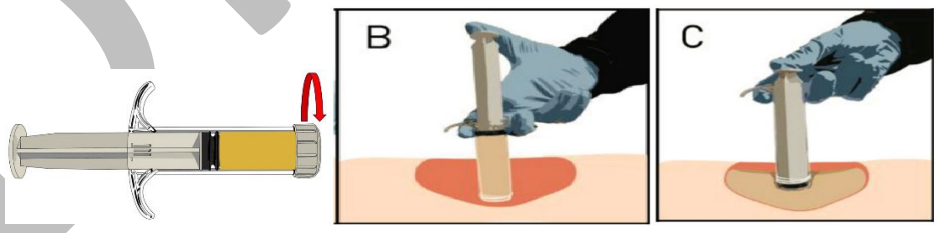
1. Retrieve one TRAUMAGEL® syringe from pouch. TRAUMAGEL® does not require preparation.



2. Identify the source of bleeding. Dry wound with gauze or suction. Clear as much blood as possible from the wound site prior to application. This will allow the hemostatic gel to come in direct contact with the source of bleeding when applied.

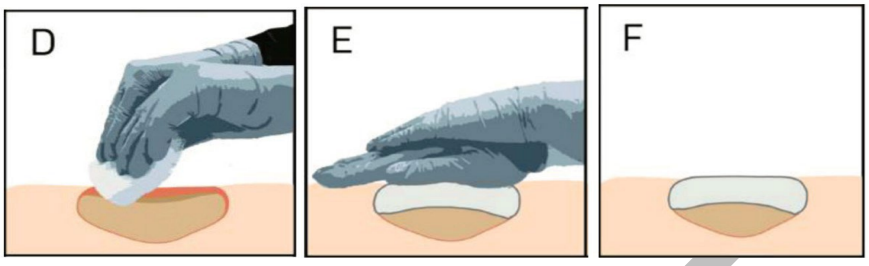


3. When ready to use, unscrew applicator cap, remove gauze and insert the applicator tip deep into the wound as close to the bleeding source as possible. Firmly and quickly expel all contents into the wound. Once all material has been deployed, withdraw the applicator as quickly as possible.

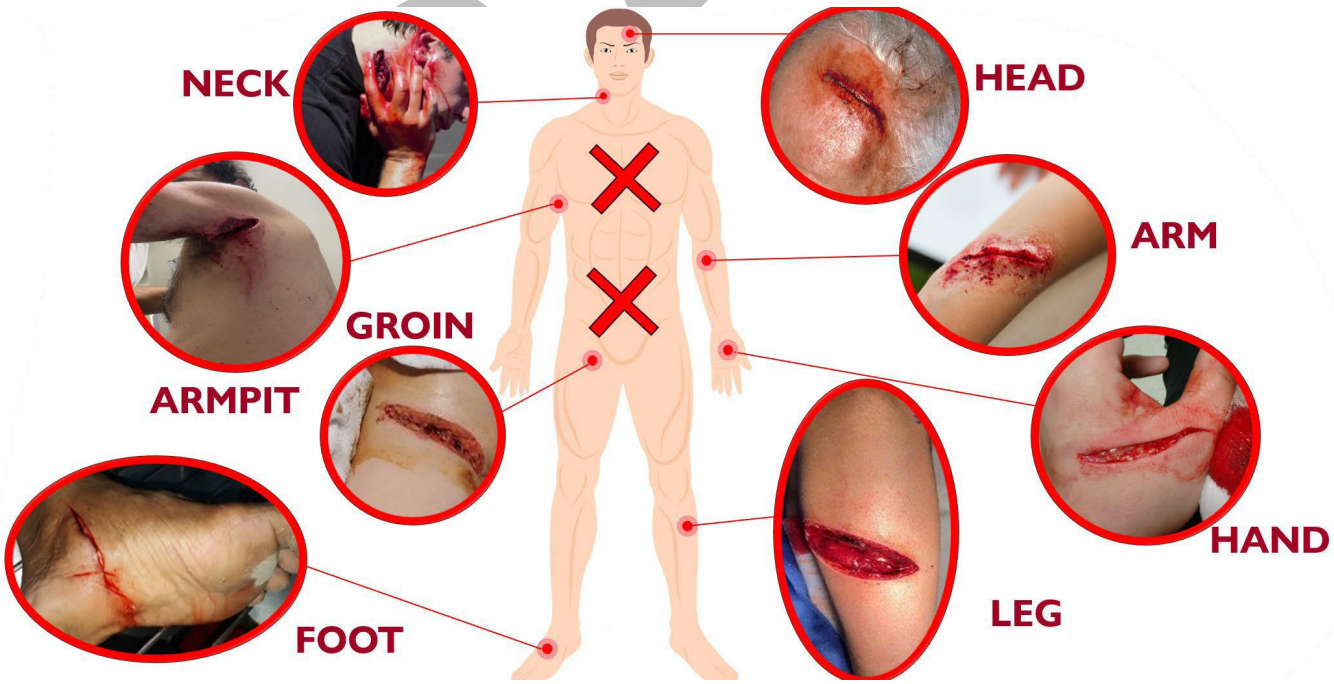


4. Pack gauze into the wound opening atop the applied TRAUMAGEL®, ensuring all gauze is inside the wound area and the wound is sufficiently packed. Apply moderate palm compression (hand over hand), covering as much surface area as possible. Continue compression for **three (3) minutes** or until hemostasis is achieved. Avoid ejecting any of the underlying TRAUMAGEL®.

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DEMONSTRATION VIDEO



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IN THE EVENT OF MISAPPLICATION:

Soak gauze with sterile saline and remove the entire gel.

6. Repeat Directions 2, 3, 4, & 5 with a new TRAUMAGEL® application until hemostasis is achieved.

****Removal, AFTER APPROPRIATE APPLICATION, is Not to be performed in the field – Emergency Department only procedure****

TO REMOVE TRAUMAGEL®: INFORMATIONAL PURPOSES ONLY

7. TRAUMAGEL® must be removed within 24 hours of application.

8. Remove the entire gel and repair the wound. Soak gauze with sterile saline and remove the entire gel. If there are still remnants of gel within the wound, use saline lavage to remove it.

9. If irritation occurs, flush site with saline or water until the wound site is visibly clear of all the residue. If irritation still occurs, seek immediate medical attention and follow the facility's guidance if irritation is observed.

STORAGE AND HANDLING

• TRAUMAGEL® should be stored dry and at an ambient temperature (20-25°C) upon receipt.

• TRAUMAGEL® is prepackaged sterile and is intended for single use only. It is recommended that TRAUMAGEL® be used as soon as the package is opened. Unused contents should be discarded.

DRAFT

A. General Information

The Arrow® T-POD™ Pelvic Stabilization Device provides circumferential compression to the pelvis in patients with suspected pelvic fracture for pelvic stabilization, which may reduce blood loss and pain. The Arrow® T-POD™ Device can improve pelvic fracture outcomes. When seconds count, immediate application of a correctly applied pelvic binder in hemodynamically unstable patients can be lifesaving.

B. Indications

- Suspected or proven unstable pelvic fracture demonstrated on radiograph
- Mechanism of injury consistent with possible pelvic fracture with physical exam
  - Abrasions and contusions around the pelvic area
- Mechanism of injury consistent with possible pelvic fracture with hemorrhagic shock without another source of hemorrhage

C. Contraindications

Suspected Hip Fracture

Note: Do Not use if you suspect a Hip Fracture. Due to overlapping symptoms, carefully assess for both pelvic and hip involvement. Symptoms are often similar: severe hip/groin pain, swelling, bruising, and difficulty bearing weight.

Hip fracture indicators: shortened and externally rotated leg; sharp, localized pain at the hip.

Pelvic fracture indicators: pain in lower back or abdomen; signs of internal damage-like blood in urine or rectum; symptoms of shock; or numbness/tingling in legs.

D. Application Procedure

- Slide Belt under the supine patient and into position under the pelvis.
- Trim the Belt, leaving a 6-8” gap over the center of the pelvis. As an alternative, the belt can also be folded under itself, do not roll it, there is a maximum of 2 layers of material
- Apply Velcro-backed Mechanical Advantage Pulley System to each side of the trimmed Belt.
- Slowly draw tension on the Pull Tab, creating simultaneous, circumferential compression.
- Secure the Velcro-backed Pull Tab to the Belt.
- Record the date and time of application on the space provided. Re-evaluate distal pulse, motor, and sensation (PMS) of both extremities regularly and document in the ePCR.

E. Special Considerations

- If an obese patient requires T-POD®, two belts may be affixed together using one power unit as an extender and the other as the pulley
- Children less than 50 lbs. (23 Kg) may be too small to obtain the 6-inch gap needed for closure. If the ends of the T-POD® overlap, it will not be effective in stabilizing the pelvis.
- The T-POD® can be released to check for skin integrity and provide wound care, as necessary. For long transports, the T-POD® should be released every twelve (12) hours to check for skin integrity and reapplied as soon as possible.

The Arrow® T-POD™ Pelvic Stabilization Device















T-POD

https://www.youtube.com/watch/ZZGKHLjrVmA?si=AhvoTB5EOZilt4Rx

A. Introduction

The Kendrick Extrication Device (KED) is primarily indicated for patients with suspected spinal injuries who need to be extricated from vehicles or confined spaces. It's designed to provide spinal immobilization and support during the process.

B. Contraindications

1. Altered mental status
2. Penetrating chest trauma
3. Any torso injury incompatible with circumferential pressure

C. Procedure

EMR/BLS

1. Initiate manual in-line stabilization of the head.
2. Apply the appropriate cervical collar.
3. Insert the device behind the patient. Try to limit movement while positioning the device.
4. Position the device so it fits securely under the axilla. Open the side flaps and place them around the patient's torso.
5. Position, connect, and adjust the torso straps. Leave the uppermost strap loose until the head is immobilized.
6. Position and fasten each groin loop. Adjust one side at a time to prevent excess movement of the patient.
7. Place the pad behind the patient's head, filling the void to prevent hyperextension.
8. Position the head flaps. Fasten the forehead strap and apply the chin strap over the cervical collar.

CAUTION: The handles of the KED should not be used to lift, carry, or move the patient.

A. Introduction

Traction splints are indicated for patients with a closed fracture to the femur. Traction splints are designed to apply a gentle, steady pull to the leg (traction). This steady traction helps with pain by realigning the fractured bone fragments, decreases the risk of further injury to soft tissue and blood vessels from sharp bone ends, and helps control muscle spasms that can make the fracture more painful and difficult to manage.

Contraindications:

- Hip or Pelvic fractures
- Supracondylar fracture
- Knee, ankle, or foot fractures
- Open femur fracture

B. Procedure

EMR/BLS

1. Always assess distal pulses, sensation, and motor function before and after traction splint application.

2. Prepare traction splint for application

    a) Undo all straps, including ankle and ischial strap.
    b) Place the splint on the un-injured side to measure the appropriate length for splint application.

3. Apply Traction splint

    a) Expose injured leg
    b) Attach ischial strap and ankle hitch
    c) Apply gentle and firm manual traction until the injured leg experiences pain relief and/or the injured leg aligns with the non-injured leg.

4. Working from top to bottom, secure the remaining straps to stabilize the injured leg.

5. Once the splint is in place, re-evaluate pulse, motor, sensory (PMS)

A. Cold Water Immersion

Cold Water Immersion (CWI) and Tarp Assisted Cooling Oscillation (TACO) are rapid cooling methods used to lower core body temperature in patients suffering from heat stroke. These techniques should only be performed at incidents where the proper equipment has been pre-staged, or when responding crews arrive to find that the scene is already properly set up.

Heat stroke is a life-threatening emergency characterized by a core body temperature greater than 104°F (40°C) and central nervous system dysfunction. If untreated, heat stroke may lead to organ failure, neurological injury, cardiac dysfunction, and death.

Cold water immersion to the neck remains the most effective treatment for rapidly lowering core body temperature in heat stroke patients.

Operational Considerations

Crews may arrive at incidents, most commonly athletic events, recruit training, extended operations, or fireground training, where cooling procedures have already been initiated by on-site medical personnel, athletic trainers, or event staff. Follow the “cool-first, transport second” guideline as **no other emergency medical treatment is needed** other than rapid lowering of the body temperature.

- Continue the cooling process whenever possible.
- Maintain active cooling for approximately 20-30 minutes, or until directed otherwise by medical control/protocol.
- Continuously monitor airway, breathing, circulation, mental status, and patient responsiveness.

Discontinue Cooling and Transition to Standard Patient Care If:

- Airway compromise is suspected
- Advanced airway management becomes necessary
- Cardiac monitoring or resuscitative interventions are required
- Seizure activity
- Patient condition deteriorates or becomes unstable

If any of the above occur, stop the immersion/TACO process and transfer the patient immediately to the closest emergency department while providing the appropriate patient care.
Cooling should be initiated or continued during transport in the most effective manner possible.

Procedure

EMR/BLS

1. Cold Water Immersion (CWI)
    a) Move to a cool/shaded area.
    b) Remove all equipment and excess clothing.
    c) Assess patient vital signs.

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d) If tub is available, fill it with water and ice.
   - Ice and water may have to be added throughout the cooling process.
   - If available a tarp or patient carrier should be placed underneath patient prior to, or during submersion to assist with patient movement.

e) Patient should be placed in tub up to neck area, leaving the head exposed.
f) Place a wet towel over patient head.
   - Ensure that the airway is patent, and patient is able to maintain airway.

g) If available, rectal temperature should be monitored periodically. Once patient rectal temperature has reached 102F°, patient should be removed from the tub and transported for further evaluation and treatment.
   - If a rectal thermometer is unavailable, do not delay cold water immersion, immerse the patient for approximately 20-30 minutes.

h) If immersion is not possible/available, use Tarp Assisted Cooling Oscillation (TACO) method use rotating cold wet towels to cover as much of the body surface area as possible.

2. Tarp Assisted Cooling Oscillating Method (TACO)
   a) Remove the victim's excess clothing and equipment.
   b) Place them in the middle of a tarp, which will serve as the makeshift tub.
   c) Have crew pick up each corner of the tarp to form a sling, or taco shape.
   d) Cover the patient with cool water and ice up to their chest.
   e) Slowly move the tarp back and forth to oscillate the liquid and initiate cooling.
   f) Ensure patient does not slip beneath the surface of the water and continuously assess vital signs.
   g) If TACO is not available, use rotating cold wet towels to cover as much of the body surface area as possible and follow **Protocol 26 Environmental Emergencies**.

ALS

3. Establish vascular access via IV/IO.
4. Administer fluid bolus up to 1000 mL Normal Saline. Monitor lung sounds and blood pressure often.
   a) If the patient develops signs and symptoms of fluid overload respiratory distress (dyspnea, crackles, rhonchi, decreasing SpO2), slow the administration rate of IV to KVO.
5. Monitor cardiac rhythm continuously and perform a 12-Lead ECG
6. If seizures develop, administer Midazolam (Versed) 5 mg slow IV/IO/IN. This may be repeated once to a total dose of 10 mg.

NOTE: Cooling is the primary goal before transport. However, airway and circulation will take precedence over cold water immersion if patient's airway is compromised or in cardiac arrest. Cooling procedures that allow for airway management and CPR should be done concurrently.

DRAFT

Introduction

This Medical Operations Manual has been developed by the Miami-Dade Fire Rescue Protocol Advisory Committee and the Medical Director as part of the medical control program for the Miami-Dade Fire Rescue Department. Protocols describe emergency medical procedures that will be instituted by Department Emergency Medical Responders (EMR), EMT's, and Paramedics who have been certified by the State of Florida Department of Health and further approved by the Medical Director to utilize such protocols. The protocols have been designed as clinical guides, not as educational documents: Therefore, the therapeutic rationale behind the treatment protocols reflects the general principles of field care, and not a teaching document.

All information contained in this Medical Operations Manual and standard references collectively define the Standard of Care that will be provided by all uniformed personnel of the Miami-Dade Fire Rescue Department. Some patients may require treatment not specified in these protocols. The protocols should not be construed as prohibiting such flexibility. The EMR, EMT or Paramedic will use their judgment in administering treatment. The EMT or Paramedic may contact the Medical Control Physician (MCP) at any point to discuss treatment necessary to provide effective patient care.

The Medical Operations Manual (MOM) is divided into the following four sections:

- **Protocols:** This section contains treatment guidelines (the "when and why") developed by the Protocol Advisory Committee and approved by the Medical Director.

- **Procedures:** This section details specific procedures (the "how to") which will be followed by the appropriate department certified EMS personnel.

- **Medications:** This section provides a detailed description of indications, contraindications, side effects, adult and pediatric dose of every medication carried by Miami-Dade County Fire Rescue.

- **Appendix:** This section provides reference material such as approved abbreviations, symbols, Adult/Pediatric Trauma Alert Criteria, and the Glasgow Coma Score.

Each protocol and procedure delineates levels of care that will be provided by EMRs, EMT's and Paramedics. Basic Life Support tasks are outlined by the prefix BLS, Advanced Life Support tasks by the prefix ALS, and HAZMAT specific treatment by HTX. If tasks require Medical Control Physician approval, the prefix MCP is used. The protocol/procedure is written in an ascending order (1, 2, 3, etc.) with each step assuming that previous steps were done. Sub-steps (a, b, c, etc.) allow for treatment to be concurrent. Where applicable, each protocol indicates treatment specific for adults. Where necessary, specific pediatric protocols have been written and are designated by the (P) after the protocol number.

Initial Assessment

Protocol 1 is designed to provide personnel with a systematic approach to the evaluation and treatment of the medically ill or injured patient. This protocol is the foundation for all patient care. Additional protocols should be instituted as necessary. Judgment must be used in determining whether patients require ALS or BLS level of care. This protocol is frequently referred to by other protocols and procedures that may override it in recommending more specific therapy.

A. Scene Size-Up
B. Primary Assessment
C. Medical Patient Management
D. Trauma Patient Management
E. Secondary Assessment

A. Scene Size-Up

EMR/BLS

1. Perform a Scene Assessment and determine:
    a. Scene safety
    b. Mechanism of injury (MOI) or nature of illness (NOI)
    c. Number of patients
    d. Severity of the patient(s)
    e. Need for additional resources
2. Determine if patient meets any Alert Criteria, i.e. STEMI, STROKE, or TRAUMA, notify dispatch and receiving facility as soon as possible.
3. For ALL calls, be prepared to administer immediate life-saving interventions (defibrillation, airway management, etc.) upon INITIAL patient contact.
4. Determine the medical priority, treatment strategies and notify corresponding facility.

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B. Primary Assessment

This evaluation will be completed on every patient attended to by a responder. The purpose of the primary assessment is to identify and rapidly treat problems that are life threatening.

EMR/BLS

1. **Airway**

    a) Assure a patent airway and need for Spinal Motion Restriction Protocol 40.

    b) If cervical or spinal injury is suspected, care must be taken not to move the head, but to maintain it in a neutral, in-line position as directed in Spinal Motion Restriction.

2. **Breathing** - patients should be observed for absence of or difficulty breathing and any spontaneous respiratory irregularities.

    a) Record the rate, rhythm and quality of respirations

    b) Note the effort of breathing:

        i. Depth and effort?

        ii. Use of accessory muscles?

        iii. Symmetrical chest movements?

    c) If breathing is abnormal, ensure the patency of the airway.

        i. Listen for abnormal sounds (wheezing, rales, rhonchi, pleural rub, lack of breath sounds, etc.)

        ii. Evaluate for trauma (penetrating wounds, bruises, rib fractures, etc.)

3. **Circulation**

    a) Record the patient's palpable pulse rate and location

    b) Assess for obvious life threatening external blood loss (active bleeds should be managed immediately)

    c) Evaluate the patient's skin and perfusion

        - Peripheral pulses present (radial, pedal)
        - Capillary refill time
        - Skin color, temperature, and moisture

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4. **Neurological Exam**

   a) Level of consciousness;

   - Is patient oriented to person, place and time?
   - Determine the Glasgow Coma Score Appendix 5 and Appendix 6
   - Is a FAST-ED stroke assessment needed?

     F: Is the face symmetrical?

     A: Assess motor function and sensation

     S: Check for abnormal speech, proper words, and/or slurring

     T: Determine time of onset

   b) Assess the patient's pupil size, equality and their reaction to light

   c) If the patient is conscious, do all extremities move equally?

   d) Assess patient for any pain Protocol 18

C. Medical Patient Management

EMR/BLS

1. Airway Management Protocol 7, Protocol 8 and Procedure 49.
2. Assess the need for administration of Oxygen Procedure 1. Obtain and document pulse oximetry and capnography as needed.
3. Perform a blood glucose check via finger stick as indicated in Procedure 19.
4. Administer Narcan (Naloxone) for significant respiratory depression due to suspected opiate overdose Protocol 15.
5. Assist with patient prescribed medication administration such as:

   a. Nitroglycerin for chest pain Medication 27

   b. Inhalers (Ventolin, Proventil, etc.) for difficulty breathing.

   c. Oral glucose for conscious diabetics.

   d. Epi Pen for acute anaphylaxis.

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ALS

6. Perform advanced airway management, as indicated. Protocol 7 and Protocol 8.
7. Cardiac evaluation and EKG monitoring Protocol 10.
8. Establish vascular access as indicated Procedure 13 and Procedure 14.

MCP

9. Guidance for treatment not defined in these protocols.

D. Trauma Patient Management

EMR/BLS

1. Airway Management with C-spine control Protocol 7 and Protocol 40.
2. Administer Oxygen Procedure 1.
3. Control obvious hemorrhage.
4. Bandage and splint.
5. Backboard and package the patient Protocol 40.
6. Obtain and document a pulse oximetry reading.
7. If the patient is in shock (i.e., a systolic blood pressure < 90 mmHg)
   place patient in Trendelenburg position - in absence of airway or breathing compromise).
8. Establish Trauma Center contact, if indicated Appendix 3.

ALS

8. Advanced airway management, as indicated.
9. Advanced interventions as needed.
10. Establish intravenous access if indicated Procedure 13.
11. EKG monitoring if situation allows Protocol 10.

MCP

12. Guidance for treatment not defined in these protocols.

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E. Secondary Assessment

These procedures can be carried out simultaneously along with the primary assessment and treatment when resources permit. This assessment is a more thorough evaluation of the patient.

EMR/BLS

1. Identify a chief complaint.
2. Document vital signs. A second set of vitals will be obtained and documented for the following patients:
    a. Patients transported by MDFR.
    b. Patients transferred to an ambulance/BLS unit.
    c. Patients who refuse treatment/transport against medical advice. (The second set of vitals should be obtained just prior to release.)
    d. Unstable patients as indicated in other protocols.
3. Document estimated weight whenever a medication is administered and/or anytime a patient is transported by MDFR.
4. Document a pertinent medical history:
    S: Signs and symptoms.
    A: Allergies
    M: Medications
    P: Past medical history
    L: Last oral intake
    E: Events leading to the call for help
5. Complete and document a head-to-toe survey. Utilize the patient's complaint to guide your assessment.

Top

This protocol is designed to provide personnel with a systematic approach to the evaluation and treatment of the ill or injured pediatric patient that will vary with the age of the patient. This protocol is the foundation for pediatric patient care, using the most appropriate approach to patient assessment with the respect to the patient's age according to the age classifications. If there is a doubt when to transition from Pediatric to Adult protocols, follow Adult protocols when a patient reaches age 14 and/or cannot be measured on the pediatric length base tape. Additional protocols should be instituted as necessary. This protocol is frequently referred to by other protocols and procedures that may override it in recommending more specific therapy.

A. Scene Size-Up

EMR/BLS

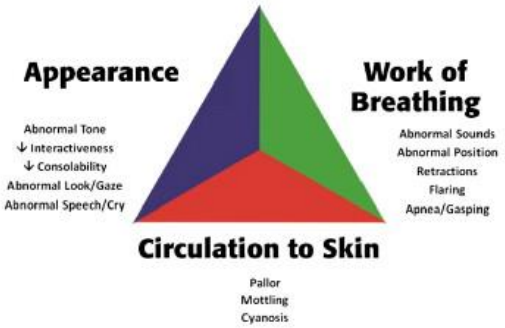
1. Perform a Scene Assessment and determine:
    a) Scene safety
    b) Mechanism of injury or Nature of Illness (NOI)
    c) Number of patients
    d) Severity of the patient(s)
    e) Need for additional resources

BLS

2. Determine if patient meets any Alert Criteria, i.e. STEMI, STROKE, or TRAUMA, notify dispatch and receiving facility as soon as possible.
3. For ALL calls, be prepared to administer immediate life-saving interventions (defibrillation, airway management, etc.) upon INITIAL patient contact.
4. Determine the medical priority, treatment strategies and notify corresponding facility

B. General Impression

The initial approach will encompass a rapid assessment of the general appearance of the patient. The Pediatric Assessment Triangle (PAT) shall be used to provide an accurate initial status of the child's underlying level of consciousness and cardiopulmonary status. The PAT encompasses three components that reflect the child's overall physiological status: appearance, work of breathing, and circulation to the skin.



General Care

BLS

1. Pediatric Assessment Triangle (PAT)

a) Appearance

Assess for specific features that the child may present to determine the severity of the illness or injury. Characteristics may include: tone, interactiveness, consolability, look/gaze, speech/cry.

b) Work of Breathing

Assess for the characteristics of the child's respiratory status, whether or not the child has an increased effort in order to properly oxygenate and ventilate their body. Characteristics may include: abnormal airway sounds (snoring, muffled, hoarse, stridor, grunting, wheezing), visual cues of increased work of breathing (sniffing position, tripod position, orthopnea) including using accessory muscles (retractions, nasal flaring).

c) Circulation

Assess the overall color of the skin and color pattern in order to determine the adequacy of overall perfusion. The circulation of the skin reflects the overall status of core circulation. Characteristics may include: pallor, mottling, cyanosis.

C. Primary Assessment

1. Airway

a) Assure a patent airway Protocol 07P and need for Spinal Motion Restriction Protocol 40.

b) If cervical or spinal injury is suspected, care must be taken not to move the head, but to maintain it in a neutral, in-line position as directed in Spinal Motion Restriction.

2. **Breathing** - patients should be observed for absence or evidence of difficulty in breathing and any unusual noises accompanying respirations.

a) Record the rate, rhythm and quality of respirations

b) Note the effort of breathing:

- Depth and effort?
- Use of accessory muscles?
- Symmetrical chest movements?

c) If breathing is abnormal, ensure the patency of the airway.

- Listen for abnormal sounds (wheezing, rales, rhonchi, absence of breath sounds, etc.)
- Evaluate for trauma (penetrating wounds, bruises, rib fractures, etc.)

3. Circulation

a) Record the patient's palpable pulse rate, rhythm, quality and location

b) Assess for obvious life-threatening external blood loss (active bleeds should be managed immediately).

c) Evaluate the patient's skin and perfusion

- Peripheral pulses present (radial, pedal)
- Capillary refill time
- Skin color, temperature, and moisture

4. Neurological Exam

a) Level of consciousness;

- Is patient oriented to person, place, time, and event?
- Determine the Glasgow Coma Score Appendix 6.
- Is a FAST-ED stroke assessment needed?

F: Is the face symmetrical?

A: Assess motor function and sensation

S: Check for abnormal speech, proper words, and/or slurring

T: Determine time of onset

b) Assess the patient's pupils size, equality and their reaction to light

c) If the patient is conscious, do all extremities move equally?

d) Assess patient for any pain

D. Medical Patient Management

BLS

1. Airway Management Protocol 07P.
2. Assess the need for administration of Oxygen Procedure 01. Obtain and document pulse oximetry reading and capnography as needed.
3. Perform a blood glucose check via finger/heel stick as indicated Procedure 19.

4. Administer Narcan (Naloxone) for significant respiratory depression due to suspected opiate overdose(Protocol 15P)

ALS

5. Perform advanced airway management, as indicated.
6. Cardiac evaluation and EKG monitoring.
7. Establish vascular access as indicated Procedure 13.
8. Utilize the Pediatric Length-Based Tape / Handtevy system if indicated.

MCP

8. Guidance for treatment not defined in these protocols.

E. Trauma Patient Management

BLS

1. Airway Management with C-spine control Protocol 07P.
2. Administer Oxygen Procedure 01.
3. Control any hemorrhage. Protocol 21P
4. Bandage and splint
5. Backboard and package the patient
6. Obtain and document a pulse oximetry reading.
7. If the patient is in shock, place patient in Trendelenburg position – in the absence of airway or breathing compromise.
8. Establish Trauma Center contact, if indicated.

ALS

9. Advanced airway management, as indicated.
10. Advanced interventions as needed.
11. Establish vascular access if indicated Procedure 13.
12. Utilize Pediatric Length-Based Tape if indicated.
13. EKG monitoring if situation allows.

MCP

14. Guidance for treatment not defined in these protocols.

F. Secondary Assessment

This assessment is a more thorough evaluation of the patient. These procedures can be carried out simultaneously along with the primary assessment and treatment when resources permit.

BLS

1. Identify a chief complaint.
2. Document vital signs and estimated weight. A second set of vitals will be obtained and documented for the following patients:
    a. Patients transported by MDFR.
    b. Patients transferred to an ambulance/BLS unit.
    c. Patients who refuse treatment/transport against medical advice. (The second set of vitals should be obtained just prior to release.)
    d. Unstable patients as indicated in other protocols
3. Document estimated weight whenever a medication is administered and/or anytime a patient is transported by MDFR.
4. Document a pertinent medical history:
    S: Signs and symptoms.
    A: Allergies
    M: Medications
    P: Past medical history.
    L: Last oral intake
    E: Events leading to the call for help
5. Complete a toe-to-head survey. Utilize the patient's complaint to guide your assessment.
6. Ongoing Assessment - Repeat PAT

A. Introduction
B. Implied Consent
C. Incapacitated Persons Law, FS 401.445
D. Involuntary Examination, "The Baker Act," FS 394.463
E. Patient Refusal
F. Patients in Police/Correctional Custody
G. Medical Support

A. Introduction

Any mentally competent adult has the right to refuse medical care, treatment, and/or transportation. Patient exam, treatment, or transportation should only be carried out with the adult patient's consent. It may be implied that by requesting our service through 911, law enforcement, or other means the adult patient has consented to our care and treatment; however, when in doubt, especially when it is not the patient who requested our service, verbal consent should be obtained. Patients or legal guardians able to refuse care include:

1. **Mentally competent** - defined by the ability to understand the nature and consequences of their actions by refusing medical care and/or transportation,

   AND

2. Must be an adult, 18 years of age or older, **except:**

   a) Emancipated minors

   b) Self-sufficient minors

   c) Married minors

   d) Minors in the military

A person may be considered incompetent to refuse medical care and/or transportation if the severity of their condition prevents them from making an informed, rational decision regarding their care. Therefore, they may not refuse medical care and/or transportation based on the following circumstances:

1. Altered mental status (GCS < 15)
2. Suicide attempt (actual or verbal threat)
3. Severely altered vital signs
4. Intellectual disability or deficiency
5. Not acting as a reasonable person would do, given the same circumstances

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6. Under 18 years of age (except those defined in the above section)

In above circumstances, the patient is to be treated under Implied Consent or the Incapacitated Persons Act as defined in the following sections. Police will be requested to assist in the control of the patient and/or family. Careful documentation on the ePCR is essential in supporting your decisions.

B. Implied Consent

In situations where the adult patient is unconscious and it is determined that if able, the patient would have acted as any reasonable person in the same circumstance and consented to care, fire rescue personnel may examine, treat and transport the patient under the doctrine of Implied Consent. This form of consent may also be applied in situations where there is a minor and no adult consent can be obtained. If necessary, reasonable measures can be implemented to restrain the patient **Procedure 27.**

C. Incapacitated Persons Law, FS 401.445

1. Fire Rescue personnel may examine, treat, and/or transport a patient without their informed (verbal) consent under the following conditions:
    a) The patient is intoxicated, under the influence of drugs, or otherwise incapable of providing informed consent,

    AND

    b) The patient is experiencing an emergency medical condition,

    AND

    c) The patient would reasonably, under all the surrounding circumstances, undergo exam, treatment, or transportation if they were capable.
2. Examination, treatment, and/or transportation are only necessary to alleviate or stabilize the patient's condition.
3. Reasonable force (restraint) may be applied **Procedure 27**
4. Careful documentation on the ePCR of the reasoning behind your actions will be required.

D. Involuntary Examination, "The Baker Act," FS 394.463

1. **The following criteria must be met in order for FS 394.463 to be imposed:**

    a) A person has a history or is believed to be mentally ill,

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AND

b) Is unable to determine for themselves what medical care is necessary and because of this is likely to suffer from neglect or personal harm,

OR

c) There is likelihood that the person may harm themselves or others by evidence of recent behavior.

2. The "Baker Act" as it is commonly known can only be imposed by the following individuals:

   a) A Judge

   b) A sworn law enforcement officer

   c) A physician, psychologist, or psychiatric nurse

3. For the purposes of patient exam, treatment, or transportation, the Baker Act will not be considered unless it is clearly understood by all parties that the patient has met the required criteria (D.1. a-c).

4. Reasonable force (restraint) may be applied **Procedure 27.**

5. Careful documentation on the ePCR including the name and agency of the person imposing the Baker Act will be required.

E. Patient Refusal

1. Fire Rescue personnel must inform the refusing individual of the potential consequences of their actions.

2. Anyone who refuses treatment and/or transport must have a documented GCS of 15.

3. If the patient has consumed alcohol (ETOH) or taken medications/drugs, their ability to make an informed decision must be assessed.

4. Attempts will be made, including enlisting family members, friends, etc., to try and convince the patient to accept medical care and/or transportation.

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5. The release on the ePCR must be signed by the patient. If the patient refuses to sign or is unable to sign, a witness signature must be obtained, and this must be documented on the ePCR.

6. Fire Rescue personnel will encourage the patient and/or family to call back if the patient's condition changes.

7. In situations where there are multiple patients refusing care, a separate ePCR with signed release must be completed for each patient.

Exception: In motor vehicle accidents where multiple persons deny any complaint, one ePCR with all persons listed in the "No Complaint" section is acceptable. The "No Complaint" documentation of one person, should **not** be included in the ePCR narrative written for another person. If a person is examined and then subsequently refuses further care, a separate ePCR will be completed.

8. In situations where the **ALS** patient refuses to be transported to the closest appropriate facility and wishes to be transported to a more distant facility, this will be treated like any other refusal of care. Fire Rescue personnel have two options:

    a) For **ALS** patients who meet all requirements of the Incapacitated Person Law, explain to them the seriousness of the illness/injury and if still refusing, transport them to the closest appropriate facility.

    b) For **ALS** patients**,** who **do not** meet all the requirements of the Incapacitated Persons Law, **transport the patient to the facility of their choice and have patient sign the refusal section on the ePCR.** This will also be documented in the narrative section.

Note: Under no circumstances will a patient requiring ALS transportation be released to an ambulance or private transportation simply because they do not wish to go to the closest appropriate facility.

A family member **may not** refuse treatment and / or transport for an adult patient regardless of any legal paperwork presented on-scene. MDFR does not recognize any legal documents in reference to withholding patient care except patients in cardiopulmonary arrest with an original completed copy of DH Form 1896, Florida Do Not Resuscitate Order, April 2002 (As detailed in **Protocol 28, Do Not Resuscitate Orders**).

If a patient has a preexisting medical condition that does not allow a signature to be obtained, a family member may sign as a witness to the patient's refusal. Example: you are called to evaluate someone who has a laceration on their foot. The patient has had a stroke in the past and has deficit in their arms/hands. Their refusal is based upon need to transport for a foot injury and unrelated to their inability to sign which was caused by a past stroke. This must be clearly documented in the narrative section.

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F. Patients in Police/Correctional Custody

1. All patients in police or correctional custody who meet transport criteria will be transported according to MDFR Protocol 4, including patients with altered mental status. Patients who are in police or correctional custody are not able to refuse medical transport if transport is requested by police, correctional officers, correctional facility medical staff, or if a medical assessment by MDFR indicates the need for care at a medical facility.

2. Patients in custody may refuse medical treatment while under MDFR care if they are not mentally incapacitated and have the full mental capacity to make an informed medical decision, but if transport is indicated, the patient must still be transported to the appropriate facility via MDFR Rescue, or other BLS transport if the patient meets BLS transport criteria per protocol.

3. If a correctional facility medical staff member calls MDFR for transport, the patient will be transported either ALS or BLS, as appropriate.

4. All treatment refusals by patients in custody will be documented in detail in the narrative portion of the ePCR, and a refusal witness signature from an on-scene police or correctional officer must be obtained before or during transport. No MDFR crew member will sign as the witness.

Additionally, MDFR does not provide “medical clearance” of individuals in custody for law enforcement officers, as we do not have adequate diagnostic resources in the prehospital setting to fully evaluate patients, or to attest to the medical fitness of any patient. If called by police for a patient in custody, MDFR will follow all appropriate protocols and procedures to determine if the patient meets transport criteria. All patients in police custody who meet transport criteria will be transported either ALS or BLS, as appropriate. If a correctional facility medical staff member calls MDFR for transport, the patient will be transported either ALS or BLS, as appropriate.

G. Medical Support

In situations where the decision to examine, treat, or transport a patient is difficult based on patient/guardian refusal, assistance can be obtained from the following resources:

1. On-duty EMS Field Supervisor

2. MCP of the closest facility

3. Medical Director or Assistant Medical Director through FAO

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A. Introduction
B. Emergency Medical Care WITHOUT Parental Consent
C. Persons Able to Consent
D. Release of Care of a Minor
E. Refusal of Treatment/Transportation

A. Introduction

Treatment and/or transportation of minors shall include informed parental consent when possible; however, there may be certain situations where the ability to provide care, treatment and/or transportation of a minor may be questionable. In situations where a minor or other person requesting care/ treatment of a minor have requested our services, the following guidelines will be used to assist in clarifying consent issues for care, treatment, and/or transportation.

B. Emergency Medical Care WITHOUT Parental Consent

While implied consent shall be assumed, consent to perform a procedure on a minor who has been injured or who is suffering from an acute illness is not required (FS 743.064) if:

1. Within a reasonable degree of medical certainty, delay in initiation or provision of medical care or treatment would endanger the health or physical well-being of the minor or,

2. Parental or other lawful consent cannot be obtained because either:

    a) The minor is unable to reveal the identity of the parent(s) or other party capable of lawfully consenting and such information is unknown or,

    b) Parents or other party capable of lawfully consenting cannot be immediately located.

NOTE: Notice must be given to the parents or persons who may lawfully consent as soon as possible after the emergency care and/or treatment is administered. Documentation of the above must appear in the ePCR including reason why consent was not obtained.

C. Persons Able to Consent

If after a reasonable attempt, the treatment provider cannot contact the parent who has the power to consent, any of the following persons, in order of priority, may consent to the medical care and/or treatment of the minor (FS 743.0645):

1. A person who possesses a power of attorney to provide medical consent for the minor
2. The stepparent
3. The grandparent
4. An adult sister or brother of the minor

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5. An adult aunt or uncle
6. Department of Children and Family Services (DCFS) or Department of Juvenile Justice caseworker or administrator assigned to delinquent or dependent child if person with power to consent cannot be contacted and has not expressly objected to such consent

D. Release of Care of a Minor

1. If the minor is not in need of further medical assistance, the unit OIC shall evaluate the minor's surroundings and his/her capacity (mentally/physically) to function in his/her environment. The OIC should consider the following:

   a) Does the minor know what to do in an emergency?

   b) Does the minor know how to and have the ability to get in contact with a parent or other responsible party?

   c) Is the minor mature enough to take care of himself/herself?

2. If in the judgment of the OIC, the minor is able to provide for himself/herself, then he/she may be released to himself/herself.

3. If in the judgment of the OIC, the minor is not able to provide for him or herself, then Law Enforcement should be called.

NOTE: Calling Law Enforcement does not fulfill the obligation of reporting any cases of known or reasonable cause of suspected abuse, neglect, or exploitation to the Florida Abuse Hotline Protocol 29.

4. Minors who become ill or injured while attending either public or private school may be treated and/or released to school officials, as long as these officials accept responsibility to await the arrival of parents when the minor's condition is stable.

E. Refusal of Treatment/Transportation

1. Parent(s) or guardian(s) have the legal right to refuse care, treatment, and/or transportation of a minor. The following should be considered:

   a) In a life-threatening situation, Law Enforcement will be summoned to assist.

   b) In a non-life-threatening situation, the same guidelines should be followed as for an adult Protocol 2 and the ePCR refusal of treatment area signed by the parent or guardian.

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A. Introduction
B. Procedure
1. Transportation Destination
2. Transportation Modes
3. Transportation Destination (OB/GYN)
4. Trauma Transport Destination
5. Air Rescue Transportation
6. Patient in Possession of Weapon(s)
7. Patients with Service Animals
8. Transport from Clinics/Urgent Care Centers/Doctors Offices
9. Transport of Police/Fire Canines
10. Patients in Police or Correctional Custody
11. Patient Release at Hospital
12. Documentation
C. Definitions

A. Introduction

Patient treatment and transportation will be ensured by the most effective and efficient means possible to all patients with illness or injury in accordance with this protocol. It is incumbent upon all Fire Rescue personnel involved with the patient to act in the patient's best interest. If at any time an MDFR non-transport unit requests an ALS Unit for patient treatment/transport, patient(s) will be transported ALS by a Rescue. At no time will a delay occur while on-scene; any disputes and/or concerns will be directed to an EMS Field Supervisor after the completion of patient treatment/transport. Patients will only be transported to a hospital on the Hospital Capability Chart **Appendix 2.1** or an Urgent Care Center that is an Approved Alternate Transport Destination as outlined on **Procedure 53** Alternate Care & Transport Facilities.

State laws governing Paramedic and EMT practice do not recognize the supervisory rank structure of EMS provider agencies. It is therefore the responsibility of the Officer in Charge (OIC) to ensure that all patient care decisions are based upon teamwork. It is the responsibility of all Paramedics and EMTs involved to ensure equal responsibility for the care of the patient. When conflicts/issues are encountered while carrying out any part of this protocol the higher level of care will always be applied. At no time will a patient be left unattended, including, but not limited to the transfer of a patient to a transport unit or the transfer of care at the receiving facility.

Patients may have one passenger accompany them to the hospital in the transport unit. The passenger will not be refused unless there is an extenuating circumstance that endangers the patient or crew members. Parents or guardians of minor patients will always be allowed to accompany the patient during transport, unless there is a danger to the patient or crew members. Any refusal to allow the passenger to ride in the transport unit will be documented in the ePCR narrative. If a patient's GCS is less than 15, a patient companion should always be encouraged to ride in the transport vehicle since they may be able to assist with pertinent history and possible decision making upon arrival at the hospital. All passengers must be secured in the vehicle with a seatbelt.

B. Procedure

General Care

1. Transportation Destination

a) All unstable ALS patients **will** be transported to the closest appropriate facility via an MDFR ALS Rescue.

b) All stable patients requiring transportation will be transported to the most appropriate (but not necessarily the nearest) facility considering the following:

1. Specialized treatment
2. Patient or physician requests

c) If there is any doubt or concern about a patient's condition or stability, the patient will be transported in an MDFR Rescue Unit to the most appropriate facility.

d) When any Fire Rescue personnel believes a patient care decision will have a negative impact on patient outcome, that individual will advise the OIC of their concerns. When possible, this should be accomplished away from the patient and family members. If there is an unresolved disagreement about the treatment and/or transport modality, the higher level of care will always be applied. Upon completion of the response, an EMS Field Supervisor will be contacted to provide any further clarification as needed. If an EMS Field Supervisor is on scene, he/she is the final authority on all EMS care decisions.

e) Patients meeting STEMI Alert criteria **Protocol 11** **will** be transported to the closest STEMI Center via an MDFR ALS Rescue.

f) Patients meeting Stroke Alert criteria **Protocol 13** **will** be transported to the closest appropriate Stroke Center via an MDFR ALS Rescue.

g) If there is any doubt or concern about a patient's condition or stability, the patient **will** be transported via an MDFR ALS Rescue to the most appropriate facility.

h) In addition to mandatory treatment and transport requirements that are outlined throughout the MOM, the following suspected conditions and/or findings require ALS treatment and transport via an MDFR Rescue unit:

1. All patients with a suspected long bone fracture.
2. All patients with a reported loss of consciousness.

3. All patients with suspected/complaints of cardiac symptoms. Some examples are, but are not limited to, chest pain, chest pressure, reproducible thorax/chest pain, epigastric discomfort, etc.; Regardless of timeframe of onset of signs and symptoms.

4. All patients with a complaint of severe sudden onset headaches, "thunderclap" or described as "the worst headache" ever experienced, and/or light intolerance (photophobia).

5. All patients with suspected hip fracture or dislocation.

6. All patients, regardless of age, complaining of abdominal pain in any region.

    1. Female patients of child bearing age will follow the guidance denoted on the Transport Decision section within **Protocol 22**.

7. All patients that report blood in the vomit, stool, or a suspected GI/GU bleed.

i) Non-transport units are required to initiate protocols and procedures until a transport unit assumes treatment. This includes, but is not limited to, medical care, patient packaging and documentation of an ePCR.

2. Transportation Modes

a) Rescue units will not request or receive an ambulance/BLS transport unit unless the number of patients exceeds the Rescue's BLS transport capability of two (2) patients at one time.

b) After a complete patient assessment and based on the patient condition, a non-transport unit OIC may elect to:

- Transfer care to a MDFR ALS Rescue for transport
- Transfer care to an ambulance/BLS transport unit
- Use alternate transportation

c) The decision to transport a patient utilizing emergency lights and sirens will be at the discretion of the OIC.

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d) If the patient is to be transported, Fire Rescue personnel of the non-transport unit will remain on the scene until arrival of the transporting unit.

e) If the OIC, Paramedic, or EMT needs assistance with any aspect of the treatment and/or transport decision (excluding trauma criteria patients that must be triaged by the on-scene Paramedic or EMT) they may seek assistance from one of the following:

1. Medical Control Physician.
2. An EMS Field Supervisor.
3. Medical Director or Assistant Medical Director.
4. All transport decisions and/or transport destinations as directed by the EMS Field Supervisor or Medical Director are final.

NOTE: Anytime an MDFR care provider believes a patient would benefit from transport via MDFR, either ALS or BLS, the patient will be transported by MDFR. The patient care discussion may take place after the transport has been completed with notification of the on-duty EMS Field Supervisor.

f) All orders, interventions, and treatments that are received via online Medical Control Physician (MCP) that are outside of MDFR's protocols are to be thoroughly documented on the ePCR to include at a minimum:

1. Specificity of the orders, interventions, treatments with detailed information (e.g. medication administration, procedure to be performed, dose, route).
2. The authorizing and receiving physician's name.
3. The authorizing and receiving physician's facility of practice.

g) If an alternative means of transportation will be used, every effort will be made to ensure that this transportation can be initiated while the Fire Rescue unit is on the scene.

NOTE: It is imperative that a full patient assessment is accurately and completely documented in the ePCR to support the decision to release a patient to an ambulance/BLS transport unit or alternate means of transportation.

3. Transport Destination (OB/GYN Patients)

a) Stable pregnant patients with less than 20 weeks gestation can be transported to the most appropriate GYN facility by MDFR, ambulance/BLS transport unit, or alternate means.

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b) Any patient with ≥ 20 weeks gestation experiencing complications of pregnancy or exhibiting signs and symptoms of imminent delivery will be transported by an MDFR ALS Rescue unit to the nearest appropriate OB Facility.

4. Trauma Transport Destination

a) Patients meeting Trauma Transport Criteria **Appendix 3** **Appendix 4** **will** be transported to the closest appropriate Trauma Center via an MDFR ALS Rescue or Air Rescue. This includes patients whose status changes to Trauma Transport Criteria during transport to another facility.

- Trauma patients who meet Trauma Transport Criteria may be transported to a non-Trauma Center only when an airway cannot be established, or the trauma center is on diversion.

- Trauma patients meeting the burn Trauma Transport Criteria will be transported to the closest Burn Center unless there are other concurrent traumatic injuries that pose a more immediate or greater risk to the patient's survival.

b) A Trauma Alert patient will be transported to the closest Trauma Center.

5. Air Rescue Transportation

a) The OIC should consider the use of Air Rescue for critically ill or injured patients when either the arrival time to the scene, or the treatment/transport time from the scene to the nearest appropriate hospital is 20 minutes or greater.

b) Air Rescue can only transport to hospitals with approved helipads per the Hospital Capability Chart **Appendix 2.1**.

c) When transporting children, a non-injured family member may accompany the patient at the discretion of the aircrew. Provide the accompanying family member with the **Passenger Briefing** prior to the approach of the aircraft.

6. Patient in Possession of a Weapon(s)

Employees should be aware that patients, family members, or bystanders may lawfully exercise their right to openly carry firearms.

Unless an individual presents an immediate threat to personnel, patients, or the public, the presence of an openly carried firearm, in and of itself, should not alter the provision of care or professional conduct.

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a) Patients who are alert, oriented, and cooperative for whom the emergency response is occurring should be asked to secure their weapon in a secure location. If transport is needed, patients can be told that EMS vehicles and hospitals are “no-carry zones”.

b) If it becomes apparent that a patient is armed and not alert, not oriented, or uncooperative, the OIC may deem the scene unsafe; personnel should withdraw and request assistance from the appropriate law enforcement agency.

c) If a weapon is discovered while transporting the patient, inform the FAO to have the police rendezvous with your unit. The patient will not be examined or transported if the weapon is not surrendered to law enforcement. Under no circumstances will a Fire Rescue employee impound a weapon.

d) If a weapon is observed on someone other than the patient (family, friend, or bystander): Maintain situational awareness. Do not attempt to disarm or confront the individual. If necessary, request law enforcement and withdraw to a safe location.

e) Any actions taken should be documented on the Florida EMS Report **Procedure 36** or ePCR **Procedure 40** and should include: presence of weapon, actions taken, law enforcement involvement/disposition of the weapon, and any delays to care due to weapon safety concerns.

f) Prior to transporting any patient in custody, ensure the police officer thoroughly checks patient for weapons prior to entry into the Rescue.

NOTE: Law Enforcement Officers (LEOs) that are accompanying patients can be transported with all of their equipment, including weapons.

7. Patients with Service Animals

a) Service dogs are the only approved service animals that can be transported with a patient. The patient does not need to prove the dog is a service animal but must provide Fire Rescue personnel with information regarding what service the animal provides.

b) The service dog will be tethered to the stretcher and transported with the patient in the patient compartment.

c) The service animal should be transported via another fire department vehicle or police vehicle if the patient is unstable or if the service animal will interfere with patient care.

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8. Transport from Clinics/Urgent Care Centers/Doctors Offices

a) Fire Rescue personnel will transport all patients to the closest appropriate hospital (not necessarily the nearest) when requested by a medical facility or doctor's office.

1. The name of the physician and the reason for the transport must be documented in the narrative section of the EPCR.

b) If a patient at a medical facility or doctor's office refuses transport to the hospital after the medical staff requested MDFR transport, a patient refusal signature must be obtained on the ePCR.

1. Additionally, a witness signature from a medical staff member (Physician, RN, etc.) at the requesting facility must also be obtained.

NOTE: The medical staff signature does not mean they agree with the refusal, it means that they have witnessed the patient refuse transport. The witness signature shall NOT be an MDFR crew member.

9. Transport of Police/Fire Canines

The treatment and transport of Police/Fire Canines is now accepted under Florida state law. Fire Rescue personnel will facilitate the transport of these animals and assist the handler with any equipment needed for treatment. Fire Rescue will only assist with equipment (such as O2 and bandaging) and coordinate transport to the appropriate facility. These animals will not be transported unless the handler is present. The handler will provide care to the canine and determine the transport destination.

10. Patients in Police or Correctional Custody

a) All patients in police or correctional custody who meet transport criteria will be transported according to this protocol, including patients with altered mental status.

1. Patients who are in police or correctional custody are not able to refuse medical transport if transport is requested by police, correctional officers, correctional facility medical staff, or if a medical assessment by MDFR indicates the need for care at a medical facility.

2. Patients in custody may refuse medical treatment while under MDFR care if they are not mentally incapacitated and have the full mental capacity to make an informed medical decision, but if transport is indicated, the patient must still be transported to the appropriate facility via MDFR Rescue, or other BLS transport if the patient meets BLS transport criteria per protocol MDFR protocols.

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3. If a correctional facility medical staff member calls MDFR for transport, the patient will be transported either ALS or BLS, as appropriate.

4. All treatment refusals by patients in custody will be documented in detail in the narrative portion of the ePCR.

5. A refusal witness signature from an on-scene police or correctional officer must be obtained before or during transport. The witness signature shall NOT be an MDFR crew member.

11. Patient Release at Hospital

Fire Rescue personnel will not release a patient until they have provided the receiving facility nurse, physician's assistant or physician with a minimum of a face-to-face verbal transfer of pertinent information. The name, title and signature of the receiving facility nurse, physician's assistant or physician who received the patient will be recorded in the ePCR.

12. Documentation

An ePCR will be completed on every EMS related dispatch, unless canceled by an on-scene MDFR unit prior to patient contact or canceled prior to arrival by the Fire Alarm Office **Procedure 40**.

C. Definitions

1. **Alternate Transport**- Transportation other than by ALS Rescue or BLS transport/ambulance obtained through alternate means such as: private vehicle, taxi, bus, etc.

2. **Alternate Transport Facility -** An approved urgent care center or clinic licensed by the Florida Department of Health, approved by the Agency for Healthcare Administration (AHCA) and an approved partner by Center for Medicare & Medicaid Services (CMS).

3. **Altered Mental Status** (AMS) - Comprises a group of clinical symptoms rather than a specific diagnosis, and includes cognitive disorders, attention disorders, arousal disorders, and decreased level of consciousness.

4. **Appropriate Hospital -** A hospital having the capabilities to provide the necessary patient care as defined on the Hospital Capability Criteria **Appendix 2**.

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5. **Complications of Pregnancy -** Premature labor (< 32 weeks), active vaginal bleeding, seizures, prolapsed cord, limb presentation, meconium stained amniotic

fluid, or abnormal vital signs (systolic blood pressure less than 90 mmHg, or a blood pressure in the second half of pregnancy equal to or greater than 140/90 mmHg and who otherwise has a normal blood pressure). Additionally, any female who is pregnant and whose blood pressure exceeds 30 mmHg systolic and/or 15 mmHg diastolic above her normal BP.

6. **Imminent Delivery -** Signs and/or symptoms that the patient will deliver in a reasonably short period of time. These include:
   a) The maternal urge to push, or to move the bowels;
   b) Evidence of crowning;
   c) Leakage, loss or discharge of amniotic fluid; or
   d) A bloody show.

7. **Medical Control Physician -** Physician at the medical facility answering the telemetry who is responsible for medical orders outside of MDFR's protocols, or orders for which Medical Control permission is required.

8. **Minor -** For the purpose of legal consent, a patient younger than 18 years of age.

9. **Pediatric patient -** For the purpose of hospital capabilities and Trauma Transport Criteria, a patient less than 16 years of age.

10. **Pediatric Trauma Center (PTC) -** Any hospital that has been issued a certificate of verification as a pediatric trauma center or provisional trauma center by the Florida Department of Health.

11. **Specialized treatment -** Patient care not identified in other areas of the hospital capability chart or the Trauma Transport Protocol.
12. **Stable patient -** A patient that is not likely to deteriorate between the time we conduct our initial assessment and the time they reach the hospital and patient care responsibilities are transferred.

13. **Suspected labor -** Patients with greater than 20 weeks gestation experiencing abdominal pain, contractions or other indications of labor, but not meeting the definition for imminent delivery.

14. **Trauma Transport Criteria -** Criteria that categorized a patient for inclusion into the trauma system **Appendix 3** **Appendix 4**. At no time can a "EMT/Paramedic Judgment" Trauma Criteria Patient be downgraded once declared.

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15. **Trauma Center -** Any hospital that has been issued a certificate of verification as a trauma center or provisional trauma center by the Florida Department of Health.

16. **Unstable patient -** Life threatening emergencies that require immediate interventions including but not limited to:

a) Airway obstruction

b) Respiratory insufficiency or respiratory arrest

c) Decreased cardiac output, cardiac arrest, or shock

d) Acute changes in level of consciousness not related to trauma

e) Cardiac symptoms to include life threatening arrhythmias

f) Patients meeting STEMI, Stroke or Trauma Alert Criteria

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A. Adult Trauma Alert Criteria
- Adult Criteria Footnotes

B. Pediatric Trauma Alert Criteria
- Pediatric Criteria Footnotes

C. Paramedic Judgment

A. Adult Trauma Alert Criteria Appendix 3

The following criteria will be applied to those injured persons with anatomical and physiological characteristics of a person **sixteen (16)** years of age or older. A Trauma Alert patient will be transported to the nearest State Approved Trauma Center (SATC).

1. **Patients meeting any one (1) of the following criteria will be transported to a Trauma Center: (RED Criteria)**

Airway
-Active airway assistance[1] or need for respiratory support beyond supplemental O2*.
-Respiratory rate is less than 10 breaths per minute **OR** greater than 29 breaths per minute.
-Oxygen saturation less than 90% room air*

Motor Response/Neuro
-Unable to follow commands or BMR less than 6*
-Altered mental status or suspected spinal cord injury, loss of sensation or paralysis*
-GCS less than 15 in patients with head trauma taking anticoagulants (not including Aspirin) *

Circulation
-No Radial Pulse with sustained HR greater than 110/min **AND/OR** SBP of less than 90

Fracture
-Skull deformity, suspected skull fracture, severe facial fracture/injury*
-Fracture of 2 or more long bones (humerus, radius/ulna, femur, tibia/fibula) *
-Open long bone fracture, severe angulated fracture, multiple fractures/multiple dislocations*
Suspected pelvic fractures*
-Chest wall instability or deformed chest (flail chest) *

Cutaneous
-Any penetrating injury to the head, neck, torso, or proximal extremities[2]*
-GSW to the extremities at or above the wrist or ankle*
-Active bleeding requiring a tourniquet or wound packing with continuous pressure*

-Amputation proximal to the wrist/ankle: Crushed, degloved, mangled, or pulseless extremity*
-Flap avulsion greater than 5 inches or major soft tissue loss*
-2nd or 3rd degree burns 10% or greater of TBSA*
-2nd or 3rd degree circumferential burns, burns to hands, feet, perinium, or groin*

Mechanism of Injury
-Partial or complete ejection from enclosed motor vehicle*
-Electrocution or lightning injury with loss of consciousness or visible signs of injury*
-Patients within 24 hours post-surgery exhibiting signs of internal bleeding, sustained HR greater than 110/min **AND/OR** SPB less than 90 (includes BBL, liposuction, thoracic surgeries, etc.)
-Pregnancy 20 weeks or greater with abdominal pain after blunt trauma

2. **Patients meeting any two (2) or more of the following criteria will be transported to a Trauma Center: (BLUE Criteria)**

Age
-55 years old or older

Medications
-Anticoagulant use associated with significant head trauma (not including Aspirin) *

Motor Response/Neuro
-Head injury with loss of consciousness; amnesia*

Circulation
-Sustained HR of greater than 110/min

Fracture
-Single long bone fracture sustained in MVC or from a fall greater than 10 feet*

Cutaneous
-Burns in conjunction with trauma*

Mechanism of Injury
-Rider separated from open cab vehicle, motorcycle, golf cart, watercraft, horse, etc.*
- Auto vs pedestrian/bicyclist thrown, run over, or with significant impact*
-Fall from a height of greater than 10 feet
-Bruising to the neck, chest, and abdomen post MVC in the pattern of the seat belt (Seat Belt Sign) *
-Perineal Hydrostatic Jetstream from jet-powered watercraft[4]*

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High Risk Auto Crash:

1. Significant intrusion (including roof) - 12 inches on occupant side or 18 inches any other site: need for extrication for entrapped patient: steering wheel deformity*
2. Death in same passenger compartment*
3. Vehicle telemetry data consistent with significant impact[5]*

Adult Criteria Footnotes

[1] Airway assistance includes manual jaw thrust, continuous suctioning, or use of other adjuncts to assist ventilatory efforts.

[2] This excludes superficial wounds where the depth of the wound can be determined. Proximal extremities are considered at or above the elbow or knee.

[3] If a patient does not meet either 1 Red or 2 Blue criteria during the assessment, the paramedic can call a trauma alert, if in his/her judgment, the patient's condition OR mechanism of injury warrants such action.

[4] Perineal Hydrostatic Jetstream Injury is caused by the Jetstream from a watercraft while a person is in the water, not from the ejection from the watercraft. Trauma related to this injury is associated with abdominal pain **AND/OR** vaginal/rectal bleeding.

[5] Vehicle Telemetry Data when available can be relayed to dispatch; the data can assist in predicting potential serious injuries.

***Any of the above criteria that has an (*) represents it is the same for both Adult and Pediatrics**

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B. Pediatric Trauma Alert Criteria Appendix 4

The following criteria will be applied to those injured persons with anatomical and physiological characteristics of a person **fifteen (15)** years of age or younger. A Trauma Alert patient will be transported to the nearest State Approved Pediatric Center (SAPTC).

1. **Patients meeting anyone (1) of the following criteria will be transported to a Trauma Center: (Red Criteria)**

Airway
-Active airway assistance[1] or need for respiratory support beyond supplemental O2*.
-Respiratory rate: Age 0-1: less than 20 breaths per min; Age 1-15: less than 10 breaths per min.
-Oxygen saturation less than 90% room air*

Motor Response/Neuro
-Unable to follow commands or BMR less than 6*
-Altered mental status or suspected spinal cord injury, loss of sensation or paralysis*
-GCS less than 15 in patients with head trauma taking anticoagulants (not including Aspirin) *

Circulation
-Faint or non-palpable carotid or femoral pulse
-**Age 0-9**: SBP less than 70; **Age 10-15**: SBP less than 90

Fracture
-Skull deformity, suspected skull fracture, severe facial fracture/injury*
-Fracture of 2 or more long bones (humerus, radius/ulna, femur, tibia/fibula) *
-Open long bone fracture, severe angulated fracture, multiple fractures/multiple dislocations*
-Suspected pelvic fractures*
-Chest wall instability or deformed chest (flail chest) *

Cutaneous
-Any penetrating injury to the head, neck, torso, or proximal extremities[2]*
-GSW to the extremities at or above the wrist or ankle*
-Active bleeding requiring a tourniquet or wound packing with continuous pressure*
-Amputation proximal to the wrist/ankle: Crushed, degloved, mangled, or pulseless extremity*
-Flap avulsion greater than 5 inches or major soft tissue loss*
-2nd or 3rd degree burns 10% or greater of TBSA*
-2nd or 3rd degree circumferential burns, burns to hands, feet, perinium, or groin* Top

Mechanism of Injury
-Partial or complete ejection from enclosed motor vehicle*
-Electrocution or lightning injury with loss of consciousness or visible signs of injury*

2. Patients meeting any two (2) or more of the following criteria will be transported to a Trauma Center: (Blue Criteria)

Age/Weight
-Age: 5 or younger Weight: 20 kg or less

Medications
-Anticoagulant use associated with significant head trauma (not including Aspirin) *

Motor Response/Neuro
-Head injury with loss of consciousness; amnesia*

Circulation
-Carotid or femoral palpable, but the radial or pedal not palpable **OR** SBP less than 90

Fracture
-Single long bone fracture sustained in MVC or from a fall greater than 10 feet*

Cutaneous
-Burns in conjunction with trauma*

Mechanism of Injury
-Rider separated from open cab vehicle, motorcycle, golf cart, watercraft, horse, etc.*
- Auto vs pedestrian/bicyclist thrown, run over, or with significant impact*
-Fall from a height of greater than 10 feet; or 2-3 times the height of child
-Bruising to the neck, chest, and abdomen post MVC in the pattern of the seat belt (Seat Belt Sign) *
-Low level fall in children 5 years old or younger with significant head impact.
-Suspicion of child abuse
-Perineal Hydrostatic Jetstream injury from jet-powered watercraft[4]*
High Risk Auto Crash:
1. Significant intrusion (including roof) - over 12 inches on occupant side or 18 inches any other site: need for extrication for entrapped patient: steering wheel deformity*
2. Death in same passenger compartment*
3. Vehicle telemetry data consistent with significant impact[5]*
4. Child (age 0-9) unrestrained or in an unsecured child safety seat

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Pediatric Criteria Footnotes:

[1] Airway assistance includes manual jaw thrust, continuous suctioning, or use of other adjuncts to assist ventilatory efforts.
[2] This excludes superficial wounds where the depth of the wound can be determined. Proximal extremities are considered at or above the elbow or knee.
[3] In the event that a patient does not meet either 1 Red or 2 Blue criteria during the assessment, the paramedic can call a trauma alert, if in his/her judgment, the patient's condition **AND/OR** mechanism of injury warrants such action.
[4] Perineal Hydrostatic Jetstream Injury is caused by the Jetstream of a watercraft while a person is in the water, not from an ejection from the watercraft. Trauma related to this injury is associated with abdominal pain **AND/OR** vaginal/rectal bleeding.
[5] Vehicle Telemetry Data when available can be relayed to dispatch; the data can assist in predicting potential serious injuries.
***Any of the above criteria that has an (*) represents it is the same for both Adult and Pediatrics.**

C. Paramedic Judgment

If a patient does not meet any of the above criteria, Paramedic Judgment may be used as criteria to transport to a Trauma Center. Such injuries would include, but are not limited to, those sustained in a motor vehicle collision requiring prolonged extrication, penetrating extremity wounds without distal pulses, or gunshot wounds to an upper thigh or arm without an exit should be transported to a Trauma Center.

Once a Trauma Alert is declared based upon Paramedic Judgment, no one is to downgrade the Trauma Alert.

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A. General Information
B. Medical Priorities
C. Communication with a Receiving Facility
D. Telephone Communications with Physicians

A. General Information

1. All patient related medical communications will be conducted through the Fire Alarm Office (FAO) by means of recorded telecommunications utilizing only department authorized equipment.

2. A "Trauma Alert" will be declared and transmitted to the Fire Alarm Office on your dispatch frequency as soon as it is determined that the patient(s) meet our Trauma Alert Criteria (TAC). The unit OIC must advise FAO of the number of patients and the receiving facility. Once the OIC calling a “Trauma Alert” determines the appropriate receiving facility it will not be changed unless there are extenuating circumstances. The FAO will then notify the appropriate receiving facility. This however, will not replace the need for the unit OIC to contact the receiving facility as soon as possible to relay pertinent patient information.

3. A “STEMI Alert” will be declared and transmitted to the FAO immediately upon determining that a patient meets STEMI Alert Criteria (as defined in Protocol 11). The FAO will make the appropriate notifications. This however, will not replace the need for the unit OIC to contact the receiving facility as soon as possible to relay pertinent patient information.

4. A “Stroke Alert” will be declared and transmitted to the FAO immediately upon determining that a patient meets Stroke Alert Criteria (as defined in Protocol 13). The FAO will make the appropriate notifications. This however, will not replace the need for the unit OIC to contact the receiving facility as soon as possible to relay pertinent patient information.

5. Use of the Medical Communication Channels is authorized and appropriate under the following circumstances:

    a) When required under medical protocol.

    b) For clarification of a diagnosis or treatment in complex situations not covered by protocol/procedure or, when beyond the paramedic's scope of knowledge.

    c) For instructions covering treatment over and above protocol/procedure.

    d) In situations where medical supervision is deemed necessary or desirable by the prehospital provider.

    e) In situations where consultation or administrative intervention by an EMS Supervisor is necessary.

    f) For routine radio checks.

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B. Medical Priorities

1. **Priority I - Critical -** Used for patients presenting with an immediately life-threatening illness or critical injury.

2. **Priority II - Serious -** Used for those patients presenting with an illness or injury requiring immediate medical intervention, which has the potential for becoming life threatening if not treated promptly.

3. **Priority III - Stable -** Used for those patients presenting with an illness or injury not requiring immediate medical intervention or is so easily managed that medical direction is not required. Also used for notification of impending patient arrival.

4. **Priority IV - Administrative -** Used for all transmissions not involving care of a patient.

5. **Trauma Alert -** Used for those patients meeting Trauma Alert Criteria (TAC).

6. **STEMI Alert -** Used for those patients meeting STEMI Alert Criteria.

7. **Stroke Alert -** Used for those patients meeting Stroke Alert Criteria.

C. Communications with a Receiving Facility

1. Establish communications with receiving hospital. Announce name of receiving hospital, followed by department and unit number.

2. After receiving acknowledgment from hospital, state caller's rank and name followed by:

    a) Priority of the call. Communications with a Trauma Center / Pediatric Trauma Referral Center for patients meeting TAC must begin with the statement "This is a Trauma Alert" and the specific Trauma Alert Criteria.

    b) Age, sex, approximate weight (if appropriate, i.e.: pediatric patients) and chief complaint.

    c) A brief, pertinent history of the present illness, condition, situation, mechanism of injury, etc.

    d) Level of consciousness (oriented to time, place & person), Glasgow Coma Score.

    e) Vital signs (BP, pulse, respirations, oxygen saturation).

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f) Physical findings-skin color, temperature and turgor, obvious injuries or deformities, breath sounds, neurological status, EKG.

g) Treatment given and any results observed.

h) Estimated time of arrival.

3. Await response to transmission and be prepared to carry out instructions for further patient management from emergency department physician.

4. Medication orders received by the paramedic must be repeated back to the hospital prior to administration. Paramedics receiving treatment orders that exceed or violate accepted medical practice or protocol will:

a) Re-confirm the treatment order and advise the physician of your belief that it exceeds or violates established protocol.

b) If unresolved, immediately seek on-line intervention by the Medical Director, Assistant Medical Director(s), or an EMS Field Supervisor.

D. Telephone Communications with Physicians

A physician wishing to consult with the paramedic will be asked for a phone number where he can be reached and advised that his/her call will be returned immediately on a monitored phone line. The paramedic will then contact the FAO and request a conference call, providing the FAO with the physician's telephone number. The appropriate receiving facility may also be conferenced-in to allow for three-way communications if the paramedic so desires. The FAO will monitor all conference calls and announce to the participants that the call is being recorded.

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The following protocol addresses airway management experiencing medical and trauma emergencies. During the management of airway emergencies, advanced airway management should be considered for the following situations after the commencement of EMR and BLS procedures:

- Apnea
- Cardiac arrest
- Inability to maintain oxygen saturation more than 90% with BVM ventilations
- Persistent GCS 8 or less
- Severe head injuries
- Maxillofacial trauma
- Serious facial and airway burns
- Penetrating neck injury with an expanding hematoma
- Advanced management of special patient considerations (e.g. Stoma, tracheostomy).
- Persistent obstruction
- Signs of impending respiratory failure/arrest such as persistent cyanosis, hypoventilation or increased effort of breathing, diminished, absent, or noisy breath sounds, and/or respiratory depression.
- Major chest injuries (e.g. flail chest, pneumothorax).

A. Positioning Patient for Airway Support

B. Spontaneous Breathing is Present, but Impaired

C. Spontaneous Breathing is Absent or Seriously Compromised

D. Airway Obstruction in Conscious Patients

E. Complete Airway Obstruction in Unconscious Patients

F. Special Patient Considerations (Stoma, Tracheostomy)

G. Intubation with Sedation

H. Rapid Sequence Intubation (RSI)

An information overview of each title section can be entered into this area.

General Care

A. Position Patient for Airway Support

EMR/BLS

1. If a ***conscious*** breathing patient, place in an upright position.

2. If an ***unresponsive*** patient is found in a prone position, log roll in the supine position with c spine stabilization if indicated **Protocol 40** to assess the need for ventilations or CPR.

3. If an ***unresponsive*** patient is found in the supine position and c-spine stabilization is not indicated, position in the recovery position (left lateral recumbent position) and administer supplemental oxygen as needed.

B. Spontaneous Breathing is Present, but Impaired

EMR/BLS

1. Maintain a patent airway utilizing head-tilt/chin lift or modified jaw thrust maneuver, observing cervical spine precautions if indicated.

2. Evaluate and manage any suspected obstructions.

3. Suction as necessary.

4. Insert an oropharyngeal or nasopharyngeal airway if indicated.

5. Administer supplemental oxygen **Procedure 1** as needed.

C. Spontaneous Breathing is Absent or Seriously Compromised

EMR/BLS

1. Maintain a patent airway utilizing head-tilt/chin lift or modified jaw thrust maneuver, observing cervical spine precautions if indicated.

2. Ventilate with a bag-mask device supplied with 100% oxygen, 1 breath every 6 seconds (10 breaths/min).

3. If unable to ventilate, reposition the head.

    a) If still unable to ventilate, consider airway obstruction and refer to **Section E.** Complete Airway Obstruction in Unconscious Patients.

4. Insert an oropharyngeal or nasopharyngeal airway, if indicated.

5. If the oxygen saturation continues to drop while ventilating with the bag-mask device, consider ALS (it is best to proceed with a Supraglottic Airway (SGA) / intubation without delay).

ALS

6. If pneumothorax is suspected, perform chest needle decompression on the affected side **Procedure 5.**

a) Insert SGA as a primary means to ventilate the patient. Perform procedure and confirm placement as per **Procedure 49**.
b) Reassess frequently and be prepared to escalate to endotracheal intubation if the SGA fails to provide adequate oxygenation or ventilation.

NOTE: If the patient is in cardiac arrest, DO NOT interrupt chest compressions to insert an SGA/ ET tube. SGA/Intubation should be performed during continuous compressions; CPR should not be stopped for SGA/intubation.

NOTE: In the event of hyperbaric chamber transport, Inflate ET tube balloon with Saline

7. If endotracheal intubation is unsuccessful or a difficult airway is anticipated, perform endotracheal intubation with Bougie Stylette/Airtraq **Procedure 46**

a) A **difficult airway** can be anticipated using **L-E-M-O-N**, and a Bougie Stylette may be used on the first attempt.

L ook externally (short or thick necks, obesity, dental conditions such as “overbite”)

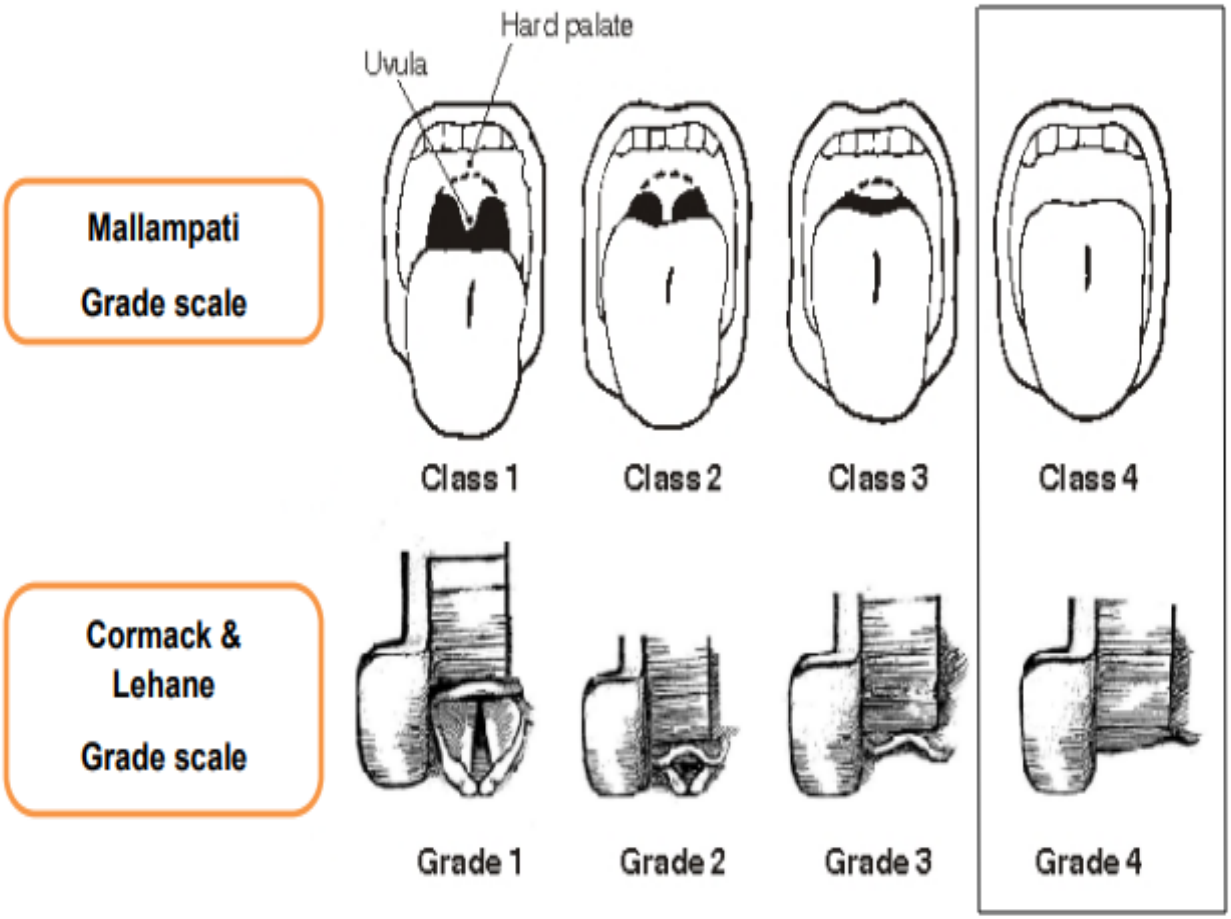
E valuate **3-3-2 rule**

- mouth should be at least 3 fingers wide when open
- space from the chin to the hyoid bone at least 3 fingers wide
- distance from the hyoid bone to the thyroid notch at least 2 fingers

M Mallampati (structures visible in an upright, seated patient able to open their mouth)

O bstruction (anything that may interfere with intubation)

N eck mobility A **difficult laryngoscopy** can be determined using the Mallampati Grade scale on a conscious patient and/or the Cormack & Lehane Grade scale during laryngoscopy.



***NOTE: Class 4 and Grade 4 the glottis opening may be difficult to visualize.**

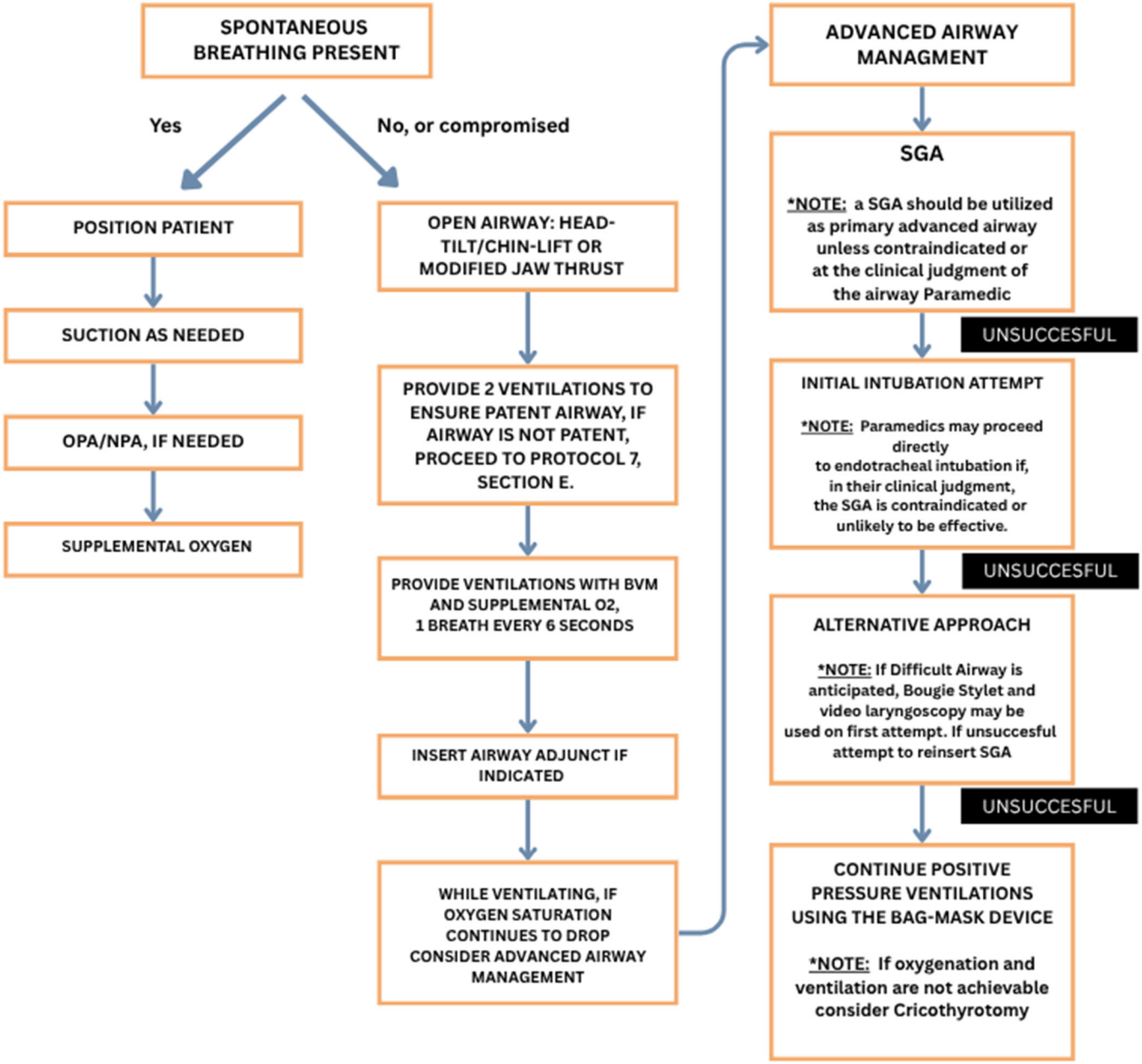
8. If the patient is combative following a successful intubation, perform chemical restraint **Protocol 43**.

9. In situations where abdominal distension is present, Consider NG tube placement,

see **Procedure 12**.

10. If unable to ventilate, consider airway obstruction and refer to **Section E**. Complete Airway Obstruction in Unconscious Patients.

AIRWAY MANAGEMENT ALGORITHM FLOWCHART



D. Airway Obstruction in Conscious Patients

NOTE: Patients with a partial airway obstruction may display signs of poor air exchange and increased breathing difficulty, cyanosis, or inability to speak or breathe. Encourage these patients to cough forcefully to relieve their own partial obstruction. **

EMR/BLS

1. Approach the patient from behind and perform abdominal thrusts, also known as the Heimlich maneuver, in rapid succession, until the object is expelled, or the patient becomes unconscious and proceed to **Section E**.

a) Use chest thrusts for obese or pregnant patients. Repeat until obstructions is expelled or the patient becomes unconscious and proceed to **Section E.**

E. Complete Airway Obstruction in Unconscious Patients

EMR/BLS

1. Open the airway.

2. Attempt to ventilate. If unsuccessful, begin chest compressions/chest thrusts as if performing CPR.

3. After 30 compressions, and before attempting to ventilate, examine the airway for objects in the patient's mouth and if found, remove it.

4. Attempt to ventilate. If still unsuccessful, repeat steps 2 & 3 above.

ALS

5. If the airway remains obstructed, use a laryngoscope to visualize the obstruction and attempt to remove it using the Magill forceps.

If still unable to relieve the obstruction:

6. Intubate the trachea and force the obstruction into one of the mainstem bronchi with forceful ventilations from a BVM

OR

7. Consider cricothyrotomy **Procedure 8**.

NOTE: Patients experiencing a partial or complete airway obstruction, which has been cleared on the scene, can experience delayed onset of symptoms including laryngospasm and laryngoedema. The patient should be transported to the closest appropriate facility even though the airway has been cleared.

F. Special Patient Considerations (Stoma, Tracheostomy)



Stoma

EMR/BLS

1. To ventilate with a bag-mask device, place the patient's head in a neutral position, locate and expose the stoma.

2. Place the bag-mask device mask (pediatric mask preferred) or resuscitation mask (MDFR Ocean Rescue) over the stoma and ensure an adequate seal.

3. Assess for proper ventilation by observing rise of the chest and feeling for air leaks around the mask.

4. If air leakage is felt around the mask, seal the patient's mouth and nose during ventilation.

ALS

5. When suctioning a stoma, use a properly sized French-tip suction catheter.

6. Inject 3 mL of sterile saline through the stoma and into the trachea.

7. Instruct the patient to exhale and insert the suction catheter until resistance is felt.

8. Suction while withdrawing the catheter, for no longer than 15 seconds on the way out. Continue to suction until suction catheter is clear.

9. Resume ventilation with a bag-mask device and 100% oxygen. Use ETCO2 values as an instrument to assist appropriate ventilations.


Tracheostomy

EMR/BLS

1. A tracheostomy tube is a plastic tube placed within the stoma.

2. To ventilate, connect a bag-mask device via the 15/22-mm adapter.

ALS

3. When suctioning a tracheostomy tube, use a properly sized French-tip suction catheter.

4. Inject 3 mL of sterile saline through the stoma and into the trachea.

5. Instruct the patient to exhale and insert the suction catheter until resistance is felt.

6. Suction while withdrawing the catheter, for no longer than 15 seconds on the way out. Repeat to suction until suction catheter is clear.

7. Resume ventilations with a bag-mask device and 100% oxygen. Use ETCO2 values as an instrument to assist appropriate ventilations.

8. When a tracheostomy tube becomes dislodged, the tracheostomy tube may not be able to be replaced, and a new ET tube may have to be inserted into the stoma.

9. Use the ET tube or device in the surgical cricothyrotomy kit or a 6.0 mm ET tube if the surgical cricothyrotomy kit is not available.

10. Instruct the patient to exhale and insert the ET tube approximately 1-2 cm beyond the balloon cuff and confirm patency and proper placement.

G. Sedation for SGA/Intubation

Sedation for SGA / Intubation may be indicated to provide for a patent airway even when a patient has spontaneous respirations and is not completely unresponsive. Hemorrhagic shock, severe head injury (GCS ≤ 8), and heart failure with pulmonary edema are a few examples.

ALS

1. Administer **Ketamine 2 mg/kg (MAX 200 mg**) slow IV or IM. For IM administration, a second dose can be administered in a different IM injection site.

2. Follow with administration of **Versed 2.5 mg** slow IV **or 2.5 mg** IM/MAD.

3. Pre-oxygenate the patient via BVM with 100% O2 until adequate sedation is achieved.

4. Once adequate sedation is achieved, proceed with oral or nasal intubation. Remember to limit oral intubation attempts to 30 seconds. If the patient's heart rate decreases at any time more than 20 bpm, **STOP** and oxygenate with 100% O2 via BVM for a minimum of two minutes.

H. Rapid Sequence Intubation (RSI)

Rapid Sequence Intubation (RSI) is a method of intubating a patient with a gag reflex who would otherwise be difficult to intubate. Intubation is accomplished by sedating and paralyzing the patient, allowing for easier intubation. **Only trained paramedics assigned to Air Rescue units are authorized to perform RSI.**

Rapid Sequence Intubation may be indicated in the following situations:

- When normal intubation attempts are unsuccessful, or a difficult airway is anticipated.
- Toxic Gas inhalation or burns with airway involvement and inevitable loss of airway.
- Unconscious patient with trismus.

ALS

1. Pre-oxygenate the patient with BVM for at least 4 minutes if situation allows

2. Administer **Etomidate 20 mg** IVP.

3. Administer **Fentanyl 50 mcg** IVP (If needed for pain).

4. If systolic blood pressure is below 90 mmHg administer **Ketamine 2 mg/kg** IV push **in place of Etomidate and Fentanyl.**

5. Administer **Succinylcholine 1.5 mg/kg** IV push and wait for paralysis to occur.

6. Cricoid pressure must be maintained from the time paralytic is administered until the patient is intubated and endotracheal tube is secured, or the paralytic agent wears off.

7. Perform endotracheal intubation. **STOP** and ventilate for 60 seconds if unable to intubate within 30 seconds or if heart rate falls below 60 bpm.

8. Confirm intubation with auscultation, physical findings, end tidal CO2 and Pulse Ox monitoring.

9. If unable to intubate, insert supraglottic airway device if not contraindicated.

10. If unable to ventilate appropriately consider cricothyrotomy **Procedure 8**.

A. If spontaneous breathing is present, but impaired:

Pediatric Care (1-8 years)

BLS

1. Maintain a patent airway:
    a) If no trauma is suspected, perform a head tilt-chin lift maneuver. Do not hyperextend the neck.
    b) If cervical spinal injury is suspected, perform a modified jaw thrust maneuver with c-spine stabilization.
2. Evaluate/manage any suspected obstructions.
3. Suction as necessary. DO NOT suction in the case of suspected epiglottitis.
4. Insert an oropharyngeal or nasopharyngeal airway if indicated.
5. Administer supplemental oxygen (**Procedure 1**).

Pediatric Care (Infants <1 year)

BLS

1. Maintain a patent airway:
    a) If no trauma is suspected, place a towel under the shoulders to achieve a neutral in-line or “sniffing” position.
    b) If cervical spinal injury is suspected, perform a modified jaw thrust maneuver.
2. Evaluate/manage any suspected obstructions.
3. Suction as necessary. DO NOT suction in the case of suspected epiglottitis.
4. Insert an oropharyngeal or nasopharyngeal airway if indicated.
5. Administer supplemental oxygen (**Procedure 1**).

B. If spontaneous breathing is absent or markedly compromised:

Pediatric Care (1-8 years)

BLS

1. Maintain a patent airway:

a) If no trauma is suspected, perform a head tilt-chin lift maneuver. Do not hyperextend the neck.

b) If cervical spinal injury is suspected, perform a modified jaw thrust maneuver with c-spine stabilization.

2. Ventilate with the proper size bag-valve-mask supplied with 100% oxygen and a reservoir.

3. If unable to ventilate, consider an airway obstruction and manage appropriately.

ALS

4. Perform endotracheal intubation (oral only) and confirm proper placement (**Procedure 3**).

5. Place a naso/orogastric tube (**Procedure 12**) after performing intubation OR if unable to successfully intubate.

Pediatric Care (Infants <1year)

BLS

1. Open the airway:

a) If no trauma is suspected, place a towel under the shoulders to achieve a neutral in-line or "sniffing" position.

b) If cervical spinal injury is suspected, perform a modified jaw thrust maneuver.

2. Ventilate with the proper size bag-valve-mask supplied with 100% oxygen and a reservoir.

3. If unable to ventilate, consider an airway obstruction and manage appropriately.

ALS

4. Perform endotracheal intubation (oral only) and confirm proper placement (**Procedure 3**).

5. Place a naso/orogastric tube (**Procedure 12**) after performing intubation OR if unable to successfully intubate.

C. For complete airway obstruction in conscious patients:

Pediatric Care (1-8 years)

BLS

1. Perform abdominal thrusts (Heimlich maneuver) continuously until the object is expelled or the patient becomes unconscious.

Pediatric Care (Infant <1 year)

BLS

1. Administer 5 back blows/5 chest compressions continuously until the object is expelled or the patient becomes unconscious.

D. For complete airway obstruction in unconscious patients:

Children according to AHA, ~1-8 years old

BLS

1. Perform 30 chest compressions
2. Open the airway
    a) If you see a foreign object, remove it. DO NOT perform blind finger sweeps
3. Attempt to administer 2 breaths
4. Continue steps 1-3 until the foreign object is expelled.

ALS

5. If the airway remains obstructed, use a laryngoscope to visualize the obstruction and attempt to remove it using the Magill forceps.

MCP

6. If still unable to remove the obstruction:
    a) Perform a needle cricothyrotomy (**Procedure 8**).

Pediatric Care (Infant < 1 year)

BLS

1. Perform 30 chest compressions
2. Open the airway
    a) If you see a foreign object, remove it. DO NOT perform blind finger sweeps
3. Attempt to administer 2 breaths
4. Continue steps 1-3 until the foreign object is expelled.

ALS

5. If the airway remains obstructed, use a laryngoscope to visualize the obstruction and attempt to remove it using the Magill forceps.

MCP

6. If still unable to remove the obstruction:

   a) Perform a needle cricothyrotomy (**Procedure 8**).

This protocol will focus on patients with medical causes as a source of their respiratory distress. Management of patients with dyspnea associated with trauma is not covered in this protocol. Obtain and document a pulse oximetry reading on all patients treated under this protocol.

A. Acute COPD
B. CHF/Pulmonary Edema
C. Acute Bronchospasms (Asthma)

A. Acute COPD

EMR/BLS

1. Initial Assessment/Care **Protocol 1.**
2. Position patient sitting upright to improve effort of breathing.
3. Administer supplemental oxygen as needed.

ALS

4. Administer **Albuterol 2.5 mg** mixed with **Atrovent 0.5 mg** via nebulizer **Procedure 2**.
5. Repeat **Albuterol 2.5 mg** via nebulizer if necessary.
6. If indicated by continued distress and no changes, administer a third **Albuterol 2.5 mg**.

NOTE: Because COPD patients are chronically ill, they may have poor secretion clearance, and sometimes have excessive mucus production and often have lung infections (possible pneumonia). Assessment should ascertain the presence of fever, the presence of other signs of infection (e.g. body aches, general malaise, or pain when breathing) and breath sounds are consistent with pneumonia such as rhonchi, localized or one-sided crackles. Do NOT administer Magnesium Sulfate for suspected CHF or renal failure patients.

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B. CHF/Pulmonary Edema

EMR/BLS

1. Initial Assessment/Care **Protocol 1.**
2. Position patient sitting upright to improve effort of breathing.
3. Suction as necessary.
4. Insert an oropharyngeal or nasopharyngeal airway if indicated.
5. Administer supplemental oxygen **Procedure 1** preferably via bag-mask device with positive end-expiratory pressure (PEEP) set at 10 cm H2O and assist in ventilations when the patient inhales approximately 1 breath every 5-6 seconds (10-12 breaths/min for adults).
6. The patient's respiratory status should be monitored with waveform capnography Procedure 11, if it is unavailable, the use of pulse oximetry will suffice.

ALS

7. **Systolic BP is > 110 mmHg and CPAP is indicated:**

    a) Administer **Nitroglycerin 0.4 mg** SL.

NOTE: The use of SL Nitroglycerin is important early on to reduce preload by vasodilation. At higher doses, it lowers systemic vascular resistance (afterload) and may thereby increase stroke volume and cardiac output. Additionally, NTG at this point will provide a measurement of how the patient's blood pressure responds to nitrates.

    b) Apply CPAP **Procedure 52.**

    c) Reassess blood pressure after **10 cm H2O pressure** has been achieved. If systolic BP remains ≥ 100 mmHg apply **1" (1 gm) Nitroglycerin paste**.

NOTE: NTG paste is used in place of NTG spray to maintain the seal of the CPAP mask once the patient has become acclimated to the mask.

    d) Consider **Furosemide (Lasix) 20 mg** slow IV/IO or IM, if systolic BP remains above 110 mmHg and the patient has not improved after 5 minutes on CPAP. Patients that improve with CPAP rarely need Furosemide.

8. **Systolic BP is > 110 mmHg and CPAP is contraindicated:**

    a) Administer **Nitroglycerin 0.4 mg** SL. Repeat every 3-5 minutes if systolic BP remains above 110 mmHg to a **maximum of three (3) doses.**

Top

b) Administer **Furosemide (Lasix) 40 mg or 80 mg (if the patient already takes diuretics)** slow IV/IO or IM, if systolic BP remains above 110 mmHg. May be repeated once as needed.

9. **If systolic BP is ≤ 90 mmHg:**

a) Administer **Dopamine 10 mcg/kg/min**. Titrate to maintain a minimum systolic BP > 90 mmHg.

NOTE: DO NOT administer Nitroglycerin if a patient is known or suspected to have taken Viagra (sildenafil), Revatio (sildenafil) or Levitra (vardenafil) within the last 24-hours OR Cialis (tadalafil), Adcirca (tadalafil) within the last 72 hours. There may be additional sexually enhancing drugs that apply. Revatio is prescribed for pulmonary hypertension.

12-Lead ECG with continuous ECG Monitoring will be performed for all CHF/Pulmonary edema patients, treatment and/or transport will not be delayed in order to obtain an ECG.

C. Acute Bronchospasms (Asthma)

EMR/BLS

1. Initial Assessment/Care **Protocol 1.**
2. Position patient upright to improve effort of breathing.
3. Administer supplemental oxygen as needed.

ALS

4. Administer **Albuterol 2.5 mg** mixed with **Atrovent 0.5 mg** via nebulizer **Procedure 2.**

a) May be repeated up to 2 additional doses of **Albuterol 2.5 mg** mixed with **Atrovent 0.5 mg** if severe bronchospasms persist.

5. If bronchospasms are still present, administer **Albuterol 2.5 mg** via a nebulizer.
6. If continued severe bronchospasms are noted after the administration of bronchodilators, administer **Magnesium Sulfate 2 grams over 8-9 minutes**. Appendix 09-4 Medication 22
7. If continued severe bronchospasms are noted after the administration of Magnesium Sulfate, consider **0.1 mg (1 mL) Epinephrine 1:10,000 (1 mg/10 mL)** slow IV/IO. Medication 15

a) If IV/IO access is not available and the patient is experiencing severe bronchospasms, consider **0.3 mg (0.3 mL) Epinephrine 1:1,000 (1 mg/mL)** IM Medication 14

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This protocol will focus on patients with medical causes as a source of their respiratory distress. Management of patients with dyspnea associated with trauma is not covered in this protocol. Obtain and document a pulse oximetry reading and monitor ETCO2 waveform capnography on all patients treated under this protocol.

A. Acute Bronchospasm (Asthma) [Lower Airway]

BLS

1. Initial Assessment/Care **Protocol 01P**.
2. Position patient sitting upright to improve effort of breathing.
3. Administer supplemental oxygen as needed.

ALS

4. Obtain and continuously monitor:
   a) Pulse Oximetry
   b) ETCO2 Waveform Capnography
5. For acute bronchospasms (wheezes), administer:
   a) < 10 kg, administer **Albuterol 1.25 mg mixed with Atrovent 0.25 mg** (volume should be approximately 3 mL) via a nebulizer.
   b) > 10kg, administer **Albuterol 2.5 mg mixed with Atrovent 0.5 mg** via a nebulizer.
   c) May be repeated once if necessary.
6. If indicated by continued distress, administer **Albuterol** **Procedure 02**
   a) ≤ 10 kg, administer **Albuterol 1.25 mg** (1.5 mL) diluted in 2mL Normal Saline.
   b) > 10 kg, administer **Albuterol 2.5 mg** (3 mL) via a nebulizer.
7. Consider the need for assisted ventilation and advanced airway.
8. If severe respiratory distress/dyspnea, administer **Magnesium Sulfate 40 mg/kg** (max dose of 2 gm) mixed in a 50 mL of NS over 20 minutes IV **Medication 22**.

MCP

5. **Epinephrine 1:1,000 (1 mg/mL) 0.01 mg/kg (0.01 mL/kg)** IM. (Maximum dose of 0.3 mg)

B. Stridor – Croup [Upper Airway]

Stridor, a noisy upper airway that is associated with a partial airway obstruction in patients that can be a result of a variety of causes.

Croup is a viral disease that includes edema, inflammation, and the narrowing of the larynx and/or trachea and usually affects infants and toddlers. Most children will present with cold symptoms for several days and then followed by the development of a "seal-like or barking cough," stridor, and different acuities in respiratory distress.

BLS

1. Initial Assessment/Care **Protocol 01P**.
2. Avoid agitating a child suspected with signs/symptoms of stridor, calm and reassure and place the patient in a position of comfort.
3. Administer nebulized saline via a nebulizer in a blow-by method as an alternative to humidified oxygen to provide for comfort.

ALS

4. For croup patients (presenting with a seal-like cough/bark), administer **3 mg (3 mL)** of **Epinephrine 1:1,000 (1 mg/mL) in 3 mL of NS** via a nebulizer.

C. Stridor – Epiglottitis [Upper Airway]

Epiglottitis is the inflammation of the epiglottis usually caused by bacterial infections that lead to upper airway obstructions in children. These bacterial infections tend to progress rapidly causing severe respiratory compromise that is developed in a period over hours. Patients will develop fever and as infection progresses, a child may show behaviors such as sitting upright, with head and neck leaning forward. The bacterial infections to the upper airway usually affect pediatrics age > 12 months and will appear ill, present with symptoms of pain upon swallowing, and drooling may be noted and often referred to as the 3Ds: Drooling, Dysphagia, and Distress.

BLS

1. Initial Assessment/Care **Protocol 01P**.
2. Avoid agitating a child suspected with signs/symptoms of stridor, calm and reassure and place the patient in a position of comfort.

For suspected epiglottitis, avoid agitating the child and allow child to remain in the position of comfort and do not examine the epiglottis. Do not force an oxygen delivery mask on these patients, the blow-by oxygen administration technique is recommended as necessary. Avoid any procedure that will agitate these patients.

3. Administer nebulized saline via a nebulizer in a blow-by method as an alternative to humidified oxygen to provide for comfort.

ALS

4. Provide airway management as necessary **Protocol 7P**.

NOTE: Nebulized Epinephrine is contraindicated for patients with suspected epiglottitis.

D. Pulmonary Edema

BLS

1. Initial Assessment/Care **Protocol 01P**.
2. Position patient sitting upright to improve effort of breathing.
3. Administer supplemental oxygen as needed.

ALS

4. Provide airway management as necessary **Protocol 7P**.

MCP

5. Contact MCP for direction.

A. CPR Guidelines
B. Cardiopulmonary Resuscitation
- Adult BLS Algorithm for HCP

C. Ventricular Fibrillation/Pulseless Ventricular Tachycardia (VF/pVT)
- Adult Cardiac Arrest Circular Algorithm

D. Asystole
- Adult Cardiac Arrest Algorithm

E. Pulseless Electrical Activity (PEA)
F. Wide Complex Tachycardia - Regular (Monomorphic) with a Pulse
- Adult Tachycardia with a Pulse Algorithm

G. Torsades de Pointes – Irregular (Polymorphic VT)
H. Narrow Complex Tachycardia (HR ≥ 150) with a pulse
I. Atrial Fibrillation/Atrial Flutter
J. Premature Ventricular Complexes (PVC's)
K. Symptomatic Bradycardia
- Adult Bradycardia Algorithm

L. Post Resuscitation Care (ROSC)
- Post-Cardiac Arrest Care Algorithm

M. Cardiac Arrest in Pregnancy
N. Traumatic Arrest

The following protocol is intended for the systematic treatment of common cardiac dysrhythmia and cardiac arrest scenarios. Perform all assignments in “Pit Crew” fashion and make all efforts to obtain a Return of Spontaneous Circulation (ROSC) prior to leaving the scene.

A. CPR Guidelines

CPR will be performed according to the most current American Heart Association (AHA) standards. Always keep in mind that high-quality CPR with **uninterrupted chest compressions, early defibrillation, and early ventilation** are the top priorities when attempting to resuscitate a pulseless and apneic patient. When performing CPR, the following guidelines will be adhered to:

1. Check for responsiveness, looking for no breathing or occasional gasps while simultaneously checking for a pulse.

2. If no pulse, perform high-quality, uninterrupted chest compressions at least 2” (5 cm) to 2.4” (6 cm) deep and at a rate of 100 to 120/min.

3. Allow for full chest recoil after each chest compression by not leaning on the chest.

4. MINIMIZE INTERRUPTIONS in chest compressions.

5. **Do not interrupt compressions for more than 10 seconds.**

a) Rotate compressor every 2 minutes, or sooner to limit rescuer fatigue to provide high-quality chest compressions.

During defibrillation attempts, perform chest compressions while AED/cardiac monitor is charging.

6. **Avoid excessive ventilation**:

   a) When ventilating without an advanced airway, perform cycles of 30 compressions with a short pause to administer 2 breaths per cycle.

   b) When an advanced airway (supraglottic/endotracheal) is in place, provide continuous compressions at a rate of at least 100 to 120/min and ventilate the patient once every 6 seconds. (10 breaths/min)

7. High quality chest compressions are achieved when the ETCO2 value is at least 10 mmHg or greater.

8. All patients found in cardiac arrest or who arrest prior to transport will be resuscitated in place (limit movement, no attempts in loading or transport). Patient transportation for definitive care can be done as soon as **ALL** the following have been established:

   a) Initiation of CPR (device assisted or manual)
   b) Establishment of an airway (supraglottic/endotracheal) with end tidal CO2 monitoring
   c) Establishment of vascular access (IV or IO)
   d) Completion of 4 full cycles of CPR (to include medications and evaluation of cardiac rhythm strip for possible defibrillation)

   Our goal is to provide high quality resuscitation in the pre-hospital setting. We aim to stabilize the patient, optimize circulation and oxygenation, and prepare for transport to the nearest appropriate facility while also considering the safety of both the patient and the crew. Even if all four criteria are met, it is up to the judgement of the paramedics on scene to determine when patient transport is appropriate.

9. If resuscitation efforts have begun **and** if the patient meets criteria for termination of resuscitation as per **Protocol 27**, resuscitative efforts should be performed on scene for 20 minutes (See **Protocol 27**, Section C, #2).

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B. Cardiopulmonary Resuscitation

EMR/BLS

1. Initial Assessment **Protocol 1**. The "Pit Crew" approach will be used, and initial procedures/treatments will be completed concurrently.
    a) Assess for responsiveness.

    b) Simultaneously look for no breathing or occasional gasps and check for a pulse, to reduce the time to first chest compression.

    The initial assessment should take no more than 10 seconds to complete.

2. If the patient has a pulse, but is not breathing:

    a) Open the airway.

    b) Give 2 full ventilations with BVM to determine airway patency. If obstructed, see **Protocol 7** Section E.

    c) Continue to ventilate patient while advanced airway device is prepared for insertion.

        a. Insert supraglottic airway (SGA) if airway is patent and no gag reflex is present.

    d) Provide 1 rescue breath every 6 seconds (10 breaths/min).

    Note: SGA can be utilized by EMTs through departmental approval.

3. If the patient has no pulse:

    a) Perform immediate chest compressions. Only interrupt chest compressions to analyze rhythm and to determine airway patency.

    b) Give 2 full ventilations with BVM to determine airway patency.

    c) Insert SGA if airway is patent. If obstructed, see **Protocol 7**, Section E.

    d) If SGA is utilized, perform asynchronous ventilations 1 every 6 seconds (if no SGA, continue with 30 compressions and 2 ventilations).

    Note: SGA can be utilized by EMTs through departmental approval.

4. Apply the AED as soon as possible:

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a) Follow the AED prompts and if shock is advised, deliver shock as soon as possible.

If shock is advised, minimize interruptions in chest compressions before and after shock by performing chest compressions while the AED is charging.

b) Leave the AED on the patient and turned on throughout the resuscitation effort.

c) The AED will prompt a reassessment of a pulse and rhythm analysis every 2 minutes.

d) Resume CPR beginning with chest compressions immediately after each shock and continue to follow the prompts of the AED.

e) Consider the application of the Lucas device at pulse checks. Manual chest compressions should be continued during the placement of mechanical compression device. Do not interrupt compressions for more than 10 seconds.

ALS

5. Initial Assessment **Protocol 1.** The "Pit Crew" approach will be used, and initial procedures/treatments will be completed concurrently.

   a) Assess for responsiveness.

   b) Simultaneously look for no breathing or occasional gasps and check for a pulse, to reduce the time to first chest compression.

   The initial assessment should take no more than 10 seconds to complete.

6. If the patient has a pulse, but is not breathing:

   a) Open the airway

   b) Give 2 full ventilations with BVM to determine airway patency. If obstructed, see **Protocol 7**, Section E

   c) Insert SGA if airway is patent.

   d) Provide 1 rescue breath every 6 seconds (10 breaths/min)**.**

   e) Attach and monitor End Tidal CO_2 and waveform capnography **Procedure 11**.

   Note: SGA can be utilized by EMTs through departmental approval.

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7. If the patient has no pulse:

   e) Perform immediate chest compressions. Only interrupt chest compressions to analyze rhythm and to determine airway patency.

   f) Insert SGA if airway is patent. If obstructed, see **Protocol 7**, Section E.

      i. Intubation should only be performed if you are unable to successfully manage the patient's airway with an SGA, see **Procedure 49** for contraindications.

   g) Provide 1 ventilation every 6 seconds (10 breaths/min.).

   h) Attach and monitor End Tidal CO_2 and waveform capnography **Procedure 11**.

   Note: SGA can be utilized by EMTs through departmental approval.

   i) Reassess for a pulse every 2 minutes.

8. Immediately apply and attach the defibrillator pads.

9. Turn on the Monitor/Defibrillator and switch the monitor to "paddles."

10. Analyze for a shockable rhythm:

    a. Ventricular Fibrillation (V-Fib or VF)
    b. Pulseless Ventricular Tachycardia (pVT)
    c. Torsades de Pointes or Polymorphic VT

11. If the patient presents with a shockable rhythm, deliver shock as soon as possible.

    a. **Defibrillate at 360 joules** every 2 minutes as indicated.

    b. **Resume CPR** beginning with chest compressions immediately after each shock.

    c. Consider the application of the Lucas device at pulse checks. Manual chest compressions should be continued during the placement of mechanical compression device. Do not interrupt compressions for more than 10 seconds.

12. If the patient does not present with a shockable rhythm:

    a. **Resume CPR** beginning with chest compressions after each reassessment.

13. Reassessment shall be done after every 2 minutes of CPR, simultaneously checking for a pulse and confirming the underlying rhythm.

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14. Establish vascular access via IV (preferred) or IO **Procedure 14** as soon as possible without delaying chest compressions.

15. Deliver medications in accordance with the rhythm-based protocol the patient is being treated under the proceeding sections in this protocol.

C. Ventricular Fibrillation/Pulseless Ventricular Tachycardia (VF/pVT)

ALS

1. **Defibrillate at 360 joules.**

   a) Analyze for a shockable rhythm and repeat defibrillation as necessary for recurrent VF/pVT after every 2 minutes of high-quality CPR.

2. **Establish vascular access via IV (preferred) or IO Procedure 14** as soon as possible without delaying chest compressions.

3. Administer **Epinephrine 1 mg/10mL,** IV/IO push every 3-5 minutes for the duration of the arrest.

   a) Follow the drug administration with a 10 – 20 mL NS flush and high-quality CPR to circulate for 2 minutes prior to another rhythm analysis and pulse check.

4. Establish an advanced airway (supraglottic or endotracheal) **Protocol 07** at this point forward with limited to no interruptions in CPR and monitor with continuous quantitative waveform capnography (EtCO2).

5. Administer **Amiodarone *OR* Lidocaine**. The selection of ***one*** anti-arrhythmic will continue for the remainder of the VF/pVT algorithm.

   NOTE: Amiodarone is contraindicated in patients taking Coumadin (Warfarin).

   a) **Amiodarone**
      i. Initial dose: **300 mg** IV/IO push
      ii. Second dose: **150 mg** IV/IO push (If arrythmia continues after subsequent defibrillation attempt or reoccurs)

   OR

   b) **Lidocaine**

      i. Initial dose: **1.5 mg/kg** IV/IO push
      ii. Additional dose: **0.75 mg/kg** IV/IO push in 5 minutes, repeated once to a maximum total dose of **3 mg/kg**

   Follow the drug administration with a 10-20 mL NS flush and high-quality CPR to circulate for 2 minutes prior to another rhythm analysis and pulse check.

Top

6. If the rhythm fails to convert, continue CPR with Epinephrine IV/IO every 3-5 minutes and defibrillation as needed.

   a) At any time begin considering the underlying causes and manage as indicated in **"Potentially Reversible Causes in Cardiac Arrest" (H's and T's)** Section E.

7. If patient presents with suspected polymorphic ventricular tachycardia (**Torsades de Pointes**). **Magnesium Sulfate 2 gm slow IV/IO** may be given at any time after the first epinephrine.

8. Consider **Sodium Bicarbonate 1 mEq/kg** if the patient is suspected to have one of the following conditions:

   a) Chronic renal failure
   b) Hyperkalemia
   c) Known Tricyclic Antidepressant (TCA) Overdose
   d) Suspected Hyperactive Delirium Syndrome with Severe Agitation.
   e) Known aspirin overdose

   NOTE: Sodium Bicarbonate should not be routinely used in cases of extended down time.

9. If ROSC is achieved, refer to the Post Resuscitative Care Protocol, **Section L**.

D. Asystole

Agonal Rhythm, Idioventricular rhythm with a rate of 20 bpm or less, or Pulseless Bradycardias

ALS

Establish TWO vascular access sites via IV (preferred) or IO Procedure 14 as soon as possible without delaying chest compressions.

1. Administer **Epinephrine 1 mg/10mL** IV/IO every 3-5 Minutes.

2. Consider underlying causes and manage as indicated in **"Potentially Reversible Causes in Cardiac Arrest" (H's and T's)** in Section E.

3. Administer **Calcium Chloride**, **1 gm (1,000 mg)** slow IV/IO.

4. Administer **Sodium Bicarbonate 1 mEq/kg** IV/IO.

NOTE: DO NOT administer Calcium Chloride and Sodium Bicarbonate through the same IV tubing, consider establishing separate access. If unable to gain two separate access, ensure line is sufficiently flushed with normal saline prior to administration.

Top

E. Pulseless Electrical Activity (PEA)

ALS

1. **Establish TWO vascular access sites via IV (preferred) or IO** Procedure 14 as soon as possible without delaying chest compressions.

2. Administer **Epinephrine 1 mg/10mL** IV/IO every 3-5 Minutes.

3. Consider underlying causes and manage as indicated in "**Potentially Reversible Causes in Cardiac Arrest" (H's and T's).**

Potentially Reversible Causes in Cardiac Arrest (H's and T's)	
Hypovolemia	Fluid bolus of up to 1000 mL
Hypoxemia	Confirm adequacy of oxygenation, airway management, consider establishing advanced airway.
Hydrogen-ions (Acidosis)	Provide assisted ventilation with an advanced airway (supraglottic or endotracheal) and monitor EtCO2 Administer Sodium Bicarbonate 1 mEq/kg IV/IO
Hypothermia	Warming of patient
Hypoglycemia	D10 10 gm (100 mL) IV/IO
Hyperkalemia	Calcium Chloride 1 gm (1000 mg) slow IV/IO and/or Sodium Bicarbonate 1 mEq/kg IV/IO
Tension Pneumothorax	Perform chest needle decompression **Procedure 5**
Tamponade, Cardiac	Outside of EMS Scope of Practice – Transport to closest most appropriate hospital
Toxins	Refer to **Protocol 15**
Thrombosis (Pulmonary/Coronary)	Transport to a STEMI – PCI capable facility
Trauma	Refer to **Section N**

4. For patients with trauma to the torso that are in traumatic arrest, perform bilateral needle decompression **Procedure 5**. This is done to ensure there is no tension pneumothorax as the cause of the cardiac arrest.

F. Wide Complex Tachycardia – Regular (Monomorphic) with a Pulse

ALS

Wide Complex Tachycardia – Regular (Monomorphic) with a Pulse

UNSTABLE - Patient presents with persistent tachyarrhythmia with signs of: Hypotension, acute AMS, signs of shock, ischemic chest discomfort, and/or acute heart failure.

1. If conscious, attempt to sedate by administering **Midazolam (Versed) 5 mg** IV/IM. DO NOT delay cardioversion to administer Versed if the patient is profoundly unstable.

2. Perform **Synchronized Cardioversion** until the rhythm is converted, by reassessment of underlying rhythm and the presence of a pulse after each energy delivery:
   a) 100 joules
   b) 200 joules
   c) 300 joules
   d) 360 joules

3. Administer **Amiodarone** regardless of rhythm conversion.
   a) **Amiodarone 150 mg IV over 10 minutes.** Mix 150 mg (3 mL) into a 50 mL NS bag with a 10 gtts/mL set and run at 60 gtts/min may be repeated once in 10 minutes.
   b) **If Amiodarone is contraindicated, administer Lidocaine 1 mg/kg IVP.** This may be repeated at .75mg/kg twice if rhythm fails to convert.

4. If the rhythm fails to convert, continue **synchronized cardioversion** at 360 joules every 2 minutes.
5. If the patient's condition deteriorates at any time and becomes unresponsive and pulseless, move immediately to VF/Pulseless VT, **Section C**.
6. Once patient converts, maintain a systolic B/P 90 mmHg or greater with a fluid bolus of up to 1000 mL.
7. If BP remains less than 90 mmHg, administer **Epinephrine Infusion 5 mcg/min.** Titrate to desired effect up to 40 mcg/min**.** **Appendix 9.2**

Top

Mix Epinephrine 1mg/1mL, 10 mg (10 mL) into a 500mL NS bag with a 60 gtt/mL set to yield a concentration of 20 mcg/mL and begin administration at approximately 1 drop every 4 seconds and titrate to desired effect. Max dose of 40 mcg/minute (2 drops every second).

8. If the desired effects are not achieved with the Epinephrine Infusion, administer **Dopamine Infusion of 10 mcg/kg/minute and titrate to desired effect up to a max dose of 20 mcg/kg/minute. Appendix 9.1.**

Wide Complex Tachycardia – Regular (Monomorphic) with a Pulse

STABLE PATIENT

1. Consider **Adenosine 6 mg** rapid IVP **once,** as a diagnostic tool if the rhythm appears regular and QRS complexes are monomorphic.

2. Administer **Amiodarone 150 mg IV over 10 minutes.** Mix 150 mg (3 mL) into a 50 mL NS bag with a 10 gtt/mL set and run at 60 gtts/min may be repeated every 10 minutes.

3. If Amiodarone is contraindicated, administer Lidocaine 1 mg/kg IVP.

4. If the patient's condition deteriorates at any time and becomes unresponsive and pulseless, move immediately to "*unstable adult patient*" above, or to VF/Pulseless VT, **Section C**.

G. Torsades de Pointes – Irregular (Polymorphic VT)

Patients presenting with polymorphic (irregular) VT require immediate defibrillation. For polymorphic VTs, due to the QRS complex appearance, it will be virtually impossible for cardiac monitors to recognize the morphology of the irregular complexes in order to deliver synchronized electrical therapy. Although some patients may present with a pulse, it typically will deteriorate quickly to a pulseless VT.

ALS

UNSTABLE - Patient presents with persistent tachyarrhythmia with signs of: Hypotension, acute AMS, signs of shock, ischemic chest discomfort, and/or acute heart failure.

1. If conscious, attempt to sedate by administering **Midazolam (Versed) 5 mg** IV/IM. DO NOT delay defibrillation to administer Versed if the patient is profoundly unstable.

2. Perform **Defibrillation** until the rhythm has converted:

   a) 360 joules

Top

3. **Administer Magnesium Sulfate 2 gm IV over 5 minutes** regardless of rhythm conversion.

4. Continue **Defibrillation** at 360 joules until rhythm converts.

5. If the patient's condition deteriorates at any time and becomes unresponsive and pulseless, move immediately to VF/Pulseless VT, **Section C**.

6. Once patient converts, maintain a systolic B/P 90 mmHg or greater with a fluid bolus of up to 1000 mL.

7. If fluids are unsuccessful, administer **Epinephrine Infusion 5 mcg/min** and titrate to desired effect up to 40 mcg/min.

STABLE PATIENT

1. Administer **Magnesium Sulfate 2 gm IV over 5 minutes.** Mix 2 gm (4 mL) into a 50 mL NS bag with a 10 gtt/mL set and run at 60 gtts/min.

2. If the patient's condition deteriorates at any time, move immediately to "*Unstable adult patient*" above, or to VF/Pulseless VT, **Section C**.

H. Narrow Complex Tachycardia (HR 150 or greater) with a Pulse

Identify and treat the underlying causes according to Protocol 1 prior to the initiation of this section of the protocol. Sustained heart rates 150 or greater associated with clinical conditions of instability can depend on the age of the patient and are usually related to other conditions (e.g. increased levels of pain, febrile (sepsis), anxiety, shock, etc.) and not primarily associated with a cardiac event. Therefore, a focused initial assessment of the patient is crucial to determine the underlying cause prior to any treatment or intervention.

ALS

UNSTABLE - Patient presents with persistent tachyarrhythmia with signs of: Hypotension, acute AMS, signs of shock, ischemic chest discomfort, and/or acute heart failure.

2. Attempt to sedate by administering **Midazolam (Versed) 5 mg** IV/IM. DO NOT delay cardioversion to administer Versed if the patient is profoundly unstable.
3. Perform **Synchronized Cardioversion** until the rhythm is converted, by reassessment of underlying rhythm and the presence of a pulse after each energy delivery:
    a) 100 joules
    b) 200 joules
    c) 300 joules
    d) 360 joules

Top

4. If ascending cardioversions are unsuccessful, administer **Adenosine** per the *Stable* Section if not already administered, as a diagnostic tool to determine underlying rhythm.

5. If the rhythm fails to convert, continue **synchronized cardioversion** at 360 joules until rhythm converts.

6. If the patient's condition deteriorates at any time and becomes unresponsive and pulseless, move immediately to Cardiopulmonary Resuscitation, **Section B** and follow most appropriate algorithm for the rhythm presented.

After successful conversion maintain O2 saturation 94% or greater and treat hypotension if BP is less than 90 mmHg with fluids (up to 1000 mL NS IV) and possibly Epinephrine Infusion 5 mcg/min. Mix Epinephrine 1mg/1mL, 10 mg (10 mL) into a 500mL NS bag with a 60 gtt/mL set to yield a concentration of 20 mcg/mL and begin administration at approximately 1 drop every 4 seconds and titrate to desired effect. Max dose of 40 mcg/minute (2 drops every second).

Narrow Complex Tachycardia (HR 150 or greater) with a Pulse

STABLE PATIENT

ALS

1. Attempt **Vagal Maneuvers.**

2. Administer **Adenosine 6 mg** rapid IVP (over 1-2 seconds).

    a. Adenosine should be administered through a large-bore catheter preferably at the antecubital fossa and followed by a rapid flush of 20 mL of IV solution.

DO NOT Administer Adenosine if ECG Rhythm is A-Fib or A-Flutter or if patient is taking *Persantine* or Aggrenox.

NOTE: If Atrial Fibrillation/Flutter is observed proceed to Section I do not administer any additional doses of Adenosine.

3. If no change after 1 minute, repeat **Adenosine 12 mg** rapid IVP (over 1-2 seconds).

4. If no change after 1 minute, administer **Diltiazem 0.25 mg/kg slow IV over 2 minutes** (MAX 20 mg).

5. If after 15 minutes, patient fails to convert clinical judgement may be used to determine if an additional dose of **Diltiazem 0.35 mg/kg** slow IV over 2 minutes (maximum dose of 25 mg) is required or treat as unstable.

6. If the patient's condition deteriorates at any time and becomes unresponsive and pulseless, move immediately to Cardiopulmonary Resuscitation, **Section B** follow the most appropriate algorithm for the rhythm presented.

I. Atrial Fibrillation/Atrial Flutter

Patients in atrial fibrillation/flutter with a rapid ventricular rate of 150 bpm or greater.

ALS

STABLE PATIENT

1. Administer **Diltiazem 0.25 mg/kg slow IV push over 2 minutes** (MAX 20 mg).

   If no conversion after 15 minutes:

2. **Diltiazem 0.35 mg/kg slow IV push over 2 minutes** (MAX 25 mg).

UNSTABLE - Patient presents with persistent tachyarrhythmia with signs of: Hypotension, acute AMS, signs of shock, ischemic chest discomfort, and/or acute heart failure.

3. Attempt to sedate by administering **Midazolam (Versed) 5 mg** IV/IM. DO NOT delay cardioversion to administer Versed if the patient is profoundly unstable.

4. Perform **Synchronized Cardioversion** until the rhythm is converted, by reassessment of underlying rhythm and the presence of a pulse after each energy delivery:
   a) 200 joules
   b) 300 joules
   c) 360 joules

5. If the patient's condition deteriorates at any time and becomes unresponsive and pulseless, move immediately to Cardiopulmonary Resuscitation, **Section B** and follow most appropriate algorithm for the rhythm presented.

J. Premature Ventricular Complexes (PVCs)

ALS

1. If the patient is having significant PVCs, without SOB, administer **Oxygen to maintain a saturation between 90% - 98%.**

Top

a) Significant (Malignant) PVCs:

i. Closely coupled (R on T).
ii. Multiform in configuration.
iii. Occurring in short bursts of two or more in succession; or
iv. Runs of ventricular tachycardia.

2. Administer **Amiodarone OR Lidocaine**.

a) **Amiodarone 150 mg IV over 10 minutes.** Mix 150 mg (3 mL) into a 50 mL NS bag with a 10 gtt/mL set and run at 60 gtts/min may be repeated once in 10 minutes.

NOTE: Amiodarone is contraindicated in patients taking Coumadin (Warfarin).

b) If Amiodarone is contraindicated, administer **Lidocaine 1 mg/kg.** May be repeated in 5 minutes. Max total dose of 3 mg/kg.

c) If the rhythm was converted with Lidocaine following an episode of VT and the patient is not in profound hypotension or a high-degree heart-block (2nd degree Type II, 3rd degree, or an idioventricular rhythm).

i. Administer a maintenance drip of **Lidocaine 2 mg/min** IV/IO and titrate up to a max dose rate of **4 mg/min** if necessary for the suppression of ectopy.

ii. Patients with hepatic disease (liver/renal failure) or 70 years of age or older, begin a maintenance dose at **1 mg/min.**

K. Symptomatic Bradycardia

Symptomatic bradycardia is a heart rate less than 50/min that elicits signs and symptoms of CP, AMS, SOB, and/or poor or inadequate perfusion.

ALS

STABLE - Patient is NOT hypotensive

1. Monitor the patient, treat signs and symptoms and transport to a STEMI facility.

2. Perform a rhythm strip and 12-Lead ECG (R/O AMI), as an attempt to determine the underlying cause.

3. Consider possible hypoxia or toxicological causes.

SYMPTOMATIC BRADYCARDIA – Patient presents with persistent bradyarrhythmia with signs of: Hypotension, acute AMS, signs of shock, ischemic chest discomfort, and/or acute heart failure.

Top

If a patient is in 2nd degree type II or 3rd degree AV Block, go directly to step 2. Do not administer Atropine.

1. Administer **Atropine, 1 mg** IV. This may be repeated every 3-5 minutes until the maximum total dose of 3 mg is reached.

2. If Atropine is unsuccessful, begin **External Pacing (TCP), Procedure 23**

    a) If conscious and BP greater than 90 systolic, attempt to sedate by administering **Midazolam (Versed) 5 mg** slow IV/IO. DO NOT delay TCP to administer Versed if the patient is profoundly unstable.

    b) Following successful electrical/mechanical capture, if BP remains less than 90 mmHg give a **fluid bolus up to 1000 mL**. Monitor B/P and lung sounds often.

    c) If BP remains less than 90 mmHg, administer **Epinephrine Infusion 5 mcg/min.** Titrate to desired effect up to 40 mcg/min**.** Appendix 9.2.

3. Mix Epinephrine 1mg/1mL, 10 mg (10 mL) into a 500mL NS bag with a 60 gtt/mL set to yield a concentration of 20 mcg/mL and begin administration at approximately 1 drop every 4 seconds and titrate to desired effect. Max dose of 40 mcg/minute (2 drops every second).

4. If TCP is unavailable or its use is unsuccessful (no capture), administer **Epinephrine Infusion 5 mcg/min** and titrate to desired effect up to a max of **40 mcg/min**. Appendix 9.2

5. If the desired effects are not achieved with the Epinephrine Infusion, administer **Dopamine Infusion of 10 mcg/kg/min and titrate to desired effect up to a max dose of 20 mcg/kg/min. Appendix 9.1.**

L. Post Resuscitation Care (ROSC)

ROSC- The restoration of a sustained perfusing cardiac rhythm that results in effective blood flow, indicated by a palpable pulse and/or measurable blood pressure without ongoing chest compressions. If ROSC is lost, continue to treat the appropriate algorithm.

1. Optimize ventilation and oxygenation

    a) Perform Airway Management with an advanced airway (supraglottic or endotracheal) Protocol 07 if the patient remains comatose and an advanced airway has not already been established.

Top

b) Maintain oxygen saturation between 90% - 98% to avoid potential oxygen toxicity due to excessive ventilation, ventilate at a rate of 1 breath every 6 seconds (10 breaths/min), and titrate to a target ETCO2 35-45 mmHg.

c) Glycemic control measures should be implemented since there is an increased risk for hypoglycemia in the post-arrest phase. Measure and maintain BG levels. If BG level less than 70 mg/dL administer **D10 10 grams (100 mL)** IV/IO.

2. If blood pressure is less than 90 mmHg systolic:

a) Administer a **fluid bolus up to 1000 mL of NS**. Monitor B/P and lung sounds often it is not mandatory to administer the entire liter of fluid prior to proceeding to Vasopressors. Clinical judgment should be utilized in determining when to proceed to Vasopressors.

b) If BP remains less than 90 mmHg, administer **Epinephrine Infusion 5 mcg/min.**

Mix Epinephrine 1mg/1mL, 10 mg (10 mL) into a 500mL NS bag with a 60 gtt/mL set to yield a concentration of 20 mcg/mL and begin administration at approximately 1 drop every 4 seconds and titrate to desired effect. Max dose of 40 mcg/minute (2 drops every second). Appendix 9.2

c) If the desired effects are not achieved with the Epinephrine Infusion**,** administer **Dopamine Infusion** at **10 mcg/kg/min** and titrate to effect to achieve a blood pressure of 90-100 mmHg systolic, max dose rate of **20 mcg/kg/min**. Appendix 9.1

Post cardiac arrest patients with systolic blood pressures less than 90 mmHg are associated with higher mortality and diminished functional recovery, while systolic pressures of greater than 100 mmHg are associated with better recovery.

3. Obtain a **12-Lead EKG.**

a) If STEMI, treat per Protocol 11 ST Elevation Myocardial Injury/STEMI.

Patients who have achieved ROSC in the field WILL BE transported to the nearest STEMI facility.

4. If after pulses are restored, patient develops malignant ventricular ectopy, (Couplet PVCs, Multiform in configuration, occurring in short bursts of two or more in succession, or runs of VT) with B/P 90 mmHg or greater administer **Amiodarone 150 mg** IV over 10 minutes.

Top

5. If ROSC was achieved prior to the administration of an anti-arhythmic to a patient with VF/pVT, administer **Amiodarone 150 mg** IV over 10 minutes.

6. If the patient was resuscitated with **Lidocaine** following an episode of VF/pVT and converted into a perfusing rhythm that is not in profound hypotension; or a high-degree heart block (2nd degree Type II, 3rd degree, or Idioventricular rhythm).

   a) Administer a maintenance drip of **Lidocaine 2 mg/min** IV/IO and titrate up to a max dose rate of **4 mg/min** if necessary for the suppression of ectopy.

      i. Patients with hepatic disease (liver/renal failure) or greater than 70 years of age, begin maintenance dose at **1 mg/min.**

M. Cardiac Arrest in Pregnancy

EMR/BLS

a) Begin cardiopulmonary resuscitation as outlined in **Section B**.

b) Perform a manual displacement of the uterus towards the left for a patient in the third trimester (greater than 20 weeks gestational size).



1-handed technique



2-handed technique

3. Perform airway management **Protocol 7**.

ALS

4. Establish IV access, preferably in the antecubital fossa site.

5. Follow the most appropriate ACLS algorithm according to rhythm presented and consider the potential etiology of the arrest.

Top

6. Transport to the closest, most appropriate OB facility.

   a) Continue resuscitation efforts.

   b) Contact the receiving hospital's OB facility to prepare for the consideration of peri-mortem cesarean delivery.

N. Traumatic Arrest

EMR/BLS

1. Begin cardiopulmonary resuscitation as outlined in **Section B**.

   a) Resuscitation efforts can be terminated if the patient meets criteria outlined in **Protocol 27**.

2. Perform airway management **Protocol 7**.

3. Simultaneous interventions:

   a) Hemorrhage Control as necessary **Protocol 21**.

ALS

   b) If suspected pneumothorax, perform bilateral needle decompression **Procedure 5**, beginning on the most injured side first.

   c) Establish at least two large-bore IVs. **Do not delay transport to secure IV access.**

   d) Administer Tranexamic Acid (TXA)

   e) Administer a **fluid bolus up to 1000 mL of NS**.

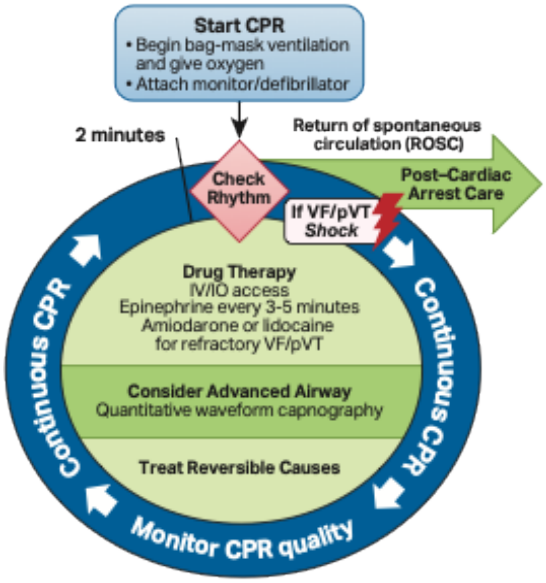
4. Follow the most appropriate ACLS algorithm according to rhythm presented and consider the potential etiology of the arrest.

5. If ROSC is achieved, follow **Section L**.

6. Transport to the closest Trauma Center, advise the receiving facility of ROSC and the field administration of 2 grams of TXA.

Top

Adult Cardiac Arrest Circular Algorithm



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High-Quality CPR

- Push hard (at least 2 inches [5 cm]).
- Push fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Change compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- If advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions.
- Continuous waveform capnography
  - If $ETCO_2$ is low or decreasing, reassess CPR quality.

Shock Energy for Defibrillation

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic:** 360 J

Drug Therapy

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
- **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.
  or
- **Lidocaine IV/IO dose:** First dose: 1-1.5 mg/kg. Second dose: 0.5-0.75 mg/kg.

Advanced Airway

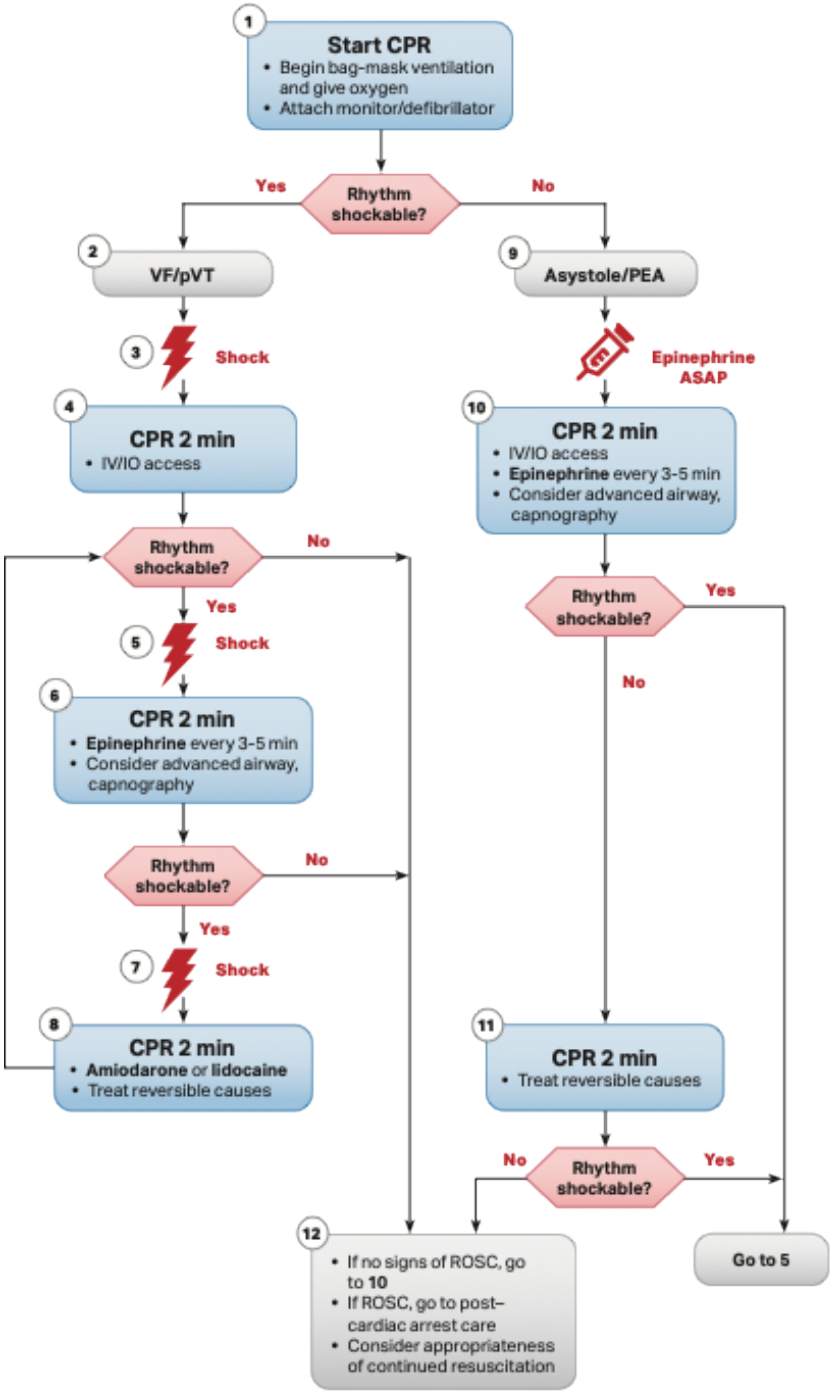
- ET intubation or supraglottic advanced airway
- Continuous waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

Reversible Causes

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

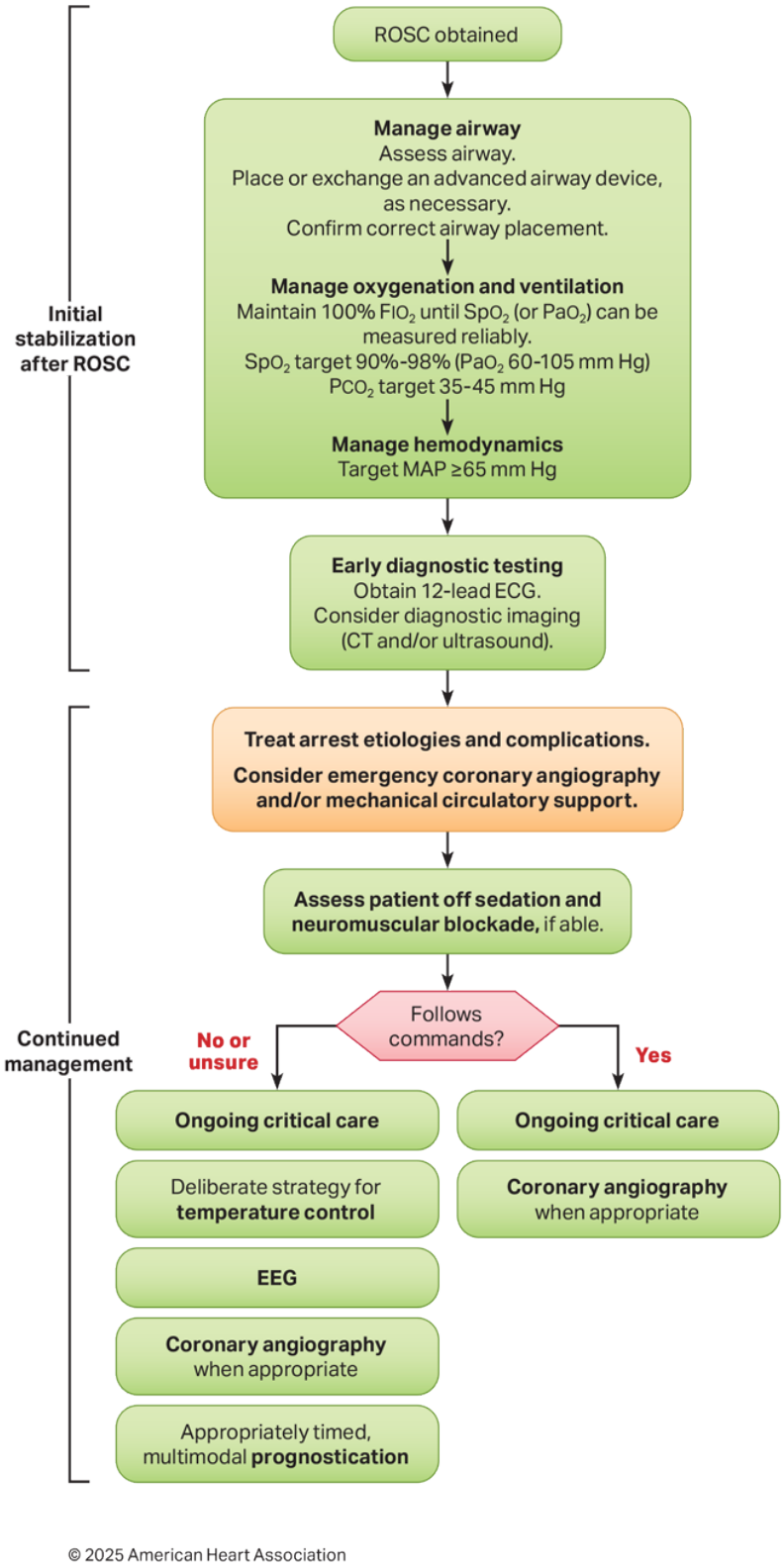
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Adult Cardiac Arrest Algorithm (VF/pVT/Asystole/PEA)



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Initial Stabilization After ROSC

Resuscitation is ongoing during the post-ROSC phase, and many of these activities can occur concurrently.

Manage airway: Assess and consider placement or exchange of an advanced airway device (usually endotracheal tube or supraglottic device). Confirm correct placement of an advanced airway. This generally includes the use of waveform capnography or capnometry.

Manage oxygenation and ventilation: Titrate FIO_2 for SpO_2 90%-98% (or PaO_2 60-105 mm Hg). Adjust minute ventilation to target PCO_2 35-45 mm Hg in the absence of severe acidemia.

Manage hemodynamics: Initiate or adjust vasopressors and/or fluid resuscitation as necessary for goal MAP ≥65 mm Hg.

Early diagnostic testing: Obtain 12-lead ECG to assess for ischemia or arrhythmia. Consider CT head, chest, abdomen, and/or pelvis to determine cause of arrest or assess for injuries sustained during resuscitation. Point-of-care ultrasound or echocardiography may be reasonable to identify clinically significant diagnoses requiring intervention.

Continued Management

Treat arrest etiologies and complications.

Consider emergency cardiac intervention:

- Persistent ST-segment elevation present
- Cardiogenic shock
- Recurrent or refractory ventricular arrhythmias
- Severe myocardial ischemia

Temperature control: If patient is not following commands off sedation and neuromuscular blockade or is unable to assess, initiate a deliberate strategy of temperature control with goal 32 °C-37.5 °C as soon as possible.

Evaluate for seizure: Evaluate for clinical seizure and obtain EEG to evaluate for seizure in patients not following commands.

Prognostication: Multimodal approach with delayed impressions (≥72 hours from ROSC or achieving normothermia).

Ongoing critical care includes the following:

- Target PaO_2 60-105 mm Hg, PCO_2 35-45 mm Hg (unless severe acidemia); avoid hypoglycemia (glucose <70 mg/dL) and hyperglycemia (glucose >180 mg/dL); target MAP ≥65 mm Hg.
- Consider antibiotics.

A. CPR Guidelines
B. Pediatric Cardiopulmonary Resuscitation
C. Ventricular Fibrillation/Pulseless Ventricular Tachycardia
D. Asystole, Agonal Rhythm, Idioventricular with rate ≤ 20, or Pulseless Bradycardias
E. Pulseless Electrical Activity (PEA)
F. Wide Complex Tachycardia - Regular (Monomorphic) with a Pulse
G. Torsades de Pointes – Irregular (Polymorphic VT)
H. Sustained Narrow Complex Tachycardia
I. Symptomatic Bradycardia
J. Post Resuscitative Care (ROSC)
K. Pediatric Traumatic Arrest

The following protocol is intended for the systematic treatment of common cardiac dysrhythmia and cardiac arrest scenarios in the pediatric patient. Perform all assignments in “Pit Crew” fashion and make all efforts to obtain Return of Spontaneous Circulation (ROSC) prior to leaving the scene. Refer to Handtevy system as a guide for appropriate pediatric vital signs, treatment, dosages, and equipment.

A. CPR Guidelines

CPR will be performed according to the most current American Heart Association (AHA) standards. Always keep in mind that high quality CPR with **uninterrupted chest compressions, early defibrillation, and early ventilation** are the top priorities when attempting to resuscitate a pulseless and apneic patient. When performing CPR, the following guidelines will be adhered to:

1. Check for responsiveness, looking for no breathing or occasional gasps while simultaneously checking for a pulse.

2. If no pulse, perform high-quality, uninterrupted chest compressions approximately 1.5” (4 cm) in infants, 2” (5 cm) deep in children and at a rate of 100 to 120/min.

3. Allow for full **chest recoil** after each chest compression by not leaning on the chest.

4. **MINIMIZE INTERRUPTIONS** in chest compressions.

5. **Do not interrupt compressions for more than 10 seconds.**

    a) Rotate compressor every 2 minutes, or sooner to limit rescuer fatigue to provide high-quality chest compressions.

    Note: During defibrillation attempts, perform chest compressions while AED/cardiac monitor is charging.

6. **Avoid excessive ventilation**:

a) When ventilating without an advanced airway with a single rescuer, perform cycles of 30 compressions with a short pause to administer 2 breaths per cycle.

b) When ventilating without an advanced airway with two rescuers, perform cycles of 15 compressions with a short pause to administer 2 breaths per cycle.

c) When an advanced airway (supraglottic/endotracheal) is in place, provide continuous compressions at a rate of at least 100 to 120/min and ventilate the patient once every 6 seconds (10 breaths/min).

7. High quality chest compressions are achieved when the ETCO2 value is at least 10 mmHg or greater.

8. All patients found in cardiac arrest or who arrest prior to transport will be resuscitated in place (limit movement, no attempts in loading or transport). Patient transportation for definitive care can be done as soon as **ALL** the following have been established:

a) Initiation of CPR (device assisted or manual)
b) Establishment of an airway (supraglottic/endotracheal) with end tidal CO2 monitoring
c) Establishment of vascular access (IV or IO)
d) Completion of 4 full cycles of CPR (to include medications and evaluation of cardiac rhythm strip for possible defibrillation)

Our goal is to provide high quality resuscitation in the pre-hospital setting. We aim to stabilize the patient, optimize circulation and oxygenation, and prepare for transport to the nearest appropriate facility while also considering the safety of both the patient and the crew. Even if all four criteria are met, it is up to the judgement of the paramedics on scene to determine when patient transport is appropriate.

B. Pediatric Cardiopulmonary Resuscitation

EMS/BLS

1. Initial Assessment/Care Protocol 1P. The “Pit Crew” approach will be used, and initial procedures/treatments will be completed concurrently.

a) Assess for responsiveness.

b) Simultaneously look for no breathing or occasional gasps and check for a pulse, to reduce the time to first chest compression.

The initial assessment should take no more than 10 seconds to complete.

2. If the patient has a pulse but is not breathing:

a) Open the airway.

a. Infants – Head positioned to a neutral, sniffing position, DO NOT hyperextend the neck.

b. Child – Head-tilt/chin lift

a) **Give 2 full ventilations with BVM to determine airway patency.** If obstructed, see Protocol 7P, Section E.

b) Provide 1 rescue breath every 6 seconds (10 breaths/min).

c) using a BVM and insert an appropriately sized airway adjunct**.** Reassess for a pulse every 2 minutes.

d) **Continue to ventilate patient while advanced airway device is prepared for insertion.**

a. Insert supraglottic airway (SGA) if airway is patent and no gag reflex is present.

e) Provide 1 rescue breath every 6 seconds (10 breaths/min).

Note: SGA can be utilized by EMTs through departmental approval.

3. If the patient has no pulse:

a) Perform chest compressions immediately at a rate of 100-120/minute. Only interrupt chest compression to analyze rhythm and determine airway patency.

b) Give 2 full ventilations with BVM to determine airway patency.

c) Insert SGA airway is patent. If obstructed, see Protocol 7P, Section E.

d) If SGA is utilized perform asynchronous ventilations 1 every 6 seconds (if no SGA, continue with 30 compressions and 2 ventilations/15 compressions and 2 ventilations depending on 1 person CPR or 2 person CPR).

Note: SGA can be utilized by EMTs through departmental approval.

4. If AED is available, place device on patient using appropriate pediatric pads. If no pediatric pads are available, use adult size pads. Consider anterior/posterior placement of the adult pads and ensure the placement of each pad does not overlap one another.

5. Apply the AED as soon as possible:

a) Follow the AED prompts and if shock is advised, deliver shock as soon as possible.

If shock is advised, minimize interruptions in chest compressions before and after shock by performing chest compressions while the AED is charging.

b) Leave the AED on the patient and turned on throughout the resuscitation effort.

c) The AED will prompt reassessment of a pulse and rhythm analysis every 2 minutes.

d) Resume CPR beginning with chest compressions immediately after each shock and continue to follow the prompts of the AED.

e) Consider the Lucas device application at pulse checks if child is over the age of 12 **Procedure 26**. Manual chest compressions should be continued during the placement of mechanical compression device. Do not interrupt compressions for more than 10 seconds.

ALS

6. Initial Assessment **Protocol 1P** The "Pit Crew" approach will be used, and initial procedures/treatments will be completed concurrently.

a) Assess for responsiveness.

b) Simultaneously look for no breathing or occasional gasps and check for a pulse, to reduce the time to first chest compression.

The initial assessment should take no more than 10 seconds to complete.

7. If the patient has a pulse, but is not breathing:

a) Open the airway

b) Give 2 full ventilations with BVM to determine airway patency. If obstructed, see **Protocol 7P**, Section E.

c) Insert SGA if airway is patent.

a. Intubation should only be performed if you are unable to successfully manage the patient's airway with an SGA, see **Procedure 49** for contraindication.

d) Provide 1 rescue breath every 6 seconds (10 breaths/min).

e) Attach and monitor End Tidal CO_2 and waveform capnography **Procedure 11**.

Note: SGA can be utilized by EMTs through departmental approval.

1. If the patient has no pulse:

a) Perform immediate chest compressions. Only interrupt chest compressions to analyze rhythm and to determine airway patency.

b) Give 2 full ventilations with BVM to determine airway patency. If obstructed, see **Protocol 7P**, Section E.

c) Insert SGA if airway is patent. If obstructed, see Protocol 7P, Section E.

i. Intubation should only be performed if you are unable to successfully manage the patient's airway with an SGA, see Procedure 49 for contraindications.

d) Provide 1 ventilation every 6 seconds (10 breaths/min.).

e) Attach and monitor End Tidal CO_2 and waveform capnography Procedure 11.

Note: SGA can be utilized by EMTs through departmental approval.

f) Reassess for a pulse every 2 minutes.

8. Immediately apply and attach defibrillator pads.

9. Turn on the Monitor/Defibrillator and switch the monitor to "paddles."

10. Analyze for a shockable rhythm:

a) Ventricular Fibrillation (V-Fib or VF)
b) Pulseless Ventricular Tachycardia (pVT) (Monomorphic V-Tach or VT)
c) Torsades de Pointes or Polymorphic VT

11. If the patient presents with a shockable rhythm, deliver shock as soon as possible.

a) **Defibrillate at 2 J/kg** and subsequent defibrillations should escalate beginning at **4 J/kg every 2 minutes as needed**, up to MAX dose of 10 J/kg (or adult dose) every 2 minutes.

b) **Resume CPR** beginning with chest compressions immediately after each shock,

i. 15 compressions 2 breaths for 10 cycles (2 minutes) if no advanced airway in place.

ii. Once an advanced airway is in place, ventilate 1 breath every 6 seconds with continuous chest compressions (2 minutes).

c) Consider the Lucas device application at pulse checks if child is over the age of 12 Procedure 26. Manual chest compressions should be continued during the placement of mechanical compression device. Do not interrupt compressions for more than 10 seconds.

12. If the patient does not present with a shockable rhythm:

a) **Resume CPR** beginning with chest compressions after each reassessment.

13. Reassessment shall be done after every 2 minutes of CPR, simultaneously checking for a pulse and confirming the underlying rhythm.

14. **Establish vascular access via IV (preferred) or IO** as soon as possible without delaying chest compressions. Procedure 13 or Procedure 14.

15. Deliver medications in accordance with the rhythm-based protocol the patient is being treated under the proceeding sections in this protocol.

C. Ventricular Fibrillation/Pulseless Ventricular Tachycardia (VF/pVT)

ALS

1. **Defibrillate at 2 J/kg** and subsequent defibrillations should escalate beginning at **4 J/kg** up to **MAX dose** of **10 J/kg (or adult dose)**.

   a) Analyze for a shockable rhythm and repeat defibrillation as necessary for recurrent VF/pVT after every 2 minutes of high-quality CPR.

2. **Establish vascular access via IV (preferred) or IO** Procedure 14 as soon as possible without delaying chest compressions.

3. Administer **Epinephrine (1 mg/10mL) 0.01 mg/kg**, (0.1 mL/kg) IV/IO push every 3-5 minutes for the duration of the arrest.

   a) Follow the drug administration with a 5 – 10 mL NS flush and high-quality CPR to circulate for 2 minutes prior to another rhythm analysis and pulse check

4. Establish an advanced airway (supraglottic or endotracheal) Protocol 7P at with limited to no interruptions in CPR and monitor with continuous quantitative waveform capnography (EtCO2).

5. Administer **Amiodarone *OR* Lidocaine**. The selection of ***one*** anti-arrhythmic will continue for the remainder of the VF/pVT algorithm.

   NOTE: Amiodarone is contraindicated in patients taking Coumadin (Warfarin).

   a) **Amiodarone**
      i. Initial dose: **5 mg/kg** IV/IO push (max 300 mg)
      ii. May repeat every 3-5 minutes, up to a total of 3 doses for refractory VF/pVT. (max 150 mg subsequent doses).
      iii. Do not exceed a total dose of 450 mg.

   OR

   b) **Lidocaine**
      i. Initial dose: **1 mg/kg** IV/IO push

      ii. Additional dose: **1 mg/kg** IV/IO push in 3-5 minutes, may repeat once, up to maximum total dose of **3 mg/kg**

   c) Follow the drug administration with a 5-10 mL NS flush and high-quality CPR to circulate for 2 minutes prior to another rhythm analysis and pulse check.

6. If patient is in polymorphic ventricular tachycardia (Torsades de Pointes) or refractory V-Fib, administer **Magnesium Sulfate 50 mg/kg IV/IO** (Max dose of 2 gm) over 2 min (can be done at any time after the first epinephrine).

7. Consider underlying causes and manage as soon as possible. indicated in **"Potentially Reversible Causes in Cardiac Arrest"** at the end of Section H, PEA.

8. After ROSC, refer to the Post Resuscitative Care Protocol **Section J.**

D. Asystole, Agonal rhythm, Idioventricular with rate 20 bpm or less, or Pulseless Bradycardias

ALS

1. Initiate CPR according to AHA standards. Two minutes of CPR will be done prior to stopping and reassessing the rhythm.

2. Give 2 full ventilations with BVM to determine airway patency. If obstructed, see Protocol 7P, Section E.

3. Insert SGA if airway is patent. If obstructed, see Protocol 7P, Section E.

    a) Intubation should only be performed if you are unable to successfully manage the patient's airway with an SGA, see Procedure 49 for contraindications.

4. IV/IO Access Procedure 13 & Procedure 14 will be done concurrently with CPR. Medication administration will begin as soon as an appropriate route becomes available.

5. Administer **Epinephrine 1mg/10mL, 0.01 mg/kg** IV/IO (0.1 mL/kg), MAX DOSE of 1 mg.

    a) Subsequent doses of **Epinephrine 1mg/10mL, 0.01 mg/kg** IV/IO (0.1 mL/kg) should be administered every 3-5 minutes, MAX 1 mg per dose.

6. Consider underlying causes and manage as soon as possible, indicated in "**Potentially Reversible Causes in Cardiac Arrest**" at end of Section H, PEA.

E. Pulseless Electrical Activity (PEA)

ALS

1. Initiate CPR according to AHA standards. Two minutes of CPR will be done prior to stopping and reassessing the rhythm.

2. Give 2 full ventilations with BVM to determine airway patency. If obstructed, see Protocol 7P, Section E.

3. Insert SGA if airway is patent. If obstructed, see Protocol 7P, Section E.

a) Intubation should only be performed if you are unable to successfully manage the patient's airway with an SGA, see Procedure 49 for contraindications.

4. IV/IO Access Procedure 13 & Procedure 14 will be done concurrently with CPR. Medication administration will begin as soon as an appropriate route becomes available.

5. Administer **Epinephrine 1mg/10mL at 0.01 mg/kg IV/IO** (0.1 mL/kg) MAX SINGLE DOSE 1mg.

   a) Subsequent doses of **Epinephrine 1mg/10mL at 0.01 mg/kg** IV/IO (0.1 mL/kg) should be administered every 3-5 minutes.

6. Consider causes and manage as soon as possible, indicated in the following chart, "**Potentially Reversible Causes in Cardiac Arrest.**"

Potentially Reversible Causes in Cardiac Arrest (H's and T's)	
Hypovolemia	Fluid bolus of 20 mL/kg; 10 mL/kg for neonates (< 1 month), rapid transport
Hypoxemia	Confirm adequacy of oxygenation, airway management, consider establishing advanced airway.
Hydrogen-ions (Acidosis)	Provide assisted ventilation with an advanced airway (supraglottic or endotracheal) and monitor EtCO2 Administer Sodium Bicarbonate 1 mEq/kg IV/IO
Hypothermia	Active rewarming of patient
Hypoglycemia	Treat per Protocol 36P, Impaired Consciousness
Hyperkalemia	Calcium Chloride and/or Sodium Bicarbonate.
Tension Pneumothorax	Perform chest needle decompression Procedure 5
Tamponade, Cardiac	Outside of EMS Scope of Practice – Transport to closest most appropriate hospital
Toxins	Refer to Protocol 15P
Thrombosis (Pulmonary/Coronary)	Transport to a STEMI – PCI capable facility
Trauma	Refer to Section K

F. Wide Complex Tachycardia – Regular (Monomorphic) with a Pulse

Infants: Rate ≥ 220/min.

Children: Rate ≥ 180/min.

Wide Complex Tachycardia – Stable Patient

ALS

1. Obtain EKG and determine **regularity of R-R waves**.
2. Consider **Adenosine 0.1 mg/kg** rapid IVP (max dose 6 mg) if rhythm is regular and QRS complexes are monomorphic as a diagnostic tool.
3. Administer **Amiodarone 5 mg/kg IV over 20 minutes.** (Max dose of 150 mg).
4. Mix appropriate weight-based dosage into a 50 mL NS bag with a 10 gtt/mL set and run at 30 gtts/min (1 drop every 2 seconds) may be repeated once in 20 minutes.
5. If the patient's condition deteriorates at any time, move immediately to "*unstable pediatric patient*" below or to VF/Pulseless VT, Section C.

Wide Complex Tachycardia - Unstable Patient

Regular, Wide Complex (QRS > 0.09 sec) Tachycardia with a Pulse.

"Unstable" includes patients presenting with **ANY** of the following signs of cardiopulmonary compromise:

a. Acutely altered mental status
b. Signs of shock
c. Hypotension

ALS

1. Obtain EKG and determine **regularity of R-R waves**.
2. If conscious, attempt to sedate by administering **Midazolam (Versed), 0.1 mg/kg** slow IV/IO or IM**. DO NOT** delay cardioversion to sedate patient or obtain a 12-Lead EKG if they are unstable.
3. Begin **synchronized cardioversion at 1 j/kg**. (If rhythm irregular and unable to synchronize, defibrillate as in Section C. Ventricular Fibrillation/Pulseless Ventricular Tachycardia Pediatric).

4. If patient does not convert after initial cardioversion of 1 J/kg and reassessment of underlying rhythm and the presence of a pulse after each synchronized cardioversion, increase dose:

    a. **2 j/kg** Synchronized

    b. Repeat 2 j/kg until successfully cardioverted.

5. Consider **Adenosine 0.1 mg/kg** rapid IVP (Max dose of 6 mg) as a diagnostic tool, if rhythm is regular and the QRS are monomorphic.

6. If the patient's condition deteriorates at any time and becomes unresponsive and pulseless, move immediately to appropriate rhythm-based algorithm.

G. Torsades de Pointes – Irregular (Polymorphic) VT

Polymorphic (irregular) VT requires immediate defibrillation with the same protocol for VF. For polymorphic VTs, due to the QRS complex appearance, it will be virtually impossible for cardiac monitors for synchronization. Although some patients may present with a pulse, it typically will deteriorate quickly to a pulseless VT.

Torsades de Pointes – Irregular (Polymorphic) VT – Stable Patient

Infants: Rate ≥ 220/min.

Children: Rate ≥ 180/min

ALS

1. Obtain EKG and determine **regularity of R-R waves**.
2. Administer **Magnesium Sulfate 50 mg/kg** (MAX 2 gm) mixed into a 50 mL of NS over 8-9 minutes with a 10 gtt (macro) drip set at 1 drop/second.
3. If the patient's condition deteriorates at any time, move immediately to "*Unstable Patient*" below, or immediately to appropriate rhythm-based algorithm.

Torsades de Pointes – Irregular (Polymorphic) VT - Unstable Patient

"Unstable" includes patients presenting with **ANY** of the following signs of cardiopulmonary compromise:

a. Acutely altered mental status

b. Signs of shock

c. Hypotension

ALS

1. Obtain EKG and determine **regularity of R-R waves**.

2. If conscious, attempt to sedate by administering **Midazolam (Versed), 0.1 mg/kg** slow IV/IO or IM**. DO NOT** delay cardioversion to sedate patient and obtain a 12-Lead EKG if they are unstable.

3. Begin **Defibrillation at 2 J/kg**. (Defibrillate as in **Section C**. Ventricular Fibrillation/Pulseless Ventricular Tachycardia Pediatric). If patient does not convert after initial defibrillation of 2 J/kg and reassessment of underlying rhythm and the presence of a pulse each energy delivery, increase doses:

    a. **4 J/kg**

    b. **6 J/kg** up to 10 J/kg

4. If the patient's condition deteriorates at any time and becomes unresponsive and pulseless, immediately to appropriate rhythm-based algorithm

5. Regardless of the cause, consider treatment of Torsades de Pointes early, administer

    Magnesium Sulfate 50 mg/kg (MAX 2 gm) IV/IO.

H. Sustained Narrow Complex Tachycardia – Regular Narrow Complex (QRS ≤ 0.09 sec)

SVT - Stable Patient

Infants: Rate ≥ 220/min

Children: Rate ≥ 180/min.

ALS

1. Obtain EKG and determine **regularity of R-R waves**.

2. Consider underlying causes of tachycardia.

    a) Refer to Handtevy system as a guide for appropriate pediatric vital signs, treatment, dosages, and equipment.

3. Consider vagal maneuvers.

4. Administer **Adenosine, 0.1 mg/kg** rapid IVP (Max first dose of 6 mg). This may be repeated in 1-2 minutes at 0.2 mg/kg rapid IVP (Max second dose of 12 mg).

a) Adenosine should be administered through a large-bore catheter preferably at the antecubital fossa and followed by a rapid flush of 5-10 mL of IV solution.

5. If the QRS width is thought to be wide (> 0.09 sec) then follow Section D, "Regular, Wide Complex Tachycardia with a Pulse" Pediatric).

6. If the patient's condition deteriorates at any time, move immediately to "*unstable patient*" below.

SVT - Unstable Patient

Infants: Rate ≥ 220/min.

Children: Rate ≥ 180/min

"Unstable" includes patients presenting with **ANY** of the following signs of cardiopulmonary compromise:

a. Acutely altered mental status

b. Signs of shock

c. Hypotension

ALS

1. Obtain EKG and determine **regularity of R-R waves**.

a. If conscious, attempt to sedate by administering **Midazolam (Versed) 0.1 mg/kg** slow IV/IO or IM.

b. Begin **synchronized cardioversion at 1 j/kg**. (If impossible to synchronize, defibrillate as in Section C. Ventricular Fibrillation /Pulseless Ventricular Tachycardia Pediatric). If patient does not convert after initial cardioversion of **1 j/kg** and reassessment of underlying rhythm and the presence of a pulse each energy delivery, increase doses:

i. **2 j/kg** Synchronized
ii. Repeat **2 j/kg** until successfully cardioverted.

2. Administer **Adenosine, 0.1 mg/kg** rapid IVP (Max dose of 6 mg).

3. Administer a **fluid challenge of 20 mL/kg**.

4. If the patient's rhythm fails to convert, consult MCP for further treatment instructions.

Sustained Sinus Tachycardia – Stable Patient

Infants: Rate < 220/min

Children: Rate < 180/min

Sinus tachycardia is usually greater than the normal rate, but the rate may vary. Upon acquiring history, it is compatible and consistent with known cause; P waves are present and normal, variable R-R with a constant PR interval.

ALS

1. Obtain EKG and determine **regularity of R-R waves**.
2. Consider underlying causes of tachycardia, probable sinus tachycardia.

   Refer to Handtevy system as a guide for appropriate pediatric vital signs, treatment, dosages, and equipment.

   a) Seek for and treat the underlying cause. (*Examples of causes:* hyperthermia, dehydration, etc.)

   b) MCP for consultation.

I. Symptomatic Bradycardia

Causes of bradycardia in the pediatric population may be caused by hypoxemia, heart block, heart defects, hypothermia, head injury, and/or toxin/drug induced.

Care must be taken to ensure the adequacy of oxygenation and airway patency. Hypoxemia is the leading cause of bradycardia in children. If heart rate is < 60/min. in an infant or child, along with poor systemic perfusion, begin chest compressions.

Symptomatic / “Unstable” includes patients presenting with **ANY** of the following signs of cardiopulmonary compromise:

a) Acutely altered mental status

b) Signs of shock

c) Hypotension

BLS

1. Initial Assessment/Care Protocol 1P.
2. Provide oxygen.
3. Begin assisting ventilations and oxygenate patient via BVM if HR < 100, reassess every 2 min.

4. Initiate CPR according to AHA standards Section A if patient's heart rate < 60 despite of assistance of ventilations & oxygenation.

5. Two minutes of CPR will be done prior to stopping and assessing the rhythm.

ALS

6. Airway Management Protocol 7P and IV/IO Access Procedure 13 & Procedure 14 will be done concurrently with CPR. Medication administration will begin as soon as an appropriate route becomes available.

7. Administer **Epinephrine 1mg/10mL at 0.01 mg/kg** IV/IO (0.1 mL/kg). For ET use 1:1,000, 0.1 mg/kg. May be repeated every 3-5 min. (No more adult dose)

Administer **Atropine, 0.02 mg/kg** IV/IO. 0.1 mg is the minimum single dose (0.5 mg is maximum single dose), for increased vagal tone or primary AV block, may be repeated once in 3-5 min. (not to exceed a maximum dose of 0.04 mg/kg)

8. External pacing (TCP), Procedure 23. Should **only considered** if the child remains unstable despite oxygenation, ventilation, compressions, and medications ***Start at 80 bpm and 20 milliamps and titrate to capture.***

9. During the reassessment every 2 minutes and patient becomes pulseless, continue resuscitation efforts and follow Section B, Pediatric Cardiopulmonary Resuscitation.

10. Consider causes and manage as indicated in the following chart, "**Potentially Reversible Causes in Cardiac Arrest.**"

J. Post Resuscitative Care (ROSC)

ALS

1. Optimize ventilation and oxygenation.

   a) Maintain oxygen saturation ≥ 94% to avoid potential oxygen toxicity due to excessive ventilation, titrate to a target ETCO2 35-40 mmHg.

   b) Glycemic control measures should be implemented since there is an increased risk for hypoglycemia in the post-arrest phase. Measure and treat hypoglycemia Protocol 36P.

2. Assess and treat for persistent shock.

   a) Administer a **fluid bolus up to 20 mL/kg of NS**. Consider smaller boluses (10 mL/kg), if poor cardiac function is suspected. Monitor the patient's B/P or perfusion in the most appropriate manner (peripheral circulation: pulses, CRT, skin condition) and lung sounds often. It is not mandatory to administer the max dose of fluid bolus prior to proceeding to

Epinephrine or Dopamine. Clinical judgement should be utilized in determining when to proceed to Epinephrine.

b) Epinephrine Infusion at 0.1 mcg/kg/min and titrate to desired effect up to a max of 1 mcg/kg/min. Appendix 9.2.

c) If the desired effects are not achieved with the Epinephrine Infusion, administer Dopamine Infusion at 5 mcg/kg/minute and titrate to a max of 20 mcg/kg/minute Appendix 9.1

3. Monitor and treat seizures and agitation.

4. Transport to the most appropriate pediatric facility for management and definitive care.

K. Pediatric Traumatic Arrest

EMR/BLS

1. Begin cardiopulmonary resuscitation as outlined in Section B.

   a) Resuscitation efforts can be terminated if the patient meets criteria outlined in Protocol 27.

2. Perform airway management Protocol 7P.

3. Simultaneous interventions:

   a) Hemorrhage Control as necessary Protocol 21P.

ALS

   b) Perform bilateral needle decompression if suspicion of possible tension pneumothorax Procedure 5, beginning on the most injured side first.

   c) Establish at least two large-bore IVs.

   d) Administer fluid bolus at 20 mL/kg, maybe repeated 1 time.

   e) Consider the administration of TXA if severe hemorrhage is known or suspected.

4. Follow the most appropriate ACLS algorithm according to rhythm presented and consider the potential etiology of the arrest.

5. Transport to the closest Pediatric Trauma Center.

The following protocol is designed as an approach to the conscious patient presenting with a primary complaint of chest pain, chest discomfort, and/or atypical signs/symptoms of cardiac nature

Patients less than 18 years old should NOT receive Nitroglycerin, Aspirin.

A. Cardiac Event

General Care

BLS

1. Initial Assessment/Care Protocol 1.
2. Administer **Aspirin 324 mg (4 tablets)** orally PO. Have the patient chew and swallow the baby aspirins. Prior to administration, assess the patient's history for the presence of possible contraindications to aspirin administration which include;

    a) Known allergy to aspirin.

    b) History of bleeding ulcers

ALS

3. Monitor cardiac rhythm and perform a 12-Lead ECG.

NOTE: Obtaining a 12-Lead EKG should not delay transport of an unstable cardiac patient.

B. Indications for a 12-Lead ECG

Patients meeting any of the below criteria require a 12-Lead ECG **and** will be transported ALS with continuous monitoring of the ECG for any changes in the rhythm until transfer of care is completed.

a) All chest pain or chest discomfort, including atypical presentation, consistent with myocardial ischemia, unless due to penetrating injury.

b) Epigastric pain (unless evidence of G.I. bleeding) in all patients more than 35 years of age. Epigastric pain is defined as pain above the umbilicus.

c) Non-traumatic unexplained back pain, arm pain or jaw pain.

d) Sudden onset of any abnormal breathing problems (PE, Bronchospasm, SPO2 less than 94%).

e) Any cardiac dysrhythmia.

f) Heart rate greater than 120 BPM or heart rate less than 50 BPM. In children, heart rate more than 220 BPM.

g) Adult patient complaining of anxiety or when the primary impression is anxiety.

h) Adult patient 55 years of age or older complaining of general weakness/malaise or when the primary impression is malaise.

i) Diaphoresis not explained by environment. May be associated with nausea and/or vomiting.

j) Patient (including children) complaining of syncope or near syncope or when the primary impression is syncope or syncope and collapse.

k) Overdoses, if directed by the Poison Control Center.

l) Known or suspected carbon monoxide (CO) poisoning.

m) Administration of Nitroglycerin.

n) Administration of Zofran.

IF THERE IS EVIDENCE OF A STEMI, GO TO **PROTOCOL 11, SECTION A.**

C. Systolic B/P 90mmHg or greater

ALS

1. Repeat Nitroglycerin every 3-5 minutes, if systolic BP remains above 90 mmHg or until complete relief of signs or symptoms. Maximum of 3 doses.

NOTE: DO NOT administer Nitroglycerin if a patient is known or suspected of having taken Viagra (sildenafil), Revatio (sildenafil) or Levitra (vardenafil) within the last 24-hours OR Cialis (tadalafil), Adcirca (tadalafil) within the last 72 hours. There may be additional sexually enhancing drugs that apply.

2. If patient continues to have significant chest pain, chest discomfort or is very agitated after nitroglycerin has been administered, and as long as the systolic BP remains above 90 mmHg, Fentanyl 50 mcg slow IVP may be given.

A. May Repeat 50 mcg Fentanyl once in 3-5 minutes if chest pain still significant (Max 100 mcg Fentanyl).

B. Individuals 65 years of age or older may be started at lower doses of Fentanyl, for example 25 mcg slow IVP. If lower doses are used, it may repeat doses multiple times for max total of Fentanyl 100 mcg. Need to document a BP after every administered dose.
C. May be withheld with paramedic judgement if ECG is not ischemic and the history and exam is highly suspicious for non-cardiac causes.
D. Do not withhold in suspected cardiac causes of chest pain with SBP above 90 mmHg after nitroglycerin.

NOTE: Fentanyl may be given concurrently with Nitroglycerin as soon as an IV is established.

3. Administer **Zofran 4 mg SL/SLOW IVP or IM** (Do not administer to pregnant females) Medication 33.

D. Systolic B/P is less than 90mmHg

ALS

1. Administer a **fluid bolus of up to 1000 mL**, reassess BP and lung sounds often. Discontinue administering fluids once the systolic BP 90 mmHg or more.

   NOTE: The entire 1000 mL of fluids does not have to be administered in order to proceed to Epinephrine. Clinical judgement may be used in determining when to proceed from fluids to Epinephrine.

2. If the blood pressure remains less than 90 mmHg, administer Epinephrine Infusion 5 mcg/min. Titrate to desired effect up to 40 mcg/min. Appendix 9.2.

   Mix Epinephrine 1mg/1mL, 10 mg (10 mL) into a 500mL NS bag with a 60 gtt/mL set to yield a concentration of 20 mcg/mL and begin administration at approximately 1 drop every 4 seconds and titrate to desired effect. Max dose of 40 mcg/minute (2 drops every second). Appendix 9.2

3. If the desired effects are not achieved with the Epinephrine Infusion, administer Dopamine Infusion of 10 mcg/kg/minute and titrate to desired effect up to a max dose of 20 mcg/kg/minute. Appendix 9.1.

The following protocol is designed to manage the patient who presents with signs and symptoms of a ST-Elevation Myocardial Infarction (STEMI). Rapid assessment and care are essential. Rapid assessment and transport to a STEMI Center for definitive care is paramount.

A. STEMI Management
B. Right Ventricular Infarction (RV Infarct)
C. STEMI Alert
D. Cardiac High Risk (Non-STEMI)
E. Chest Pain/STEMI Management Flowchart

A. STEMI Management

Adult Care
ALS

1. Perform a 12-Lead ECG, if not already performed per **Protocol 10.**

2. Administer **Aspirin 324 mg (4 chewable tablets)** orally PO. If the patient already received Aspirin per **Protocol 10** do not administer additional Aspirin. Have the patient chew and swallow the baby aspirins. Prior to administration, assess the patient's history for the presence of possible contraindications to aspirin administration, which include:
   a) Known allergy to aspirin.
   b) History of bleeding ulcers.

3. Administer **Nitroglycerin 0.4 mg** SL (SEE NOTE).
   a) Repeat Nitroglycerin every 3-5 minutes if systolic BP remains above 90 mmHg or until complete relief of signs or symptoms. Maximum of 3 doses.

4. Administer **Fentanyl 50 mcg** slow IVP. **Medication 16.**
   a) May repeat once, **Fentanyl 50 mcg** slow IVP after 3-5 minutes if systolic BP remains above 90 mmHg.

NOTE: Fentanyl may be given concurrently with Nitroglycerin as soon as an IV is established. If an inferior wall MI is suspected, rule out Right Ventricular Infarction prior to administering Nitroglycerin.

5. Administer **Zofran 4 mg SL/SLOW IVP or IM** (Do not administer to pregnant females) **Medication 33.**

Top

B. Right Ventricular Infarction (RV Infarct)

Patients presenting with an Inferior Wall Myocardial Infarction or STEMI (elevation in leads II, III, aVF) shall have a right-sided 12-Lead ECG performed (V4R) to rule out right ventricular involvement. Patients with RV infarction are very **preload sensitive** (due to poor RV contractility) and can develop **severe hypotension in response to nitrates** or other preload-reducing agents.

1. Place the electrode in the 5th **right intercostal space** in the midclavicular line.
2. Move and attach the V4 precordial lead (cable) from V4L to V4R.
3. Perform a second 12-Lead ECG and only evaluate lead V4.
4. Label the second 12-Lead ECG as "V4R."
5. Right ventricular infarction is confirmed by the presence of ST elevation in the right-sided lead (V4R).

ALS

6. Maintain oxygen saturation ≥ 94% so as to avoid potential oxygen toxicity.
7. Establish vascular access.
8. Administer **fluid bolus up to 1000 mL of NS.** Monitor patient's B/P and lung sounds often.
9. If systolic B/P ≥ 110 mmHg administer **Nitroglycerin 0.4 mg** SL every 5 minutes (Max total 3 doses), reassessing vitals prior to administration.
10. If systolic B/P drops below 110 mmHg withhold NTG and re-bolus patient until B/P increases, then continue with the administration of NTG.

C. STEMI Alert

All patients with a 12-Lead ECG displaying ST-segment elevation in **2 or more contiguous leads** shall be declared a "STEMI Alert." ST-segment elevation is defined as:

1. At least **1 mm** (1 small box) of elevation in the limb leads.
2. At least **2 mm** (2 small boxes) of elevation in the precordial (V) leads.
3. **The EKG must be free of artifact and have obvious and conclusive ST-segment elevation to declare a "STEMI Alert."**

A **"STEMI Alert"** will be declared and transmitted to the Fire Alarm Office immediately upon determining that a patient meets STEMI Alert Criteria. The FAO will notify the appropriate personnel and receiving hospital via telephone. This will not replace the need for the unit OIC to contact the receiving facility as soon as possible to relay pertinent patient information. A STEMI patient will be transported to the closest appropriate STEMI facility using the most appropriate method of transport.

Top

D. Cardiac High Risk (Non-STEMI)

Cardiac High Risk (Non-STEMI) Patient. A cardiac patient who meets any of the criteria below will be transported to the closest appropriate STEMI facility using ground transport. A STEMI Alert will NOT be declared for these patients.

A. A patient with 12-Lead ECG with ST-depression in two or more contiguous leads accompanied by clinical signs and symptoms.

OR

B. A patient who presents with clinical signs/symptoms accompanied by TWO of the following STEMI Risk Factors:

1. Hypertension
2. Diabetes
3. Elevated cholesterol
4. Smoker
5. Obese

C. A patient who presents with clinical signs/symptoms and a normal EKG accompanied by ONE of the following STEMI Risk Factors:

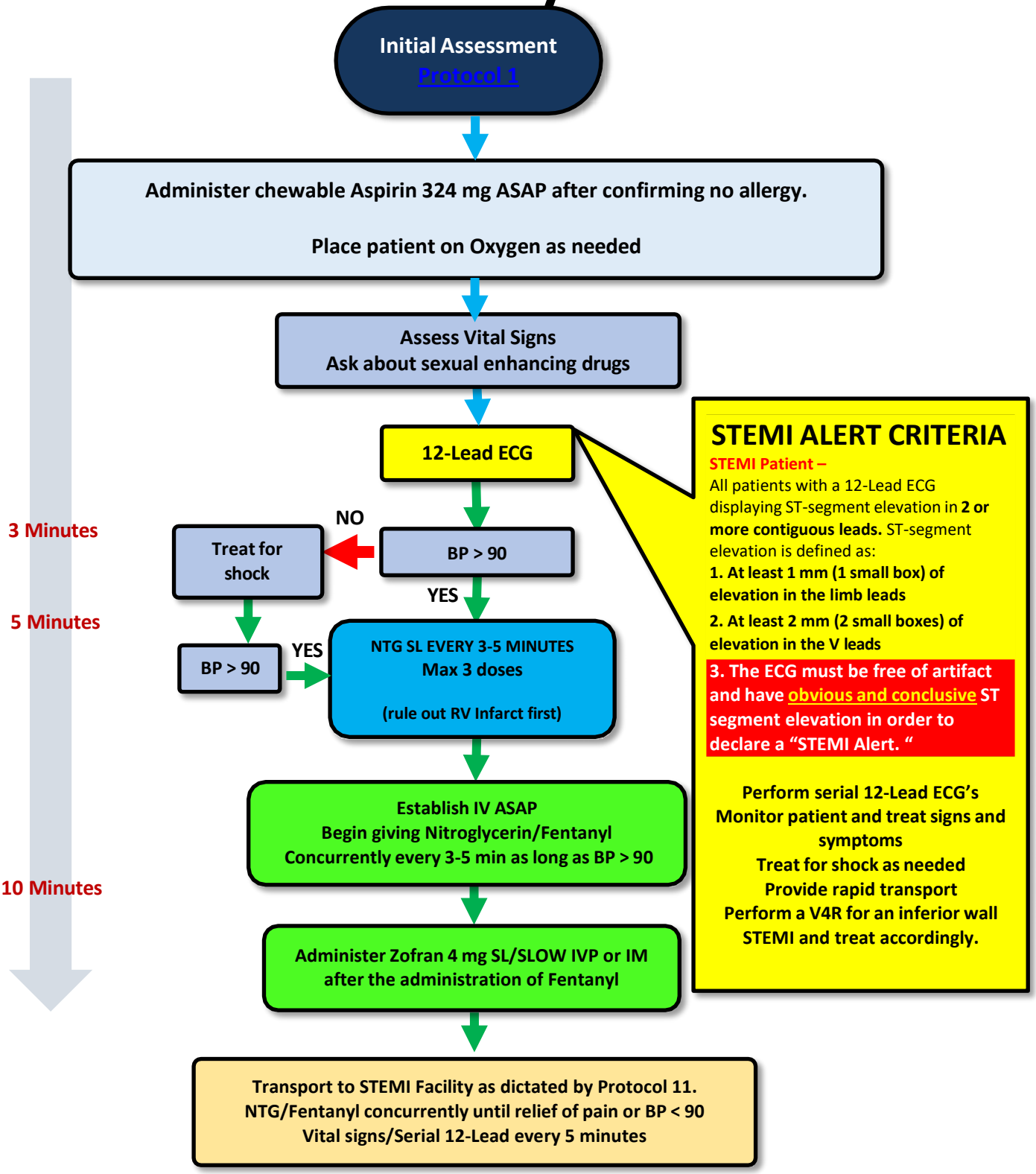
1. History of previous STEMI
2. History of bypass surgery/procedure
3. History of previous cardiac catheterization
4. History of stroke or TIA

NOTES:

DO NOT administer Nitroglycerin if a patient is known or suspected to have taken **Viagra** (sildenafil), **Revatio** (sildenafil) or **Levitra** (vardenafil) within the last 24-hours OR **Cialis** (tadalafil), **Adcirca** (tadalafil) within the last 72 hours. There may be additional sexually enhancing drugs that apply. Revatio is prescribed for pulmonary hypertension.

Top

CHEST PAIN / STEMI



Top

This protocol is intended for the patient experiencing an isolated hypertensive emergency. If a patient is experiencing difficulty breathing and/or has a history of asthma, emphysema, chronic bronchitis, congestive heart failure/pulmonary edema, symptomatic bradycardia, heart blocks > 1st degree, cardiogenic shock or has taken cocaine or amphetamines, DO NOT administer Labetalol HCl.

Adult Care

BLS

1. Initial Assessment/Care **Protocol 1**.

2. Keep the patient in a Semi-Fowler's (reclined) position.

3. If signs or symptoms of Stroke (CVA)/Brain Attack are present, refer to Brain Attack **Protocol 13**.

ALS

4. Establish IV access **Procedure 13**.

5. If the blood pressure is **≥ 200 systolic and/or ≥ 110 diastolic** AND the patient is exhibiting signs/symptoms of an acute hypertensive emergency such as a headache, nosebleed, dizziness, blurred vision:

   a) Administer **Labetalol Hydrochloride 10 mg slow IV over two minutes Medication 19.**

   b) If the BP remains **> 200/110** as defined above after five minutes of administration (regardless of presence or absence of symptoms), administer **Labetalol Hydrochloride 10 mg slow IV over two minutes.**

6. If the blood pressure is **≥ 200 systolic and/or ≥ 110 diastolic** without signs/symptoms of an acute hypertensive emergency, the patient will be transported ALS without Labetalol administration.

MCP

7. Additional dose of Labetalol Hydrochloride if necessary.

8. Pediatric Care.

Many of our stroke patients can be successfully treated if this treatment is provided within a 24-hour window. The most critical element in subsequent treatment is the accurate documentation of the onset of symptoms. Once established, begin appropriate field treatment and rapid transport to an appropriate Stroke Center per the Hospital Capability Chart **Appendix 2.1**

Adult Care

EMR/BLS

1. Initial Assessment/Care **Protocol 1**.

2. As a preliminary assessment, use the mnemonic BE-FAST as a screening tool to evaluate the patient for signs and symptoms of a stroke.

    a. (B) Balance – Sudden loss of balance

    b. (E) Eyes- Sudden loss of vision or double vision

    c. (F) Face – Face or smile droops on one side

    d. (A) Arm- Sudden weakness in arm or leg

    e. (S) Speech – Unable to repeat a simple sentence, or slurred words

    f. (T) Time- Onset of symptoms

3. Establish as accurately as possible when symptoms first occurred. Use family members and establish time markers as to when patient was last seen without symptoms.

4. Request that the person who last saw patient without symptoms accompanies the patient and/or provide a contact number.

5. Patients with positive findings in the BE-FAST exam and/or meeting any of the below criteria requires completion of the **FAST-ED Stroke Assessment** which will be documented on the patient care report. **These patients will be transported ALS to the closest Primary Stroke Center (PSC) or Comprehensive Stroke Center (CSC) even if the symptoms resolved prior to Fire Rescue arrival and/or the FAST-ED Stroke assessment score is 0.**

    a. Facial droop.
    b. Slurred or abnormal speech.
    c. Sudden onset of weakness, acute vision changes, or loss of use of an extremity.
    d. Unilateral numbness or tingling of an extremity or face.
    e. Headache associated with:
        1. Complaint of the “worst headache ever”
        2. Worsens with exertion
        3. History of cancer or immunosuppression/immunocompromise

4. Seizures

6. If no respiratory distress is present and SaO2 is less than 94%, provide supplemental O2 at 2-4 LPM via nasal cannula.

7. Perform a blood glucose test. Avoid glucose containing substances unless hypoglycemia (glucose less than **60** mg/dL) is confirmed by a glucometer reading.

A **"Stroke Alert"** along with the **"FAST-ED Score"** and **destination** will be transmitted to the Fire Alarm Office (FAO) immediately upon determining that a patient meets Stroke Alert Criteria. The FAO will notify the appropriate receiving hospital via telephone. This will not replace the need for the unit OIC to contact the receiving facility as soon as possible to relay pertinent patient information.

ALS

8. Initiate transport to closest Primary Stroke Center (PSC) or Comprehensive Stroke Center (CSC) as determined by the **FAST-ED Stroke Assessment.**

9. Perform a 12-Lead ECG en-route to ED with continuous monitoring of the ECG for any changes in the rhythm until transfer of care is completed.

10. DO NOT delay transport to secure IV access.

11. If present, treat nausea and/or vomiting with **Zofran 4 mg** SL (Do not administer to pregnant females) **Medication 33.**

MCP

12. DO NOT attempt to lower blood pressure. If BP is > 230/115 contact Medical Control for direction.

Committed to Excellence

FOAMD EMS STROKE ALERT

Field Assessment Stroke Triage for Emergency Destination (FAST-ED)

(Circle value that apply)

	FAST-ED SCORE
Facial Palsy (Facial droop): Have patient smile or show teeth (look for asymmetry)	
Normal: Both sides of face move equally or not at all	**0**
Abnormal: One side of face droops (or is clearly asymmetric)	**1**
Arm Weakness (Arm drift): Have patient close eyes and extend arms palms up	
Normal: Both arms remain up > 10 seconds or slowly drifts down equally	**0**
Mild: One arm drifts down in < 10 seconds with some effort against gravity	**1**
Moderate/Severe: One arm falls rapidly against gravity or no movement at all	**2**
Speech Changes (Expressive aphasia): Have patient repeat the following words "Mama" "Huckleberry" and "Baseball Player"	
Normal: Speech content normal AND repeats 2-3 items correctly	**0**
Abnormal: Speech content clearly abnormal OR repeats 0-1 items correctly	**1**
Speech Changes (Receptive aphasia): Ask patient "show me two fingers" (no visual clues)	
Normal: Patient shows two fingers	**0**
Abnormal: Patient does not understand or does not show two fingers	**1**
Eye Deviation (Gaze deviation): Ask the patient to follow your finger as you move it from right to left and back from left to right	
Normal: No deviation, eyes move to both sides equally	**0**
Gaze preference: Patient has clear difficulty when looking to one side (left or right)	**1**
Forced deviation: Eyes are deviated to one side and do not move	**2**
Denial/Neglect (Anosognosia): Ask patient "Are you weak anywhere"	
Normal: Patient recognizes weak side or has no weakness	**0**
Abnormal: Patient does not recognize their weak side	**1**
Denial/Neglect (Asomatognosia): Show the patient his/her weak arm and ask "Whose arm is this?"	
Normal: Patient recognizes his/her weak arm or no weakness at all	**0**
Abnormal: Patient does not recognize his/her weak arm	**1**

TOTAL SCORE _____

0 = NOT A STROKE ALERT (STOP) **1-9 = POSSIBLE "STROKE ALERT" (Continue to Section 2)**

Committed to Excellence

FOAMD EMS STROKE ALERT

Section 2 (Exclusion Criteria)

Baseline GCS (Prior to event) _____

≤ 12: Patient ***IS NOT*** a stroke alert, Transport to closest Primary or Comprehensive stroke center
> 12 or unknown: **Continue**

Time since last seen normal _____

> 24 hours: Patient ***IS NOT*** a stroke alert, Transport to closest Comprehensive stroke center
≤ 24 hours or unknown: **Continue**

Blood Glucose Level _____

< 60 and symptoms improve with D50: Patient ***IS NOT*** a stroke alert
< 60 and symptoms do not improve with D50: **Continue to Section 3**
≥ 60: **Continue to Section 3**

Section 3 (Destination Determination)

(Check all that apply)

- ☐ Estimated arrival at Emergency Department is greater than 3.5 hours since time last seen normal
- ☐ Witnessed seizure at onset.
- ☐ Patient taking any blood thinner except aspirin. [Example: Coumadin (warfarin), Plavix (Clopidogrel bisulphate), Pradaxa (dabigatran), Brilinta (ticagrelor), Xarelto (rivaroxaban), Lovenox (enoxaparin), Fragmin (dalteparin)]
- ☐ Recent GI or urinary tract bleeding within the last 21 days.
- ☐ Recent surgery or invasive procedure within the last 14 days
- ☐ Head trauma, spinal surgery or previous stroke within the last 90 days.
- ☐ Woman of child bearing age who has a positive pregnancy test
- ☐ Known Intracranial pathology (Tumor, Aneurysm, ArterioVenous Malformation (AVM) or Intracranial Hemorrhage)
- ☐ Sudden onset of worst headache ever

Are any items checked in this section?

YES: "STROKE ALERT" TRANSPORT TO CLOSEST COMPREHENSIVE STROKE CENTER

NO: FAST-ED SCORE 1-3---"STROKE ALERT"-TRANSPORT TO CLOSEST PRIMARY OR COMPREHENSIVE STROKE CENTER
FAST-ED SCORE 4-9---"STROKE ALERT"-TRANSPORT TO CLOSEST COMPREHENSIVE STROKE CENTER

All Stroke Alert notifications will include the FAST-ED Score. The Comprehensive Stroke Center will activate the Cath Lab and Stroke Team upon notification of a **FAST-ED score ≥ 6 **

The following protocol is designed to focus on care for firefighters while in rehabilitation (rehab). Firefighters will be evaluated for heat stress, mental stress and other medical issues. The inability to recover from the physical exertion encountered during firefighting after 20 minutes of rest, could be an indicator of a serious medical condition. Firefighters who meet any criteria outlined in this protocol **shall** be transported ALS by an MDFR Rescue to the closest appropriate hospital.

General Care

EMR/BLS

1. Initial Assessment/Care Protocol 1.
2. Administer oxygen to maintain SPO2 ≥ 94%.

ALS

3. Firefighters meeting any of the below criteria after twenty (20) minutes of Emergency Operations Rehabilitation, requires a 12-Lead ECG **and** will be transported ALS with continuous monitoring of the ECG until transfer of care is completed.

   a. **Temperature** ≥ 100.6° F

   b. **Heart rate** ≥ 100 BPM

   c. **Blood Pressure** ≥ 160 mmHg Systolic and/or ≥ 100 mmHg Diastolic

   d. **Pulse CO-Oximetry** ≥ 10% SpCO

   e. **Pulse Oximetry** ≤ 91% SpO2

   f. **Mental Status** GCS less than 15

4. Monitor ECG tracings and perform a 12-Lead ECG.
5. Establish IV access Procedure 13.
6. Assess for and treat heat related emergencies according to Protocol 26.
7. Assess and treat signs/symptoms as necessary according to the most appropriate protocols.

A. General Care
B. Suspected Opiate or Opioid Overdose
C. Tricyclic/Tetraclyclic Antidepressant Overdose
D. Salicylate (Aspirin) Overdose
E. Beta Blocker Toxicity/Overdose
F. Calcium Channel Blocker Overdose
G. Cocaine/Sympathomimetic Overdose
H. Anticholinergic Toxicity
I. Cholinergics/Organophospates
J. Antipsychotics/Dystonic Reactions
K. CO Poisoning

A. General Care

EMR/BLS

1. Initial Assessment/Care **Protocol 1**.
2. Attempt to identify any medications or products taken. Save any drug vials, pills, or material.
3. Initiate Airway Management as necessary **Protocol 7**.
4. Manage active seizures **Protocol 16**.
5. Treat anaphylactic, allergic or dystonic reactions **Protocol 17**.
6. Obtain a blood glucose, treat per **Protocol 36**.
7. Contact the Poison Control Center, **1-800-222-1222** for assistance in managing specific overdoses. If a telephone is not available, have MEDCOM contact the Poison Control Center.
8. When contacting the Poison Control Center, the following information should be provided and documented on the Florida EMS Report:
    a. Patient's name/age.
    b. Patient's weight.
    c. Vital signs.
    d. Medication(s) name (trade, generic, chemical). Spell it out.
    e. Dose or strength.
    f. Amount of product taken.
    g. Active ingredients.
    h. Time taken.
    i. Does the medication belong to the patient?
    j. Any history of medication allergies.
    k. Date prescription filled, total quantity and remaining count in bottle.

NOTE: Spell out the medication(s) name so that it will not be confused with other similar sounding medication(s). Example: Zantac, Xanax.

Top

9. If the Poison Control Center recommends the patient be seen at an Emergency Department, inquire from the Poison Center as to the most appropriate method of transport (i.e. ALS, BLS, or private vehicle).

10. Follow all recommendations from the Poison Control Center as to possible antidotes, mode of transport (if any), and follow-up care.

11. If the overdose/poisoning is related to a known or suspected suicide attempt, law enforcement should be requested, and patient will be transported ALS to the closest appropriate hospital. Law enforcement should be requested to Baker Act the patient.

12. Document the Poison Control Center contact person's name in the Narrative section of the electronic Patient Care Report.

Any overdose exhibiting signs and symptoms managed by MDFR will be treated and transported ALS to the most appropriate facility to rule out further related etiologies.

B. Suspected Opiate or Opioid Overdose

This class of narcotic drug acts as a CNS depressant and induces stupor or insensibility. For suspected opiate or opioid type overdoses, signs and symptoms may include:

- Euphoria
- Decreased responsiveness
- hypoventilation
- Bradycardia
- Hypotension
- Pale or cyanotic skin (especially in the lips or fingernails)
- Constricted (pinpoint) pupils

Commonly encountered opiates/opioids:

- Codeine
- Fentanyl
- Heroin
- Hydrocodone
- Methadone
- Morphine
- Oxycodone

NOTE: Narcan (Naloxone) should be administered *ONLY* to patients showing signs of respiratory depression.

EMR/BLS

1. Initial Assessment/Care **Protocol 1**, **A. General Care** – Drug Overdose/Poisoning.

2. Administer supplemental oxygen **Procedure 01** as needed.

   a) Consider PPV if severe respiratory depression is noted.

Top

3. Administer intranasal **Naloxone (Narcan) pre-packaged nasal spray 4 mg (4 mg/0.1 mL single dose)**. May repeat every 2 to 3 minutes in alternating nostrils to improve respiratory drive to a self-sustainable level.
4. Administer intranasal **Naloxone (Narcan) 1 mg** via the Mucosal Atomizing Device (MAD) in the event the pre-packaged nasal spray is not available.
    a) Assemble and prepare equipment **Procedure 39**.
    b) Administer max **1 mL** in each nostril per single dose. May repeat every 2 to 3 minutes in alternating nostrils to improve respiratory drive to a self-sustainable level.
5. Remove opiate/opioid medication patches if found and clean the area with an alcohol swab thoroughly.

ALS

6. Administer **Naloxone (Narcan) 0.5 mg** slow IVP/IM. Narcan may be repeated as needed until the patient's respiratory drive returns to a sustainable level, see **Medication 26**.
    a) Naloxone (Narcan) will be discontinued once the patient's respiratory drive returns to a self-sustainable level.

C. Tricyclic/Tetracyclic Antidepressant Overdose

Tricyclic Antidepressants (TCAs) are prescribed for depression, insomnia, eating disorders, sleeping disorders, and personality disorders. Signs and symptoms include tachycardia, tachypnea, hypotension, and hyperthermia. Overdose can cause sodium channel blockade and potassium channel blockade causing an ECG with wide QRS complexes (≥ 0.10 sec), hypotension, or arrhythmias.

Commonly encountered TCAs:

- Amitriptyline
- Clomipramine
- Doxepin
- Nortriptyline
- Trimipramine

EMR/BLS

1. Initial Assessment/Care **Protocol 1**, **A. General Care** – Drug Overdose/Poisoning.
2. Administer supplemental oxygen **Procedure 01** as needed.
    a) Consider PPV if severe respiratory depression is noted.

ALS

3. If patient is seizing, treat seizures per **Protocol 16**.

Top

4. Administer fluid bolus if patient presents with hypoperfusion. Administer **fluid bolus up to a max of 1000 mL** to maintain a blood pressure of 90 mmHg systolic.

5. If patient has widening of the QRS (≥ 0.10 seconds or ≥ 3 small boxes) administer **Sodium Bicarbonate 1 mEq/kg** slow IVP.

    a) May repeat **Sodium Bicarbonate 1 mEq/kg** once in 5-10 minutes.

    b) Closely monitor ECG during administration.

6. Treat underlying arrhythmias as per **Protocol 9**.

D. Salicylate (Aspirin) Overdose

Salicylates are common over the counter medications that may be used to treat fever and analgesia such as aspirin (ASA, acetylsalicylic acid) or bismuth subsalicylate (Pepto-Bismol, pink bismuth). Aggressive dosing of salicylates for analgesia or fever control may lead to accidental overdose. At levels ranging from 150-300 mg/kg signs and symptoms may include ringing in the ears, pulmonary edema, and acid-base disturbance. Severe overdose may present with high fever, seizures, and cardiac dysrhythmias.

EMR/BLS

1. Initial Assessment/Care **Protocol 1**, **A. General Care** – Drug Overdose/Poisoning.

2. Administer supplemental oxygen **Procedure 01** as needed.

    a) Consider PPV if severe respiratory depression is noted.

ALS

3. Administer fluid bolus if patient presents with hypoperfusion. Administer **fluid bolus up to a max of 1000 mL** to maintain a blood pressure of 90 mmHg systolic.

4. If patient remains profoundly unstable with bradycardia and hypotension, proceed to **Protocol 9**, Section K. Symptomatic Bradycardia.

E. Beta Blocker Toxicity/Overdose

Beta blockers are medications that are used to treat abnormal heart rhythms, certain tachycardias, and hypertension. Beta blockers work by slowing down the heart and relaxing blood vessels. Patients with beta blocker toxicity will typically present with systolic BP < 90 mmHg, bradycardia, 2nd or 3rd degree heart blocks, weakness, lethargy, and possible seizures. Patients who overdose on beta blockers may also present with hypoglycemia, especially in pediatrics.

Commonly encountered Beta-Blockers:

Top

- **Single Agent Medication**
  - Atenolol (Tenormin)
  - Esmolol (Brevibloc)
  - Labetolol (Trandate)
  - Metoprolol (Lopressor)
  - Nadolol (Corgard)
  - Propanolol (Inderal)
  - Timolol (Blocadren)
- **Combination Medication**
  - Corzide (Nadolol/Bendroflumethlazide)
  - Inderide (Propanolol/HCTZ)
  - Inderide LA (Propanolol/HCTZ)
  - Lopressor HCT (Metroprolol/HCTZ)
  - Tenoretic (Atenolol/Chlorthalidone)
  - Timolide (Timolol/HCTZ)
  - Ziac (Bisoprolol/HCTZ)

EMR/BLS

1. Initial Assessment/Care **Protocol 1**, **A. General Care** – Drug Overdose/Poisoning.
2. Administer supplemental oxygen **Procedure 01** as needed.
   a) Consider PPV if severe respiratory depression is noted.

ALS

3. Administer fluid bolus if patient presents with hypoperfusion. Administer **fluid bolus up to a max of 1000 mL** to maintain a blood pressure of 90 mmHg systolic.
4. **Atropine 0.5 mg** IV/IO bolus may be administered in mild overdoses presenting with bradycardia.
   a) May be repeated every 3 minutes as needed (Max total dose of 3 mg).
5. If patient presents with profound bradycardia administer **Glucagon 1 mg** IV/IO/IM/IN every 5 minutes until at least 3 mg (max total dose 10 mg) have been administered and patient has signs of improvement.
   a) Administer **Zofran 4 mg** PO **Medication 33**.
6. Consider Transcutaneous Pacing **Procedure 23** if Atropine and Glucagon ineffective.
7. May consider Dopamine or Epi Infusion if other treatments are ineffective.

F. Calcium Channel Blocker Overdose

Calcium channel blocker medications are used to lower blood pressure and controlling the heart rate in certain patients. Toxicity may present with systolic BP < 90 mmHg, bradycardia, 2nd or 3rd degree heart blocks, altered mental status, and metabolic acidosis.

Top

Commonly encountered Calcium Channel Blockers:

- Amlodipine (Norvasc)
- Diltiazem (Cardizem)
- Felodipine (Plendil, Renedil)
- Isradipine (DynaCirc)
- Nicardipine (Cardene)
- Nifedipine (Procardia, Adalat)
- Verapamil (Calan)

EMR/BLS

1. Initial Assessment/Care **Protocol 1**, **A. General Care** – Drug Overdose/Poisoning.
2. Administer supplemental oxygen **Procedure 01** as needed.
   a) Consider PPV if severe respiratory depression is noted.

ALS

3. Administer fluid bolus if patient presents with hypoperfusion. Administer **fluid bolus up to a max of 1000 mL** to maintain a blood pressure of 90 mmHg systolic.
4. Administer **Calcium Chloride 500-1000 mg** IV/IO bolus.
   a) Contraindicated if patient is taking Digoxin (Lanoxin).
5. Consider Transcutaneous Pacing **Procedure 23**.
6. If patient remains profoundly unstable with bradycardia and hypotension, consider administering **Dopamine at 5-10 mcg/kg/min**.

G. Cocaine/Sympathomimetic Overdose

Cocaine is a local anesthetic and a nervous system stimulant. It enhances the release and activity of neurotransmitters in the body, including norepinephrine, dopamine, and serotonin. Toxicity can include tachycardia, hypertension, hyperthermia, chest pain, shortness of breath, diaphoresis, and psychosis.

EMR/BLS

1. Initial Assessment/Care **Protocol 1**, **A. General Care** – Drug Overdose/Poisoning.
2. Administer supplemental oxygen **Procedure 01** as needed.
   a) Consider PPV if severe respiratory depression is noted.
3. If hyperthermic consider cooling down patient by placing cold packs in the groin, neck, and axillary areas.

Top

ALS

4. Treat chest pain per **Protocol 11**.

5. If patient presents with the above listed symptoms, administer **Midazolam (Versed) 2.5 mg** IVP/IM or 5 mg via MAD.

   a) May repeat once if symptoms do not subside.

6. Treat seizure activity if they present according to **Protocol 16**.

7. Administer fluid bolus if patient presents with hypoperfusion. Administer **fluid bolus up to a max of 1000 mL** to maintain a blood pressure of 90 mmHg systolic.

H. Anticholinergic Toxicity

Complications of anticholinergic toxicity may consist of respiratory failure, cardiovascular collapse, rhabdomyolysis, seizures, agitation, hyperthermia, and coma. A phrase used to assist in the evaluation of a potential anticholinergic toxicity: "Hot as a hare, red as a beet (hyperthermia; hot, flushed, dry skin), blind as a bat (pupillary dilatation), mad as a hatter (hallucinations; delirium)."

Examples of commonly encountered anticholinergics:

- Amitriptyline (Elavil)
- Atropine
- Benztropine (Cogentin)
- Chlorpheniramine (Actifed, Allergy & Congestion Relief, Chlor-Trimeton, Codeprex, Efidac-24 Chlorpheniramine, etc.)
- Chlorpromazine (Thorazine)
- Clomipramine (Anafranil)
- Clozapine (Clozaril)
- Cyclobenzaprine (Amrix, Fexmid, Flexeril)
- Cyproheptadine (Periactin)
- Desipramine (Norpramin)
- Dexchlorpheniramine
- Dicyclomine (Bentyl)
- Diphenhydramine (Advil PM, Aleve PM, Bayer PM, Benadryl, Excedrin PM, Nytol, Simply Sleep, Sominex, Tylenol PM, Unisom, etc.)
- Doxepin (Adapin, Silenor, Sinequan)
- Fesoterodine (Toviaz)
- Hydroxyzine (Atarax, Vistaril)
- Hyoscyamine (Anaspaz, Levbid, Levsin, Levsinex, NuLev)
- Imipramine (Tofranil)
- Meclizine (Antivert, Bonine)
- Nortriptyline (Pamelor)
- Olanzapine (Zyprexa)
- Orphenadrine (Norflex)
- Oxybutynin (Ditropan, Oxytrol)
- Paroxetine (Brisdelle, Paxil)
- Perphenazine (Trilafon)
- Prochlorperazine (Compazine)
- Promethazine (Phenergan)
- Protriptyline (Vivactil)
- Pseudoephedrine HCl/Triprolidine HCl (Aprodine)
- Scopolamine (Transderm Scop)
- Thioridazine (Mellaril)
- Tolterodine (Detrol)
- Trifluoperazine (Stelazine)
- Trimipramine (Surmontil)

Top

EMR/BLS

1. Initial Assessment/Care **Protocol 1**, **A. General Care** – Drug Overdose/Poisoning.
2. Administer supplemental oxygen **Procedure 01** as needed.
   a) Consider PPV if severe respiratory depression is noted.

ALS

3. Follow ALS recommendations from the Poison Control Center. Repeat orders for confirmation, and document all direction along the name of physician/toxicologist on the ePCR.

I. Cholinergics/Organophosphates

Poisonings involving organophosphates cause an acetylcholinesterase inhibition. Thus, causing toxic effects at the synapses by drastically inhibiting the necessary functions of acetylcholinesterase to deactivate acetylcholine. Allowing for an overabundance of acetylcholine (ACh) in the post-synaptic membrane that results in the continuous stimulation of the CNS and PNS producing the clinical hallmarks of organophosphate poisoning symptoms summarized by the mnemonic SLUDGEM/DUMBELS.

Examples of commonly encountered organophosphate/pesticides:

- Acephate (Orthene®)
- Azinphos-methyl (Azinphos®, Guthion®)
- Chlorpyrifos (Govern®, Lorsban®, Nufos®, Warhawk®, Whirlwind®)
- Diazinon
- Dimethoate (Cygon®)
- Disulfoton (Di-syston®)
- Ethoprop (Mocap®)
- Fenamiphos (Nemacur®)
- Malathion (Fyfanon®)
- Methamidophos (Monitor®)
- Methidathion (Supracide®)
- Methyl Parathion (Penncap-M®)
- Naled (Dibrom®)
- Oxydemeton-methyl (MSR®)
- Phorate (Thimet®)
- Phosmet (Imidan®)
- Profenofos (Curacron®)

EMR/BLS

1. Initial Assessment/Care **Protocol 1**, **A. General Care** – Drug Overdose/Poisoning.
2. Administer supplemental oxygen **Procedure 01** as needed.
   a) Consider PPV if severe respiratory depression is noted.

Top

ALS

3. Refer to **Protocol 25** Hazardous Materials Toxicology for treatment modalities.

J. Antipsychotics/Dystonic Reactions

Dystonic or extrapyramidal reactions are the result of side effects related to a number of anti-psychotic and anti-emetic drugs. Signs and symptoms include painful upward gaze, bizarre tics of the eyelids, jaw clenching, facial grimacing, neck and back stiffness or spasms, and difficulty speaking. The patient is often fully awake and aware, which can help differentiate dystonic reactions from seizures. Suspect possible dystonic reaction in the patient exhibiting these signs who is taking any of the following medications:

- Compazine (Prochlorperazine)
- Haldol (Haloperidol)
- Navane (Thiothixene)
- Prolixin (Fluphenazine HCl)
- Reglan (Metoclopramide)
- Stelazine (Trifluoperazine)
- Tigan (Trimethobenzamide HCl)
- Trilafon (Perphenazine)

NOTE: Individuals taking any of these medications may also be prescribed Cogentin (Benztropine Mesylate) to combat untoward effects.

EMR/BLS

1. Initial Assessment/Care **Protocol 1**, **A. General Care** – Drug Overdose/Poisoning.
2. Administer supplemental oxygen **Procedure 01** as needed.
   a) Consider PPV if severe respiratory depression is noted.

ALS

3. Refer to **Protocol 17** Systemic Reactions.

K. CO Poisoning

EMR/BLS

1. Initial Assessment/Care **Protocol 1**, **A. General Care** – Drug Overdose/Poisoning.
2. Administer supplemental oxygen **Procedure 01** as needed.
   a) Consider PPV if severe respiratory depression is noted.

Top

ALS

3. Refer to **Protocol 25** Hazardous Materials Toxicology for treatment modalities.

Top

A. General Care
B. Suspected Opiate or Opioid Overdose
C. Tricyclic/Tetraclyclic Antidepressant Overdose
D. Salicylate (Aspirin) Overdose
E. Beta Blocker Toxicity/Overdose
F. Calcium Channel Blocker Overdose
G. Anticholinergic Toxicity
H. Cholinergics/Organophospates
I. Antipsychotics/Dystonic Reactions
J. CO Poisoning

A. General Care

EMR/BLS

1. Initial Assessment/Care **Protocol 01P.**
2. Attempt to identify any medications or products taken. Save any drug vials, pills, or material.
3. Manage the Airway **Protocol 7P**.
4. Manage active seizures **Protocol 16P**.
5. Treat anaphylactic reactions **Protocol 17P**.
6. If hypoglycemic, treat per **Protocol 36P**.
7. Contact the Poison Control Center, **1-800-222-1222** for assistance in managing specific overdoses. If a telephone is not available, have MEDCOM contact the Poison Control Center.
8. When contacting the Poison Control Center, the following information should be provided and documented on the Florida EMS Report:

    a) Patient's name/age.
    b) Patient's weight.
    c) Vital signs.
    d) Medication(s) name (Trade, generic, chemical). Spell it out.
    e) Dose or strength.
    f) Amount of product taken.
    g) Active ingredients.
    h) Time taken.
    i) Does the medication belong to the patient?
    j) Any history of medication allergies.
    k) Date prescription filled, total quantity and remaining count in bottle.

Top

NOTE: Spell out the medication(s) name so that it will not be confused with other similar sounding medication(s). Example: Zantac, Xanax.

8. If the Poison Control Center recommends the patient be seen at an Emergency Department, inquire from the Poison Center as to the most appropriate method of transport (i.e. ALS, BLS, or private vehicle).

9. Follow all recommendations from the Poison Control Center as to possible antidotes, mode of transport (if any), and follow-up care.

10. If the overdose/poisoning is related to a known or suspected suicide attempt, law enforcement should be requested and patient will be transported ALS to the closest appropriate hospital.

11. It is required to document the Poison Control Center contact person's name in the Narrative section of the ePCR.

Any overdose exhibiting signs and symptoms managed by MDFR will be treated and transported ALS to the most appropriate facility to rule out further related etiologies.

B. Suspected Opiate or Opioid Overdose

This class of narcotic drug act as a CNS depressant and induces stupor or insensibility. For suspected opiate or opioid type overdoses, signs and symptoms may include:

- Euphoria
- Decreased responsiveness
- Hypoventilation
- Bradycardia
- Hypotension
- Pale or cyanotic skin (especially in the lips or fingernails)
- Constricted (pinpoint) pupils

Commonly encountered opiates/opioids:

- Codeine
- Fentanyl
- Heroin
- Hydrocodone
- Methadone
- Morphine
- Oxycodone

NOTE: Narcan (Naloxone) should be administered only to patients showing signs of respiratory depression.

EMR/BLS

1. Initial Assessment/Care **Protocol 01P**, **A. General Care** – Pediatric Drug Overdose/Poisoning.

2. Administer supplemental oxygen **Procedure 01** as needed.
    a) Consider PPV if severe respiratory depression is noted.

Top

3. Administer intranasal **Naloxone (Narcan) pre-packaged nasal spray 4 mg (4 mg/0.1 mL single dose)**. May repeat every 2 to 3 minutes in alternating nostrils to improve respiratory drive to a self-sustainable level.
4. Administer intranasal **Naloxone (Narcan) 1 mg** via the Mucosal Atomizing Device (MAD) in the event the pre-packaged nasal spray is not available.
    a) Assemble and prepare equipment **Procedure 39**.
    b) Administer **Naloxone (Narcan) 0.5 mg** per nostril. Do not administer more than 0.5 mL per nostril. May repeat every 2 to 3 minutes in alternating nostrils to improve respiratory drive to a self-sustainable level.
5. Remove opiate/opioid medication patches if found and clean the area with an alcohol swab thoroughly.

ALS

6. Administer **Narcan (Naloxone) 0.1 mg/kg (max single dose 0.5 mg)** IV/IO. Repeat as needed until there is improvement in respiratory effort **Medication 26**.
    a) Naloxone (Narcan) will be discontinued once the patient's respiratory drive returns to a sustainable level.

C. Tricyclic/Tetracyclic Antidepressant Overdose

Tricyclic Antidepressants (TCAs) are prescribed for depression, insomnia, eating disorders, sleeping disorders, and personality disorders. Signs and symptoms include tachycardia, tachypnea, hypotension, and hyperthermia. Overdose can cause sodium channel blockade and potassium channel blockade causing an ECG with wide QRS complexes (≥ 0.10 sec), hypotension, or arrhythmias.

Commonly encountered TCAs:

- Amitriptyline
- Clomipramine
- Doxepin
- Nortriptyline
- Trimipramine

EMR/BLS

1. Initial Assessment/Care **Protocol 01P**, **A. General Care** – Pediatric Drug Overdose/Poisoning.
2. Administer supplemental oxygen **Procedure 01** as needed.
    a) Consider PPV if severe respiratory depression is noted.

Top

ALS

3. If patient is seizing, treat seizures per **Protocol 16P**.

4. Administer fluid bolus if patient presents with hypoperfusion. Administer **fluid bolus up to a max of 20 mL/kg** to maintain sustainable perfusion.

    a) For patients with a history of hydrocephalus, cardiac and renal insufficiencies, be cautious to avoid pulmonary edema, administer **fluid bolus up to a max of 10 mL/kg.**

5. If patient has widening of the QRS (≥ 0.10 seconds or ≥ 3 small boxes) administer **Sodium Bicarbonate 1 mEq/kg** slow IVP.

    a) May repeat **Sodium Bicarbonate 1 mEq/kg** once in 5-10 minutes.

    b) Closely monitor ECG during administration.

6. Treat underlying dysrhythmias as per **Protocol 9P**.

D. Salicylate (Aspirin) Overdose

Salicylates are common over the counter medications that may be used to treat fever and analgesia such as aspirin (ASA, acetylsalicylic acid) or bismuth subsalicylate (Pepto-Bismol, pink bismuth). Aggressive dosing of salicylates for analgesia or fever control may lead to accidental overdose. At levels ranging from 150-300 mg/kg signs and symptoms may include ringing in the ears, pulmonary edema, and acid-base disturbance. Severe overdose may present with high fever, seizures, and cardiac dysrhythmias.

EMR/BLS

1. Initial Assessment/Care **Protocol 01P**, **A. General Care** – Pediatric Drug Overdose/Poisoning.
2. Administer supplemental oxygen **Procedure 01** as needed.

    a) Consider PPV if severe respiratory depression is noted.

ALS

3. Administer fluid bolus if patient presents with hypoperfusion. Administer **fluid bolus up to a max of 20 mL/kg** to maintain sustainable perfusion.

    a) For patients with a history of hydrocephalus, cardiac and renal insufficiencies, be cautious to avoid pulmonary edema, administer **fluid bolus up to a max of 10 mL/kg.**

Top

4. If patient remains profoundly unstable with bradycardia and hypotension, proceed to **Protocol 9P**, Section I. Symptomatic Bradycardia.

E. Beta Blocker Toxicity/Overdose

Beta blockers are medications that are used to treat abnormal heart rhythms, certain tachycardias, and hypertension. Beta blockers work by slowing down the heart and relaxing blood vessels. Patients with beta blocker toxicity will typically present with systolic BP < 90 mmHg, bradycardia, 2nd or 3rd degree heart blocks, weakness, lethargy, and possible seizures. Patients who overdose on beta blockers may also present with hypoglycemia, especially in pediatrics.

Commonly encountered Beta-Blockers:

- **Single Agent Medication**
  - Atenolol (Ternormin)
  - Esmolol (Brevibloc)
  - Labetolol (Trandate)
  - Metoprolol (Lopressor)
  - Nadolol (Corgard)
  - Propanolol (Inderal)
  - Timolol (Blocadren)
- **Combination Medication**
  - Corzide (nadolol/bendroflumethlazide)
  - Inderide (Propanolol/HCTZ)
  - Inderide LA (Propanolol/HCTZ)
  - Lopressor HCT (Metoprolol/HCTZ)
  - Tenoretic (Atenolol/Chlorthalidone)
  - Timolide (Timolol/HCTZ)
  - Ziac (Bisoprolol/HCTZ)

EMR/BLS

1. Initial Assessment/Care **Protocol 01P**, **A. General Care** – Pediatric Drug Overdose/Poisoning.
2. Administer supplemental oxygen **Procedure 01** as needed.
   a) Consider PPV if severe respiratory depression is noted.

ALS

3. Administer fluid bolus if patient presents with hypoperfusion. Administer **fluid bolus up to a max of 20 mL/kg** to maintain sustainable perfusion.
   a) For patients with a history of hydrocephalus, cardiac and renal insufficiencies, be cautious to avoid pulmonary edema, administer **fluid bolus up to a max of 10 mL/kg.**
4. **Atropine 0.02 mg/kg (max single dose of 0.5 mg) IV/IO bolus** may be administered in mild overdoses presenting with bradycardia.
   a) May be repeated once in 3 minutes as needed (Max total dose of 1 mg).

Top

5. If patient presents with profound bradycardia administer **Glucagon 0.1 mg/kg slow IV/IO over 3-5 minutes (max total dose 10 mg)** and monitor patient for signs of improvement.

    a) Administer **Zofran 2 mg PO Medication 33**.

6. Consider Transcutaneous Pacing **Procedure 23** if Atropine and Glucagon ineffective.

7. May consider Epi Infusion **Medication 14** if other treatments are ineffective.

F. Calcium Channel Blocker Overdose

Calcium channel blocker medications are used to lower blood pressure and controlling the heart rate in certain patients. Toxicity may present with systolic BP < 90 mmHg, bradycardia, 2nd or 3rd degree heart blocks, altered mental status, and metabolic acidosis.

Commonly encountered Calcium Channel Blockers:

- Amlodipine (Norvasc)
- Diltiazem (Cardizem)
- Felodipine (Plendil, Renedil)
- Isradipine (DynaCirc)
- Nicardipine (Cardene)
- Nifedipine (Procardia, Adalat)
- Verapamil (Calan)

EMR/BLS

1. Initial Assessment/Care **Protocol 01P**, **A. General Care** – Pediatric Drug Overdose/Poisoning.
2. Administer supplemental oxygen **Procedure 01** as needed.

    a) Consider PPV if severe respiratory depression is noted.

ALS

3. Administer fluid bolus if patient presents with hypoperfusion. Administer **fluid bolus up to a max of 20 mL/kg** to maintain sustainable perfusion.

Top

    a) For patients with a history of hydrocephalus, cardiac and renal insufficiencies, be cautious to avoid pulmonary edema, administer **fluid bolus up to a max of 10 mL/kg.**

4. Administer **Calcium Chloride 20 mg/kg (0.2 mL/kg)** slow IV/IO bolus**.**

    a) Contraindicated if patient is taking Digoxin (Lanoxin).

5. If patient remains profoundly unstable with bradycardia and hypotension, proceed to **Protocol 9P**, Section I. Symptomatic Bradycardia.

G. Anticholinergic Toxicity

Complications of anticholinergic toxicity may consist of respiratory failure, cardiovascular collapse, rhabdomyolysis, seizures, agitation, hyperthermia, and coma. A phrase used to assist in the evaluation of a potential anticholinergic toxicity: "Hot as a hare, red as a beet (hyperthermia; hot, flushed, dry skin), blind as a bat (pupillary dilatation), mad as a hatter (hallucinations; delirium)."

- Amitriptyline (Elavil)
- Atropine
- Benztropine (Cogentin)
- Chlorpheniramine (Actifed, Allergy & Congestion Relief, Chlor-Trimeton, Codeprex, Efidac-24 Chlorpheniramine, etc.)
- Chlorpromazine (Thorazine)
- Clomipramine (Anafranil)
- Clozapine (Clozaril)
- Cyclobenzaprine (Amrix, Fexmid, Flexeril)
- Cyproheptadine (Periactin)
- Desipramine (Norpramin)
- Dexchlorpheniramine
- Dicyclomine (Bentyl)
- Diphenhydramine (Advil PM, Aleve PM, Bayer PM, Benadryl, Excedrin PM, Nytol, Simply Sleep, Sominex, Tylenol PM, Unisom, etc.)
- Doxepin (Adapin, Silenor, Sinequan)
- Fesoterodine (Toviaz)
- Hydroxyzine (Atarax, Vistaril)
- Hyoscyamine (Anaspaz, Levbid, Levsin, Levsinex, NuLev)
- Imipramine (Tofranil)
- Meclizine (Antivert, Bonine)
- Nortriptyline (Pamelor)
- Olanzapine (Zyprexa)
- Orphenadrine (Norflex)
- Oxybutynin (Ditropan, Oxytrol)
- Paroxetine (Brisdelle, Paxil)
- Perphenazine (Trilafon)
- Prochlorperazine (Compazine)
- Promethazine (Phenergan)
- Protriptyline (Vivactil)
- Pseudoephedrine HCl/Triprolidine HCl (Aprodine)
- Scopolamine (Transderm Scop)
- Thioridazine (Mellaril)
- Tolterodine (Detrol)
- Trifluoperazine (Stelazine)
- Trimipramine (Surmontil)

EMR/BLS

1. Initial Assessment/Care **Protocol 01P**, **A. General Care** – Pediatric Drug Overdose/Poisoning.

Top

2. Administer supplemental oxygen **Procedure 01** as needed.

    a) Consider PPV if severe respiratory depression is noted.

ALS

3. Follow ALS recommendations from the Poison Control Center. Repeat, confirm, document all medical direction, and the name of physician/toxicologist on the ePCR.

H. Cholinergics/Organophosphates

Poisonings involving organophosphates cause an acetylcholinesterase inhibition. Thus, causing toxic effects at the synapses by drastically inhibiting the necessary functions of acetylcholinesterase to deactivate acetylcholine. Allowing for an overabundance of acetylcholine (ACh) in the post-synaptic membrane that results in the continuous stimulation of the CNS and PNS producing the clinical hallmarks of organophosphate poisoning symptoms summarized by the mnemonic SLUDGEM/DUMBELS.

Examples of commonly encountered organophosphate pesticides:

- Acephate (Orthene®)
- Azinphos-methyl (Azinphos®, Guthion®)
- Chlorpyrifos (Govern®, Lorsban®, Nufos®, Warhawk®, Whirlwind®)
- Diazinon
- Dimethoate (Cygon®)
- Disulfoton (Di-syston®)
- Ethoprop (Mocap®)
- Fenamiphos (Nemacur®)
- Malathion (Fyfanon®)
- Methamidophos (Monitor®)
- Methidathion (Supracide®)
- Methyl Parathion (Penncap-M®)
- Naled (Dibrom®)
- Oxydemeton-methyl (MSR®)
- Phorate (Thimet®)
- Phosmet (Imidan®)
- Profenofos (Curacron®)

EMR/BLS

1. Initial Assessment/Care **Protocol 01P**, **A. General Care** – Pediatric Drug Overdose/Poisoning.
2. Administer supplemental oxygen **Procedure 01** as needed.
    a) Consider PPV if severe respiratory depression is noted.

ALS

3. Refer to **Protocol 25** Hazardous Materials Toxicology for treatment modalities.

Top

I. Antipsychotics/Dystonic Reactions

Dystonic or extrapyramidal reactions are the result of side effects related to a number of anti-psychotic and anti-emetic drugs. Signs and symptoms include painful upward gaze, bizarre tics of the eyelids, jaw clenching, facial grimacing, neck and back stiffness or spasms, and difficulty speaking. The patient is often fully awake and aware, which can help differentiate dystonic reactions from seizures. Suspect possible dystonic reaction in the patient exhibiting these signs who is taking any of the following medications:

- Compazine (Prochlorperazine)
- Haldol (Haloperidol)
- Navane (Thiothixene)
- Prolixin (Fluphenazine HCl)
- Reglan (Metoclopramide)
- Stelazine (Trifluoperazine)
- Tigan (Trimethobenzamide HCl)
- Trilafon (Perphenazine)

NOTE: The individuals taking any of these medications may also be prescribed **Cogentin** (Benztropine Mesylate) to combat untoward effects.

EMR/BLS

1. Initial Assessment/Care **Protocol 01P**, **A. General Care** – Pediatric Drug Overdose/Poisoning.
2. Administer supplemental oxygen **Procedure 01** as needed.
    a) Consider PPV if severe respiratory depression is noted.

ALS

3. Refer to **Protocol 17P** Systemic Reactions.

CO Poisoning

EMR/BLS

1. Initial Assessment/Care **Protocol 01P**, **A. General Care** – Pediatric Drug Overdose/Poisoning.
2. Administer supplemental oxygen **Procedure 01** as needed.
    a) Consider PPV if severe respiratory depression is noted.

Top

ALS

3. Refer to **Protocol 25P** Hazardous Materials Toxicology for treatment modalities.

Seizures can result from a primary central nervous system disorder or may be a manifestation of a serious underlying metabolic or systemic disorder. The distinction is important, since treatment must be directed at the underlying cause as well as control of the seizure.

A. Active Seizures

General Care

EMR/BLS

1. Initial Assessment/Care **Protocol 1.**
2. Protect the patient from injury. Place in the recovery position if no spinal injury is suspected.

ALS

3. Establish IV access **Procedure 13.**
4. Administer **Midazolam (Versed) 5mg** slow IVP or IM until seizures begin to diminish. This may be repeated once. DO NOT exceed 10 mg.
    a) You may consider intranasal **Midazolam (Versed) 0.2 mg/kg** via MAD (max single dose 10 mg (2 mL)). DO NOT administer more than 1 mL per nostril.
5. Obtain a blood glucose level. If the glucose is < 50 mg/dL, refer to **Protocol 36.**
6. If present, treat nausea and/or vomiting, administer **Zofran 4 mg** SL (Do not administer to pregnant females) **Medication 33.**

B. Transport Criteria

1. Patients meeting the following criteria will be transported ALS by Miami-Dade Fire Rescue:
    a) First time seizures.
    b) Failure to regain consciousness between seizures or a long period of unconsciousness following a seizure.
    c) Patients suffering multiple seizures in twenty-four hours.
2. All other seizure patients assessed as being stable by Fire-Rescue personnel may be released to BLS transportation.

Seizures can result from a primary central nervous system disorder or may be a manifestation of a serious underlying metabolic or systemic disorder. The distinction is important, since treatment must be directed at the underlying cause as well as control of the seizure.

A. Active Seizures

BLS

1. Initial Assessment/Care **Protocol 01P**

2. Protect the patient from injury. Place in the recovery position if no C-spine injury is suspected.

3. Open and maintain a patent airway (Protocol 7). Ventilate the respiratory depressed or apneic patient with Bag Valve Mask as needed.

ALS

4. Establish IV access **Procedure 13**

5. Administer **Versed (Midazolam) 0.1mg/kg IV/IO (max single dose 5 mg)**. This may be repeated *once* in 5 minutes if the seizure continues (total dose 10mg).

   Note: The IM/IN (Intranasal) dose for Versed is doubled to **0.2 mg/kg** with the same max doses.

6. Obtain a blood glucose level. If the glucose is ≤ 50 mg/d, refer to **Protocol 36P**

MCP

7. Additional administration of benzodiazepines.

B. Transport Criteria

1. Patients meeting the following criteria shall be transported ALS by Miami-Dade Fire Rescue:

   a) First time seizures. (This includes febrile seizures)

   b) Failure to regain consciousness between seizures or a long period of unconsciousness following a seizure.

   c) Patients suffering multiple seizures in twenty-four hours.

2. All other seizure patients assessed as being stable by Fire-Rescue personnel may be released to BLS transportation.

A. Anaphylaxis (Severe Reactions)

Anaphylaxis is a condition resulting from a severe allergic reaction. The patient will present in shock or acute respiratory distress as a result of angioedema of the upper airways and bronchospasm.

General Care

EMR/BLS

1. Initial Assessment/Care **Protocol 1**.
2. Administer supplemental oxygen as needed.
3. Administer one injection from the Epi Pen in the lateral thigh or upper arm. The Epi Pen **Procedure 18** is to be used by EMR/BLS units only. ALS units will go to step # 4.

ALS

4. Administer **Epinephrine 1:1,000 (1 mg/mL) 0.3 mg** IM**.** This may be repeated once if there is no improvement after 5 minutes. **Medication 14.**
    1. If the patient is profoundly hypotensive (BP less than 80 mmHg Systolic or with no radial pulse), then administer **Epinephrine 1:10,000 (1 mg/10 mL) 0.1 mg (1 mL)** slow IVP. This may be repeated once in five minutes if there is no improvement.
5. Administer **Diphenhydramine (Benadryl) 25 mg** slow IVP or IM. This may be repeated once if symptoms do not subside **Medication 12.**
6. If bronchospasm is not relieved by the administration of Epinephrine, administer **Albuterol 2.5 mg via a nebulizer** **Medication 2.**

B. Mild Allergic Reactions

Mild reactions include local/systemic itching and urticaria (hives). Treatment is aimed at making the patient comfortable and continually assessing for the development of respiratory distress and/or anaphylaxis.

General Care

BLS

1. Initial Assessment/Care **Protocol 1**.
2. Administer supplemental oxygen as needed.

ALS

3. Administer **Diphenhydramine (Benadryl) 25 mg** slow IVP or IM. This may be repeated once if symptoms do not subside **Medication 12**.

4. If respiratory distress and/or bronchospasm develop, treat the patient per **Section A**, Anaphylaxis (Severe Reaction).

C. Dystonic Reactions

Dystonic or extrapyramidal reactions are the result of side effects related to a number of anti-psychotic and anti-emetic drugs. Signs and symptoms include painful upward gaze, bizarre tics of the eyelids, jaw clenching, facial grimacing, neck and back stiffness or spasms, and difficulty speaking. The patient is often fully awake and aware, which can help differentiate dystonic reactions from seizures. Suspect possible dystonic reaction in the patient exhibiting these signs who is taking any of the following medications:

- Compazine (Prochlorperazine)
- Haldol (Haloperidol)
- Navane (Thiothixene)
- Prolixin (Fluphenazine HCl)
- Reglan (Metoclopramide)
- Stelazine (Trifluoperazine)
- Tigan (Trimethobenzamide HCl)
- Trilafon (Perphenazine)

NOTE: The individuals taking any of these medications may also be prescribed **Cogentin** (Benztropine Mesylate) to combat untoward effects.

General Care

BLS

1. Initial Assessment/Care **Protocol 1.**

2. Administer supplemental oxygen as needed.

ALS

3. Administer **Diphenhydramine (Benadryl) 25 mg** slow IVP or IM. This dose may be repeated once if symptoms do not subside **Medication 12**.

A. Anaphylaxis (Severe Reactions)

Anaphylaxis is a condition resulting from a severe allergic reaction. The patient will present in shock or acute respiratory distress as a result of angioedema of the upper airways and bronchospasm.

EMR/BLS

1. Initial Assessment/Care **Protocol 1P.**

2. Administer supplemental oxygen as needed.

3. Patients 15 to 30 kg (33 lbs to 66 lbs) administer one injection from the Epi-Pen Jr® in the lateral thigh or upper arm.

4. Patients > 30 kg (> 66 lbs) administer one injection from the EpiPen® in the lateral thigh or upper arm. The EpiPen Jr.® **Procedure 18** is to be used by EMR/BLS units only. ALS units will go to step # 5.

   Note: The EpiPen Jr®. is not indicated for patients < 15 kg (33 lbs).

ALS

5. Administer **Epinephrine 1:1,000 (1 mg/mL) 0.01 mg/kg** IM (max dose of 0.3 mg). DO NOT administer more than 0.3 mg IM in a single dose.

   1. If the patient is profoundly hypotensive (Delayed capillary refill or with no radial pulse) then administer **Epinephrine 1:10,000 (1 mg/10 mL) 0.05 mg (0.5 mL)** slow IVP. This may be repeated in 5 minutes if there is no improvement.

6. Administer **Diphenhydramine (Benadryl) 1 mg/kg** slow IVP or IM (max dose of 25 mg). This may be repeated once if symptoms do not subside **Medication 12**.

7. If bronchospasm is not relieved by the administration of Epinephrine, administer **Albuterol via nebulizer Medication 2;**

   1. ≤ 10 kg, administer **1.25 mg** (1.5 ml) diluted with 2 mL Normal Saline.

   2. > 10 kg, administer **2.5 mg** (3 mL).

B. Mild Allergic Reactions

Mild reactions include local/systemic itching and urticaria (hives). Treatment is aimed at making the patient comfortable and continually assessing for the development of respiratory distress and/or anaphylaxis.

BLS

1. Initial Assessment/Care **Protocol 1P**.
2. Administer supplemental oxygen as needed.

ALS

3. Administer **Diphenhydramine (Benadryl) 1 mg/kg** slow IVP or IM (max dose of 25 mg). This may be repeated once if symptoms do not subside **Medication 12.**
4. If respiratory distress and/or bronchospasm develop, treat the patient per **Section A**, Anaphylaxis (Severe Reactions).

C. Dystonic Reactions

Dystonic or extrapyramidal reactions are the result of side effects related to a number of anti-psychotic and anti-emetic drugs. Signs and symptoms include painful upward gaze, bizarre tics of the eyelids, jaw clenching, facial grimacing, neck and back stiffness or spasms, and difficulty speaking. Suspect possible dystonic reaction in the patient exhibiting these signs who is taking any of the following medications:

- Compazine (Prochlorperazine)
- Haldol (Haloperidol)
- Navane (Thiothixene)
- Prolixin (Fluphenazine HCl)
- Reglan (Metoclopramide)
- Stelazine (Trifluoperazine)
- Tigan (Trimethobenzamide HCl)
- Trilafon (Perphenazine)

NOTE: The individuals taking any of these medications may also be prescribed **Cogentin** (Benztropine Mesylate) to combat untoward effects.

BLS

1. Initial Assessment/Care **Protocol 1P**.
2. Administer supplemental oxygen as needed.

ALS

3. Administer **Diphenhydramine (Benadryl) 1 mg/kg** slow IVP or IM (max dose 25 mg). This may be repeated once if symptoms do not subside **Medication 12**.

A. Introduction

Pain is a symptom commonly encountered in the out-of-hospital setting. It represents not only a psychological stressor to the patient but is also a source of physiologic stress that might impact negatively on both the assessment and management of many chronic or acute illnesses or injuries. Pain management, therefore, may provide both physiologic and psychological support to our patients. It must be instituted with sound judgment, with consideration of the risks as well as the benefits of the treatment options.

B. Initial Approach

General Care

EMR/BLS

1. Most moderate pain can be managed with the following:
    a) Whenever it is safe and practical, allow the patient to maintain their own position of comfort.
    b) Cover wounds to limit air circulation.
    c) Treat burns **Protocol 21**
    d) Splint extremity injuries to limit movement.
    e) Apply cold pack(s) to areas of musculoskeletal injuries.
    f) Administer Oxygen **Procedure 1** to patients presenting with Sickle Cell crises.

C. Indications for Severe Pain Management

General Care

1. Isolated musculoskeletal injuries.
2. Painful crises in known Sickle Cell disease patients.
3. Burns.
4. Renal colic (kidney stones) in patients with history of the same.
5. Any other illness/injury if authorized by MCP.

D. Severe Pain Management

Adult Care

ALS

1. Administer **Fentanyl, 50 mcg** slow IV/IO or IM. May be repeated once (50 mcg slowly) until pain relief is attained, patient becomes sedated, or blood pressure falls below 90 mmHg. Maximum total dose of 100 mcg**.** Medication 16

2. If IV/IO/IM is not available, may administer **Fentanyl** Intranasal 50 mcg via MAD (max 1 mL/nostril). May repeat dose once 50 mcg (1 mL/nostril).

   NOTE: Use only one nostril at a time. Start with left nostril and may use the right nostril for second dose.

   a) **Zofran 4 mg SL/SLOW IVP or IM** (Do not administer to pregnant females) Medication 33

A. Introduction

Pain is a symptom commonly encountered in the out-of-hospital setting. It represents not only a psychological stressor to the patient, but is also a source of physiologic stress that might impact negatively on both the assessment and management of many chronic or acute illnesses or injuries. Pain management, therefore, may provide both physiologic and psychological support to our patients. It must be instituted with sound judgment, with consideration of the risks as well as the benefits of the treatment options.

B. Initial Approach

General Care

BLS

1. Most moderate pain can be managed with the following:

    a) Whenever it is safe and practical, allow the patient to maintain their own position of comfort.

    b) Cover wounds to limit air circulation.

    c) Treat burns **Protocol 21**

    d) Splint extremity injuries to limit movement.

    e) Apply cold pack(s) to areas of musculoskeletal injuries.

    f) Administer Oxygen **Procedure 1** to patients presenting with Sickle Cell crises.

C. Indications for Severe Pain Management

General Care

1. Isolated musculoskeletal injuries.
2. Painful crises in known Sickle Cell disease patients.
3. Burns.
4. Renal colic (kidney stones) in patients with history of the same if authorized by MCP.
5. Insect / marine animal bites and stings.
6. Any other illness/injury if authorized by MCP.

D. Severe Pain Management

NOTE: ALS pain management should NOT be given to patients meeting Trauma Alert Criteria involving blunt/penetrating injuries to head or torso.

The primary indicators of pain in nonverbal children include, but are not limited to: crying, facial grimacing, grunting (without signs of respiratory distress), poor movement of an injured part, general increase in muscle tone, and tachycardia. Determining whether the pain is severe should be based on the child's apparent distress. The child's caregivers may be helpful in this determination. (**Refer to Pain Assessment Scale below**).

ALS

1. In children > 1 year of age, administer **Fentanyl 1-2 mcg/kg SLOW IVP** (max single dose 25 mcg).

    a) This can be repeated ***once*** in 3-5 minutes (max total dose 50 mcg) if necessary to relieve pain.

    b) Fentanyl can be administered **1-2 mcg/kg Intranasal** (max of .5 cc / nostril) and repeated once in 15 minutes if unable to obtain IV access.

NOTE: Use only one nostril at a time. Start with left nostril and may use the right nostril for second dose.

    c) Administer Zofran 4 mg SL/SLOW IVP or IM (Do not administer to pregnant females) Medication 33

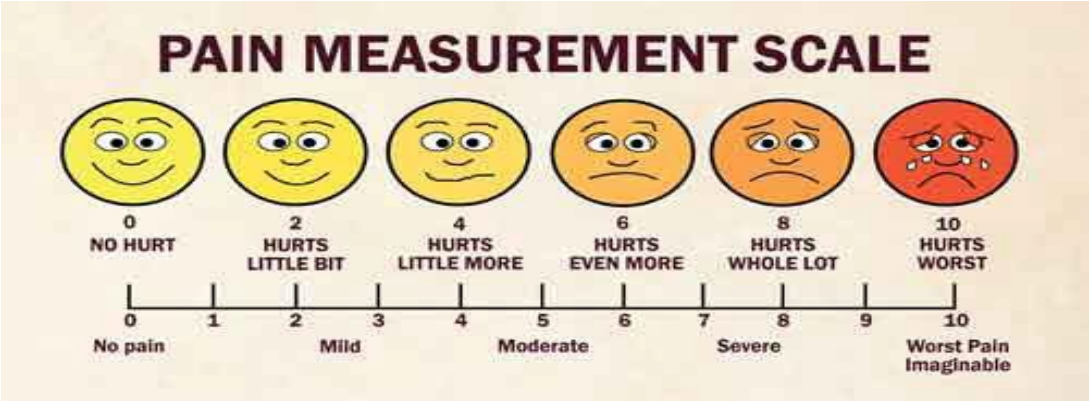
NOTE: Pain alone is not a sufficient indicator for the placement of an intraosseous (IO) line.

MCP

2. Severe pain management in children ≤1 year of age.

3. Additional dose(s) of Fentanyl.

Pain can be assessed in children using either the 1-10 rating scale or the Wong-Baker "Faces" pain scale.



A. General Care
B. Ante-Partum Hemorrhage
C. Pregnancy Induced Hypertension (PIH)
D. Pre-Eclampsia
E. Eclampsia
F. Normal Childbirth
G. Breech Delivery
H. Umbilical Cord Prolapse
I. Limb Presentation
J. Uterine Inversion
K. Newborn Examination
L. Suspected Meconium Aspiration

A. General Care

BLS

1. Initial Assessment/Care Protocol 1.
2. Obtain and document the following history;
   a) Number of previous pregnancies, including abortions and miscarriages (termed Gravida).
   b) Number of previous live births > 20 weeks gestation (termed **Para**).
   c) Expected date of delivery (termed **EDC** “estimated date of confinement”).
   d) When did contractions begin?
   e) What is the frequency of contractions?
   f) Evidence of bloody show, spotting, etc.
   g) Did the water break? If so, what was the nature of the discharge (color, unusual odor)?
   h) Any history of premature or multiple births?

B. Ante-Partum Hemorrhage

Three major causes of massive vaginal bleeding in the third trimester are abruptio placenta, placenta previa and uterine rupture.

BLS

1. Place the patient lying on her left side.

Top

ALS

2. Establish IV access.

3. Treat hypovolemic shock Protocol 35.

C. Pregnancy Induced Hypertension (PIH)

Pregnancy induced hypertension (PIH) should be suspected in any female in her second half of pregnancy presenting with a blood pressure **equal to or greater than 140/90 mmHg** and who otherwise has a normal blood pressure.

Additionally, any pregnant female whose blood pressure exceeds **30 mmHg systolic and/or 15 mmHg diastolic** above her normal B/P should also be treated for PIH and transported ALS via Fire-Rescue to the closest appropriate facility.

BLS

1. Place the patient on her left side.

ALS

2. Establish IV access.

D. Pre-Eclampsia

Generalized edema is the usual presenting sign and can be often noted in the patients face, hands, sacral area, lower extremities, and the abdominal wall. In addition to the edema, the patient may complain of associated frontal headaches, blurred vision or any visual disturbances, nausea, vomiting, irritability, difficulty breathing, and hypertension.

BLS

1. Place the patient on her left side.

2. Deliver oxygen.

ALS

3. Establish IV access (KVO). Monitor the infusion closely, as these patients are already in a state of fluid overload.

4. If **BP ≥ 200 Systolic OR ≥ 110 Diastolic** is present, administer **Magnesium Sulfate 2 grams** IV Infusion over 8-9 minutes Appendix 9-4.

5. During transport, lights should be dim and discretion should be used as to the operation of audible devices (sirens, air horns). Bright lights and loud noises have been known to cause seizures in the pre-eclamptic patient.

Top

E. Eclampsia

ALS

When a patient presents with active seizure:

1. Administer **Midazolam (Versed) 5 mg** IV/IM Medication 24.

   a) If no IV available, Intranasal via MAD 5 mg (max 1 mL per nostril).

2. Administer **Magnesium Sulfate 4 grams** IV infusion over 8-9 minutes Appendix 9-4. May be repeated if BP remains above 160 systolic, 5 minutes after complete administration of first dose.

F. Normal Childbirth

BLS

1. Start a new ePCR report for the newborn. It will be patient # 2 on the same alarm number. Additionally, if there are multiple births continue with distinct numbers for each patient.

2. Place the mother in a comfortable, supine position.

3. Prepare to receive the newborn.

4. Gently and carefully assist expulsion of the newborn from the birth canal in its natural descent. Do not pull or push newborn.

5. Upon complete presentation of the newborn's head:

   a) Inspect and palpate the newborn's neck for the umbilical cord. If present, carefully unwrap the cord from the neck. If unable to remove the cord, apply the umbilical clamps and cut the cord.

      1. If the cord cannot be easily unwrapped, place two clamps and cut in between to release the cord.

   b) Clear the airway by gentle suction of mouth, then nose with bulb syringe.

6. Upon complete delivery of the newborn:

   a) Apply two umbilical cord clamps (two inches apart and at least 8 inches from the navel) then cut the cord between the clamps.

   b) Dry and wrap the newborn in a blanket to preserve body heat. Be sure to cover the head of the infant as this is a major area of heat loss

   c) Evaluate and manage as outlined in Section J.

Top

6. If active hemorrhage is noted from the vagina, apply firm, continuous massage manually to the uterine fundus. DO NOT pull on the umbilical cord.

7. If the placenta delivers, preserve it in a plastic bag and transport it with the mother.

ALS

8. Establish IV access in all cases of imminent delivery or as soon as practical during emergency childbirth.

G. Breech Delivery

BLS

1. Allow the delivery to proceed normally, supporting the newborn with the palm of your hand and arm.

2. If the head is not delivered within three minutes, you must take action to prevent suffocation of the newborn. Place a gloved hand in the vagina, with your palm toward the newborn's face, and create air-space for the newborn until delivery of the head.

H. Umbilical Cord Prolapse

BLS

1. Place the mother in a knee-chest position.

2. Do not attempt to push the cord back. Wrap cord in warm saline dressing and transfer patient over to the stretcher limiting movement or having mother stand up.

3. Palpate the cord for a pulse. If no pulse is felt, push the newborn's head or presenting part back only far enough to regain a pulse in the umbilical cord.

4. Continuously monitor the pulses in the cord.

ALS

5. Establish IV access.

6. Transport immediately while maintaining pressure.

I. Limb Presentation

BLS

1. The presentation of an arm or leg through the vagina is an indication for immediate transport to the hospital. **Delivery should not be attempted.**

Top

J. Uterine Inversion

A condition when the uterus protrudes through the vagina with the placenta still attached and is associated with severe vaginal bleeding and shock.

BLS

1. Keep patient flat.
2. If the placenta is still attached, do not attempt to remove it.
3. Cover all protruding tissues lightly with moist, sterile towels.

ALS

4. Establish IV access.
5. Treat hypovolemic shock **Protocol 35.**

K. Newborn Examination

BLS

1. The newborn is a separate patient, will be patient # 2 on the same alarm.
2. Ensure a clear airway by gentle suctioning of the mouth, then nose using a bulb syringe.
3. Determine an APGAR Score **Appendix 8** at one and five minute intervals. DO NOT delay resuscitation to obtain an APGAR Score.
4. If the APGAR is < 7 refer to the Newborn Resuscitation **Protocol 20P.**

L. Suspected Meconium Aspiration

Characterized by a green or green/black watery particulate discharge upon rupture of the bag of waters. The newborn may also be covered with a thick, dark substance.

BLS

1. When the newborn's head has delivered, instruct the patient to stop pushing until aggressive upper airway suctioning of the mouth and then nose with a bulb syringe can be accomplished.

Do not stimulate breathing prior to suctioning

ALS

2. If meconium is thick or if the patient is apneic, intubate the trachea and suction the lower airways with either a Meconium aspirator device or through the endotracheal tube.

Top

Intentionally Left Blank

Newborn/Neonatal (<1 month) patients in cardiopulmonary arrest should be resuscitated because most likely it is resulted from prolonged hypoxia and/or severe circulatory collapse. Ensuring that there is adequate ventilation of the baby's lungs is the most important and effective action in neonatal resuscitation.

NOTE: *When providing care for a newborn, be mindful to continuously assess parent of the newborn, as these are two separate patients. A separate ePCR shall be established for each patient MDFR provides care for. Complete a separate ePCR for the newborn. Do not document the newborn's information on the mother's ePCR report.*

BLS

1. Initial Assessment/Care Protocol 1P
2. Position the newborn on their back with the head in a sniffing position. This may be accomplished by placing a 1-inch thick folded towel beneath the newborn's shoulders.
3. Ensure a patent airway by gentle suctioning of the mouth, then the nose using a bulb syringe and stimulate.
4. Dry and warm the newborn, simultaneously rubbing the back of the to stimulate newborn.
5. Apply two umbilical cord clamps (two inches apart and at least 8 inches from the navel) then cut the cord between the clamps, if not done already.
6. Determine an APGAR score Appendix 8 at one and five minutes.
7. Airway Management Protocol 9P
    a) Provide ventilations via BVM @ 40-60 breaths/min. with supplemental oxygen if HR <100, apneic or persistent cyanosis after high-flow oxygen administration.

ALS

8. If newborn is noted with signs of meconium and showing poor signs of circulation along with minimal activity despite suctioning with bulb syringe:
    a) Intubate and suction with meconium aspirator at a low pressure (no more than 100mmHg)
        1. Suctioning should be performed while the ETT is withdrawn, until ETT is clear or no more than 5 seconds.
        2. May be repeated once if newborn is still showing poor signs of perfusion.
    b) If infant is still breathing insufficiently after meconium suctioning, consider establishing an ETT.

A. If the APGAR is 0-3:

BLS

1. Airway Management Protocol 7P

    a) Provide artificial ventilations by using gentle puffs with a size-appropriate BVM and supplemental oxygen just sufficient to see adequate chest rise, at a rate of 40-60 breaths/minute constantly re-evaluating respiratory status.

2. If newborn's heart rate is <100 beats per minute and not rapidly improving despite adequate ventilations with 100% oxygenation for approximately 30 seconds, perform CPR at a rate of 120/minute with a compression-ventilation ratio of 3:1 for 2 min.

ALS

3. If there is no change after 2 minutes, consider placement of an advanced airway and provide asynchronous compressions-ventilations.

4. Establish vascular access Procedure 13 **or** Procedure 14 Keep in mind that the **priority is with the airway**, IV access is a secondary concern.

5. If attempts to ventilate fail to improve the patient's status and the HR remains <60, continuously provide CPR with minimal interruptions and consider the following treatment where applicable:

    a. **Epinephrine (1:10,000), 0.01 mg/kg IV/IO** (0.1 mL/kg) or 0.02 mg/kg ET

        1. Subsequent doses of Epinephrine should be administered every 3-5 minutes at 0.01 mg/kg (0.1 mL/kg) via IV/IO, if HR <60 with compressions.

        Dose should not exceed 0.1mg or 1mL volume

    b. Fluid bolus, **10mL/kg IV/IO**.

    c. **Narcan, 0.5 mg IV/IO/ET** for suspected narcotic overdose, may be repeated every 2 min. as needed.

    d. **Dextrose 10% (D10%),** 0.5g/kg (5mL/kg) IV/IO if glucose is ≤40 mg/dL.

    e. Consider **Sodium Bicarbonate 4.2%,** 1mEq/kg (2mL/kg) slow IV/IO only for prolonged resuscitation and if the infant is effectively ventilated before administration.

6. Manage the cardiac arrest Protocol 9P

B. If the APGAR is 4-6:

BLS

1. Airway Management Protocol 7P
    1. Aggressively support ventilations with a BVM @ 40-60 breaths/min. and supplemental oxygen effectively in order to provide adequate chest rise. Continually reassess the newborn's status every 2 min.
2. If the newborn's condition deteriorates or does not improve, refer to Section A above.

The following protocol is designed to focus on patient care not covered in the Initial Assessment/Care **Protocol 1** and specific injuries that require specialized care. Patients meeting Trauma Alert Criteria should be transported immediately, with scene times as minimal as possible. Aside from a prolonged extrication, on scene times should be no greater than **10 minutes**. If on scene times are greater than 10 minutes, the reason for delay must be documented on the ePCR narrative.

A Trauma Alert will be declared for patients with injuries that meet Trauma Alert Criteria that have occurred within the last **24-hours.**

A. Hemorrhage Control
B. Penetrating Wounds to the Torso
C. Suspected Head/Spinal Injury
D. Epistaxis (Nose Bleed)
E. Soft Tissue Injuries
F. Suspected Fractures
G. Trauma in Pregnancy
H. Burn Injuries
I. Eye Injuries
J. Reperfusion (Crush) Injury
K. Traumatic Asphyxia

General Care

EMR/BLS

1. Initial Assessment/Care **Protocol 1**.
2. The mode of transportation to a Trauma Center will be decided as soon as possible if the patient meets the Trauma Alert Criteria **Appendix 3**, **Appendix 4**. In these cases, emphasis in pre-hospital care will be on rapid packaging and initiating transport to a Trauma Center. Therefore, on-scene delays should be minimal and vascular access attempts shall not delay transport.
3. Control active hemorrhage with appropriate sterile pressure dressings. Note exact nature and location of blood/fluid loss (e.g., ear canals, nostrils, face or scalp wounds).
4. Administer oxygen and provide Airway Management **Protocol 7** as necessary.
5. Maintain body temperature by covering patient with blankets or a thermal mylar blanket, when available and consider turning off A/C unit in the patient compartment during transport.

ALS

6. Fluids should be administered as necessary to maintain peripheral pulses (maintaining a SBP of 80-90 mmHg).

    a) Except for patients with traumatic brain injury (TBI), in which IV fluids should be administered to maintain a minimum SBP of 100-110 mmHg, **Section C**.

Top

A. Hemorrhage Control

Blood from wounds that damage large vessels of the extremities are a common source of massive external hemorrhage. The cause of external hemorrhage can be varied depending on the setting in which the injury has taken place. Some of these causes include, but are not limited to, gunshots, stabbings, shrapnel, vehicle accidents and blasts. The identification of life-threatening hemorrhage versus non-life-threatening hemorrhage is of great importance. The difference between life threatening and non-life threatening exists in the amount of blood loss and patients' hemodynamic status.

Massive hemorrhage may be fatal within 60 – 120 seconds. Treatment should not be delayed and controlling major hemorrhage should be the first priority over securing the airway. Application of tourniquet may be your first option.

EMR/BLS

1. Perform a rapid trauma head-to-toe exam and identify external bleeding.
2. Treat hemorrhage using the following procedures:
   a) Assess and find the source of bleeding.
   b) Apply direct pressure on the wound.
3. To control life-threatening external hemorrhage from an arm or leg apply a tourniquet **Procedure 48** or an appropriate pressure dressing. Deep wound packing with hemostatic gauze and/or plain gauze **Procedure 9** may also be indicated.
4. To control life-threatening bleeding from junctional areas (neck, shoulder or groin), Pack the wound with hemostatic gauze and/or plain rolled gauze **Procedure 9**.
5. For any partial or complete amputation, a tourniquet should be applied regardless of bleeding. Amputations and open fractures will be dressed with a sterile dressing **Procedure 28.** Amputated part(s) should be managed appropriately and transported with patient.
6. If patient is hypotensive, place patient in the Trendelenburg position.
7. Maintain body temperature by covering patient with blankets or a thermal mylar blanket, when available and consider turning off A/C unit in the patient compartment during transport.

ALS

8. Attempt to establish at least two large-bore IVs.
   a) **Do not delay transport to obtain intravenous access on the Trauma Alert patient.**
   b) **If vascular access is not quickly obtainable via the IV route, establish IO access.**
9. If the blood pressure is less than 80 mmHg, **administer a fluid bolus of 500 mL Normal Saline**. This may be repeated once until a systolic BP of 80-90 mmHg is obtained.

Top

10. If the patient meets Trauma Alert Criteria with torso injuries and/or amputation(s) with severe bleeding not controlled by tourniquet that results in a systolic blood pressure less than 90 mmHg and/or sustained heart rate greater than 110 (hemorrhagic shock) consider the administration of **Tranexamic Acid (TXA) 2 grams slow IVP** as soon as possible, within the first 3 hours after injury.
11. The Trauma Center **must** be notified that **2 grams of TXA** has been administered.

B. Penetrating Wounds to the Torso

EMR/BLS

1. Do not remove penetrating objects, unless through the cheek causing airway obstruction or in the chest and interfering with CPR.
    a) Such objects may be cut down to six inches from the point of entry to minimize movement.
    b) Stabilize the object in place with bulky dressings.
2. Any penetrating injuries to the chest or upper back, will be covered immediately with occlusive chest seals **Procedure 6**.
3. Monitor the patient with penetrating torso trauma for the development of a possible tension pneumothorax. Non-invasive decompression can be performed by removing the occlusive dressing and physically "burping" the chest seal and re-apply.
4. Penetrating, open injuries of the abdominal cavity will be dressed rapidly and carefully with a sterile gauze dressing (e.g. Multi-Trauma dressing) **Procedure 6**.
    a) Use care not to injure any exposed intra-abdominal organs. Exposed bowel (evisceration) will be dressed with a large trauma dressing previously moistened with sterile saline. This, in turn, will be covered by dry, occlusive dressing, such as plastic packaging or foil. **Do not attempt to put organs back in.**

ALS

5. Attempt to establish at least two large-bore IVs.
    a) **Do not delay transport to obtain intravenous access on the Trauma Alert patient.**
    b) **If vascular access is not quickly obtainable via the IV route, establish IO access.**
6. If a tension pneumothorax is suspected, decompress the chest **Procedure 5**.
7. If the blood pressure is less than 80mmHg, **administer a fluid bolus of 500 mL Normal Saline**. This may be repeated once until a systolic BP of 80-90 mmHg is obtained.
8. If the patient has penetrating trauma to the torso and/or amputation(s) with severe bleeding not controlled by tourniquet that results in a systolic blood pressure less than 90 mmHg and/or sustained heart rate greater than 110 (hemorrhagic shock) consider the administration of **Tranexamic Acid (TXA) 2 grams slow IVP** as soon as possible, within the first 3 hours after injury.
9. The Trauma Center **must** be notified that **2 grams of TXA** has been administered.

Top

10. Provide cardiac monitoring for dysrhythmias due to chest trauma, such as a possibility of complications due to myocardial contusions, myocardial rupture, or cardiac tamponade. Treat dysrhythmias appropriately.

C. Suspected Head/Spinal Injury

EMR/BLS

1. If history, symptoms, or signs of head or neck injuries are present, manually immobilize the head and neck while assuring airway maintenance per Airway Management **Protocol 7**.

2. Spinal Motion Restriction is indicated for patients experiencing signs/symptoms of a possible spinal cord injury subsequent to trauma **Protocol 40**.

3. Manage Helmet Removal if indicated **Procedure 42.**

4. In the absence of hypotension, consider elevating the head of the backboard 30 degrees (12-18").

5. It is critical to prevent hypotension and hypoxia in management of Traumatic Brain Injury (TBI).

   a) If hypoxia, patients with head injury should be ventilated at a rate of no greater than 1 breath every 3 seconds (20 breaths/min.) which will **maintain an $ETCO_2$ of 35-40 mmHg** and should be maintained with oxygen saturation more than 90%. Avoid hyperventilation of the injury patient.

   b) If *Neurogenic Shock* is suspected because of trauma to the spine, elevate the foot end of the spine board slightly, placing the patient's arms across the chest without moving the spine. Monitor the patient's breathing, lowering the spine board if there is an onset of breathing problems. Provide assisted ventilations if respirations are weak or inadequate.

6. **Avoid excess administration of Dextrose solutions (D50%, D25%, D10%, D5W, etc.) unless hypoglycemia is identified.** Dextrose may increase cerebral edema.

7. Open wounds of the cranial vault will be dressed carefully with a sterile dressing **without** the use of Betadine or other antiseptic solutions.

8. Blood from the ear after a head injury may be a sign of a skull fracture.

   a) Assess blood or drainage from the ear with a 4x4 dressing, and let it sit for about a minute.

   b) If a characteristic staining of the dressing appears like a target or halo (blood stain in the middle), cerebrospinal fluid may be draining from the ear. Cover the bleeding site with a sterile gauze pad and apply light compression by loosely wrapping the dressing around the head.

ALS

8. Attempt to establish at least two large-bore IVs.

   a) **Do not delay transport to obtain intravenous access on the Trauma Alert patient.**

   b) **If vascular access is not quickly obtainable via the IV route, establish IO access.**

9. Monitor for signs and symptoms of increased intracranial pressure (e.g. irregular respirations, bradycardia, and hypertension) and/or Trismus (clenched teeth), manage the airway appropriately as per **Protocol 7**.

   a) Endotracheal intubation, if indicated, will be accomplished while maintaining in-line stabilization with no hyperextension of the head and neck. Sedation may be required prior to intubation if there is a gag reflex.

10. If hypotensive (systolic BP less than 90 mmHg).

    a) Administer a **fluid bolus 500 mL of Normal Saline**.

    b) This may be repeated to a goal of improving mental status, strong peripheral pulses, and maintain a systolic BP:

       i. Ages 15-49: 110 mmHg or greater

       ii. Ages 50 or more: 100 mmHg or greater

11. If *Neurogenic Shock* is suspected because of trauma to the spine and SBP remains less than 90 mmHg.

    a) Administer a **fluid challenge of Normal Saline 500 mL** and repeat once as needed.

    b) If BP is still less than 90 mmHg systolic following fluid challenges and no signs of severe hemorrhage, **administer Dopamine 10 mcg/kg/min** and titrate to 20 mcg/kg/min as needed. Notify the receiving Trauma Center of possible Neurogenic Shock and treatment.

MCP

12. Additional fluid boluses above 1 L (1000 mL).

Top

D. Epistaxis (Nosebleed)

General Care

EMR/BLS

1. Position the patient leaning forward and sitting.
2. Apply direct pressure by pinching the nostrils together.
3. Apply a cold pack over the bridge of the nose.
4. Continue pinching the nose until the bleeding stops.
5. An alternative method if a cold pack is not available or if not tolerated by the patient, is to apply pressure using a rolled gauze bandage between the upper lip and gum.
6. Assess and treat for shock.

E. Soft Tissue Injuries

General Care

EMR/BLS

1. Soft Tissue injuries can be irrigated with Normal Saline.
2. Be cautious with abrasions:
    a) A superficial wound caused by the skin rubbed or scraped over a rough surface; examples such as a road rash or mat burns – rubbing, brushing, or washing the wound will cause additional bleeding and pain.
    b) After irrigation of skin avulsions, gently fold the skin flap back onto the wound to assist in reperfusion.
    c) DO NOT use hydrogen peroxide or iodine/betadine on any open soft tissue injuries/wounds.
    d) Cover the wound with dry sterile dressing and apply cold packs to the surrounding area to decrease pain and swelling.
3. Animal bites and human bites can cause soft tissue injuries and are treated as such with dry sterile dressings.
    a) If there is gross contamination, irrigate the wound with Normal Saline.
    b) If the arm or leg is injured, splint the extremity.
    c) Consider all such bites as contaminated and potentially infected wounds that may require antibiotics, tetanus prophylaxis, and possibly suturing.
4. Amputations and open fractures will be dressed with a sterile dressing **Procedure 28**.

Top

F. Suspected Fractures

General Care

EMR/BLS

1. Any fracture or suspected fracture will be immobilized to reduce the possibility of further injury.
2. Severe angulated fractures may be aligned once, if there is an absence of distal pulse or neurological function.
    a) Distal pulses, skin color, and temperature will be documented prior to and after splinting the angulated fracture.
3. Proximal and distal manual stabilization may be applied to the injured extremity, as necessary, when applying a splint.
    a) The splint should extend, if possible, one joint above and one joint below the fracture site.
4. The use of cold packs is recommended to help reduce swelling. Avoid direct application to exposed skin.
5. Primary care of open fractures involves removal of gross contamination.
    a) If protruding contaminated bone ends have been pulled back into the wound, it will be noted in the report.
    b) Dress open bone fractures with moist dressing using normal saline.
6. Because of the severe muscle spasm associated with femoral fractures, traction leg splints are to be used to adequately stabilize isolated closed fractures of the femur. **Do not use the traction splint if a pelvic fracture or knee/ankle injury is suspected.**
7. Assess and treat for shock.

ALS

8. Establish an IV. Attempt to establish at least two large-bore IVs on the critical patient.
    a) **Do not delay transport to obtain intravenous access on the Trauma Alert patient.**
    b) **If vascular access is not quickly obtainable via the IV route on the critical patient, establish IO access. Do not use the fractured bone as the proposed intraosseous site.**
9. If the injury is an isolated extremity injury, with no hypotension or respiratory distress, provide Pain Management **Protocol 18.**
10. If the blood pressure is less than 80 mmHg, **administer a fluid bolus of 500 mL Normal Saline**. This may be repeated once until a systolic BP of 80-90 mmHg is obtained.

Top

MCP

11. Additional fluid boluses above 1 L (1000 mL).

G. Trauma in Pregnancy

EMR/BLS

1. Adequate maternal oxygenation is essential to assure fetal well-being. Oxygen should be administered via high-flow face mask.
2. Avoid placing the mother in a supine position. After immobilizing the mother on a spine board, slightly elevate the right side of the board.

ALS

3. Establish an IV. Attempt to establish at least two large-bore IVs on the critical patient.
   a) **Do not delay transport to obtain intravenous access on the Trauma Alert patient.**
   b) **If vascular access is not quickly obtainable via the IV route on the critical patient, establish IO access.**
4. If the blood pressure is less than 90 mmHg, administer a **fluid bolus of 500 mL Normal Saline**. This may be repeated once until a systolic BP of more than 90 mmHg is obtained.
5. It is important to consider that post-mortem C-section has a high success rate for fetal survival if accomplished as early as possible. Therefore, rapid transport to the appropriate facility is essential.

H. Burn Injuries

General Care

EMR/BLS

1. Assess the burn:
   a) Determine the type of burn (thermal, chemical, etc.).
   b) Determine the area and depth: superficial (1st degree), partial thickness (2nd degree), or full thickness (3rd degree) burns.
   c) Determine the TBSA% injured with the Rule of Nines **Appendix 7**.
   d) Determine if the patient was in an enclosed space **Protocol 37.**
   e) Perform Airway Management **Protocol 7** as necessary and administer oxygen.

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NOTE: The following burns benefit from Burn Center Care and may require advanced specialized burn management, and should be transported to a Burn Center:

- Patients meeting Burns Trauma Alert Criteria
- 2nd degree (partial-thickness) burns more than 10% TBSA
- 3rd degree (full-thickness) burns in any age group
- Burns involving the face, eyes, hands, feet, genitalia, perineum, and/or major joints
- Respiratory burns, inhalation injury
- Electrical burns, including lightning injury
- Chemical burns
- Burns with associated major traumatic injury
- Circumferential burns to extremities that may cause vascular compromise and serious soft tissue swelling
- Any patient with burns and concomitant trauma (e.g. fractures) in which the burn injury poses the greatest risk of morbidity or mortality
- Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality

ALS

2. If smoke inhalation, obtain CO levels **Procedure 44** and treat appropriately for possible carbon monoxide and/or cyanide poisoning.
3. Establish IV access on all patients with second or third degree burns of 10% or greater body surface area. Attempt to establish at least two large-bore IVs.
   a) **Do not delay transport to obtain intravenous access on the Trauma Alert patient.**
   b) **If vascular access is not quickly obtainable via the IV route on the critical patient, establish IO access.**
4. Provide Pain Management **Protocol 18**.
5. If the blood pressure is less than 90 mmHg, administer a **fluid bolus of 500 mL Normal Saline**. This may be repeated once until a systolic BP of more than 90 mmHg is obtained.
6. Electrical burn patients will require ECG monitoring for possible cardiac abnormalities.

Top

Types of Burns

1. Thermal Burns

EMR/BLS

1. Remove rings, bracelets, and other constricting items on extremities.
2. Cover areas of burn with dry sterile dressings and/or wrap patient in a sterile sheet or burn blanket to provide a warm environment.
3. Cold (cryogenic) burns:
    a) Apply dry sterile dressings and/or sterile sheet**.**
    b) Consult with HazMat if chemically induced and contact MCP for further treatment guidance.
4. When treating significant burns to the fingers, toes, or other surfaces where surfaces burned may contact each other.
    a) Place bandages between the burned skin areas to prevent the wounds from sticking to each other.
5. Assess for Airway Compromise such as:
    a) Singed facial or nasal hair, hoarseness, soot, wheezing, and swelling.
    b) Treat appropriately and administer oxygen.
6. Begin fluid resuscitation for burns 10% or greater TBSA with **Normal Saline** at 80 gtts/min. with a 10 drop (macro) set.
    a) Recommended pre-hospital fluid resuscitation rate of 500 mL/hour for ages 14 or greater.
7. Keep the patient covered with a blanket to maintain thermal regulation.
8. Monitor for shock and treat appropriately.

NOTE: Hot tar is a thermal burn not a chemical burn. Immerse the area in cold water to dissipate the heat from the tar and speed the process of hardening. Once hardened, it will not do further damage. **DO NOT** remove it in the field.

2. Chemical Burns

EMR/BLS

1. Remove clothing and expose area.
2. Brush off any visible dry chemicals or powder, maintaining proper respiratory precautions to prevent responder exposure.
3. Continuously flush the area with Normal Saline or copious amounts of potable water.
    a) If there is eye involvement, ensure to flush with eyes copiously.
4. Consult with HazMat.

Top

3. Electrical Burns

EMR/BLS

1. As with Thermal Burns, treat as indicated.
2. Search for entrance and an exit wound where the electrical current may have passed to the ground.
3. Assess for unseen internal injuries and refer to **Protocol 26** Environmental Emergencies – Section H. Lightning Strike for further guidance.

I. Eye Injuries

General Care

EMR/BLS

1. Obtain a brief injury history including the mechanism of injury, possible chemical exposure, and allergies.
2. Examine the eye(s) for signs of penetrating injury, foreign body, irritation, hemorrhage, prosthesis, or contact lenses.
3. Remove or ask the patient to remove contact lenses if still in the affected eye(s).
4. Determine gross visual acuity in both eyes, if possible.
   a) Have the patient read the largest letters on the patient's report at arm's length.
5. If penetrating injury is known or suspected:
   a) Stabilize obvious penetrating objects.
   b) Avoid direct pressure on the eye or any maneuvers that might increase intraocular pressure.
   c) Apply ocular shield or similar rigid device over affected eye. Cover both eyes to minimize eye movement.
6. If eyeball has been forced out of the socket:
   a) Cover the entire eye area with a rigid container, such as a disposable drinking cup. Avoid direct contact with the exposed globe.
   b) If bleeding, control by direct pressure with a sterile dry dressing.
7. If there are signs/symptoms or suspicion of ocular exposure to chemicals or foreign body without obvious or suspected penetrating injury or laceration of cornea or globe:
   a) Irrigate with Normal Saline solution.

Top

J. Reperfusion (Crush) Injury

If the patient's extremity or extremities have been trapped for an extended period greater than 60 minutes by a heavy object occluding peripheral perfusion, the patient must be treated to prevent reperfusion injury. Crush injury is to be distinguished from a simple entrapment. This treatment must be administered prior to the object being lifted from the patient.

EMR/BLS

1. Manage the airway appropriately and administer oxygen.

ALS

2. Obtain vascular access as needed **Procedure 13.** If peripheral access is limited, external jugular access should be considered.

3. Infuse **Sodium Bicarbonate 1 mEq/kg into a 1000 mL bag of Normal Saline** and run wide open.

4. Provide cardiac monitoring, when possible, in case of dysrhythmias and treat appropriately.

MCP

5. If Field Amputation is required, refer to **Procedure 16**.

K. Traumatic Asphyxia

Traumatic injuries that suddenly and forcefully compress the thoracic cavity, like an unrestrained driver hitting a steering wheel or a pedestrian, who is compressed between a vehicle and a wall, may induce traumatic asphyxia. The sudden compression of the chest causes a massive increase in pressure translated into the major veins of the head, neck and kidneys. The pressure increases then passes into the capillary beds, resulting in their rupture. Physical findings are characterized by cyanosis of the head, upper extremities, and the torso above the level of the compression. Ocular hemorrhage may be mild (subconjunctival hematoma) or extremely dramatic causing the eyes to protrude from their normal position (exophthalmos).

Adult Care

EMR/BLS

1. Take cervical spine precautions and perform spinal motion restrictions as necessary.

2. Manage the airway appropriately **Protocol 7** and administer oxygen.

ALS

3. Obtain vascular access as needed **Procedure 13.** If peripheral access is limited, external jugular access should be considered.

Top

4. Monitor and manage any life-threatening injuries as a result of chest trauma such as pneumothorax.

5. If the patient's chest remains compressed for a prolonged time more than 20 minutes, consider administration of **Sodium Bicarbonate 1 mEq/kg IV/IO** just before or during the removal of the entrapment.

6. Provide cardiac monitoring for dysrhythmias due to chest trauma. Treat dysrhythmias appropriately.

Top

This protocol is designed to focus on patient care not covered in the Initial Assessment/Care **Protocol 1P** and specific injuries such as burns, amputations, etc. that require specialized care. Patients meeting Trauma Alert Criteria should be transported immediately, with scene times as minimal as possible. Aside from extrication, on scene times should be no greater than **10 minutes**. If on scene times are greater than 10 minutes, the reason for delay must be documented on the ePCR narrative.

A Trauma Alert will be declared for patients with injuries that meet Trauma Alert Criteria that have occurred within the last **24-hours.**

A. Hemorrhage Control
B. Penetrating Wounds to the Torso
C. Hemorrhagic Shock
D. Suspected Head/Spinal Injury
E. Epistaxis (Nose Bleed)
F. Soft Tissue Injuries
G. Suspected Fractures
H. Burn Injuries
I. Eye Injuries
J. Reperfusion (Crush) Injury
K. Traumatic Asphyxia

General Care

EMR/BLS

1. Initial Assessment/Care **Protocol 1P**.
2. The mode of transportation to a Trauma Center will be decided as soon as possible if the patient meets the Trauma Alert Criteria **Appendix 3** or **Appendix 4**. In these cases, emphasis in pre-hospital care will be on rapid packaging and initiating transport to a Trauma Center. Therefore, on-scene delays should be minimal and vascular access attempts shall not delay transport.
3. Control active hemorrhage with appropriate sterile pressure dressings. Note exact nature and location of blood/fluid loss (e.g., ear canals, nostrils, face or scalp wounds).
4. Administer oxygen and provide Airway Management **Protocol 7P** as necessary.
5. Maintain body temperature by covering patient with blankets or a thermal mylar blanket, when available and consider turning off A/C unit in the patient compartment during transport.

ALS

6. Establish peripheral vascular access as necessary **Procedure 13**.
7. Fluids should be administered as necessary to maintain peripheral pulses (maintaining a SBP of 80-90 mmHg) and may be repeated as necessary, for age-appropriate hypotension.

A. Hemorrhage Control

Blood from wounds that damage large vessels of the extremities are a common source of massive external hemorrhage. The cause of external hemorrhage can be varied depending on the setting in which the injury has taken place. Some of these causes include, but are not limited to, gunshots, stabbings, shrapnel, vehicle accidents and blasts. The identification of life-threatening hemorrhage versus non-life-threatening hemorrhage is of great importance. The difference between life threatening and non-life threatening exists in the amount of blood loss and patients' hemodynamic status.

Massive hemorrhage may be fatal within 60 – 120 seconds. Treatment should not be delayed and controlling major hemorrhage should be the priority for securing the airway. Application of tourniquet may be your first option.

Pediatric Care

EMR/BLS

1. Perform a rapid trauma head-to-toe exam and identify external bleeding.
2. Treat hemorrhage using the following procedures:
   a) Assess and find the source of bleeding.
   b) Apply direct pressure on the wound.
3. To control life-threatening external hemorrhage from an arm or leg apply a tourniquet **Procedure 48** or an appropriate pressure dressing. Deep wound packing with hemostatic gauze and/or plain gauze **Procedure 9** may also be indicated.
4. To control life-threatening bleeding from junctional areas (neck, shoulder or groin), Pack the wound with hemostatic gauze and/or plain rolled gauze **Procedure 9**.
5. For any partial or complete amputation, a tourniquet should be applied regardless of bleeding. Amputations and open fractures will be dressed with a sterile dressing **Procedure 28**. Amputated part(s) should be managed appropriately and transported with patient.
6. If the patient is hypotensive, place patient in Trendelenburg's position.
7. Treat for shock (compensated shock) aggressively.

8. Maintain body temperature by covering patient with blankets or a thermal mylar blanket, when available and consider turning off A/C unit in the patient compartment during transport.

ALS

9. Attempt to establish at least two large-bore IVs.
   a) **Do not delay transport to obtain intravenous access on the Trauma Alert patient.**
   b) **If vascular access is not quickly obtainable via the IV route, establish IO access.**
10. If signs or symptoms suggest shock, for age-appropriate hypotension, infuse **fluid bolus 20 mL/kg IV of Normal Saline** and reassess the patient. If there is no improvement in the cardiovascular status, additional boluses may be repeated in 20 mL/kg increments up to a total bolus of 60 mL/kg.
    a) Monitor patient's blood pressure and lung sounds often.
11. If the patient meets Trauma Alert Criteria with torso injuries and/or amputation(s) with severe bleeding not controlled by tourniquet that results in signs or symptoms suggest shock, for age-appropriate hypotension consider the administration of **Tranexamic Acid (TXA) 15 mg/kg slow IVP** as soon as possible, within 3 hours after injury.

    ***Note – Not indicated for pediatrics less than 5 years old.**

12. The Trauma Center **must** be notified that **15 mg/kg of TXA** has been administered.

B. Penetrating Wounds to the Torso

Pediatric Care

EMR/BLS

13. Do not remove penetrating objects, unless through the cheek causing airway obstruction or in the chest and interfering with CPR.
    a) Such objects may be cut down to six inches from the point of entry to minimize movement.
    b) Stabilize the object in place with bulky dressings.
14. Any apparent penetrating injuries to the chest, upper back, neck and/or upper abdomen will be covered immediately with an occlusive-type dressing **Procedure 6**.
15. Monitor the patient with penetrating torso trauma for the development of a possible tension pneumothorax. Non-invasive decompression can be performed by removing the occlusive dressing and physically "burping" the chest seal and re-apply.

16. Penetrating, open injuries of the abdominal cavity will be dressed rapidly and carefully with a sterile gauze dressing (e.g. multi-trauma dressing) **Procedure 6**.

    a) Use care not to injure any exposed intra-abdominal organs. Exposed bowel (evisceration) will be dressed with a dressing previously moistened with sterile saline. This, in turn, will be covered by a dry, occlusive dressing, such as plastic packaging or foil. **Do not attempt to put organs back in.**

ALS

17. Attempt to establish at least two large-bore IVs.

    c) **Do not delay transport to obtain intravenous access on the Trauma Alert patient.**

    d) **If vascular access is not quickly obtainable via the IV route, establish IO access.**

18. If tension pneumothorax develops, perform chest needle decompression **Procedure 5**.

19. If signs or symptoms suggest shock, for age-appropriate hypotension, infuse **fluid bolus 20 mL/kg IV of Normal Saline** and reassess the patient. If there is no improvement in the cardiovascular status, additional boluses may be repeated in 20 mL/kg increments up to a total bolus of 60 mL/kg.

    a) Monitor patient's blood pressure and lung sounds often.

20. If the patient meets Trauma Alert Criteria with torso injuries and/or amputation(s) with severe bleeding not controlled by tourniquet that results in signs or symptoms suggest shock, for age-appropriate hypotension consider the administration of **Tranexamic Acid (TXA) 15 mg/kg slow IVP** as soon as possible, within 3 hours after injury.

    ***Note – Not indicated for pediatrics less than 5 years old.**

21. The Trauma Center **must** be notified that **15 mg/kg of TXA** has been administered.

22. Provide cardiac monitoring for dysrhythmias due to chest trauma, such as a possibility of complications due to myocardial contusions, myocardial rupture, or cardiac tamponade. Treat dysrhythmias appropriately.

C. Hemorrhagic Shock

Pediatric Care

ALS

1. In cases of suspected hypovolemic shock, attempt to establish at least two large-bore IVs with the largest applicable catheter.

2. If signs or symptoms suggest shock, for age-appropriate hypotension, infuse **fluid bolus 20 mL/kg IV of Normal Saline** and reassess the patient. If there is no improvement in the cardiovascular status, additional boluses may be repeated in 20 mL/kg increments up to a total bolus of 60 mL/kg.

    a) Monitor patient's blood pressure and lung sounds often.

MCP

3. Additional fluid boluses above 60 mL/kg.

D. Suspected Head/Spinal Injury

General Care

EMR/BLS

1. If history, symptoms, or signs of head or neck injuries are present, manually immobilize the head and neck while assuring airway maintenance per Airway Management **Protocol 7P**.

2. Immobilization of the entire spine is necessary to prevent potentially life-threatening or further disabling injuries during the movement and transportation of the trauma victim **Protocol 40** Indications for immobilization include:

    a) **Physical findings:**

        a) Pain to or pain on movement of the neck or back.

        b) Point tenderness, deformity, and/or guarding of the spine area.

        c) Paralysis, paresis, numbness, or tingling in the arms or legs at any time post insult.

        d) Signs or symptoms of neurogenic shock.

e) Unconsciousness with unknown cause.

f) Possible injury to the spine when evaluation is difficult due to altered mental status.

g) Significant injuries above the clavicles.

b) **Mechanism of injury**:

a) Any mechanism that impacts violently on the head, neck, torso, or pelvis, associated with sudden violent movement of the spine.

b) Incidents producing sudden acceleration, deceleration, or lateral bending (commonly occurring in motor vehicle collisions).

c) Falls from a significant height.

d) Any unrestrained victims in a vehicular rollover or persons ejected from a moving vehicle.

e) Penetrating wounds to the head, neck, chest, back, or pelvis.

f) Other significant injuries and/or significant mechanisms of injury (i.e. Electrocution, explosion, lighting, shallow water dive).

3. In the absence of hypotension, consider elevating the head of the backboard 30 degrees (1218").

4. It is critical to prevent hypotension and hypoxia in management of Traumatic Brain Injury (TBI).

a) Patients with head injury should be ventilated at a rate of no greater than 1 breath every 3 seconds (20 breaths/min.) which will **maintain an $ETCO_2$ of 35-40mmHg** and should be maintained with oxygen saturation greater than 90%. Avoid hyperventilation of the head injury patient.

b) If *Neurogenic Shock (warm/dry skin (particularly below the area of the injury), hypotension with a heart rate WNL, paralysis)* is suspected because of trauma to the spine, elevate the foot end of the spine board slightly, placing the patient's arms across the chest without moving the spine. Monitor the patient's breathing, lowering the spine board if there is an onset of breathing problems. Provide assisted ventilations if respirations are weak or inadequate.

5. **Avoid excess administration of Dextrose solutions (D50%, D25%, D10%, D5W, etc.) unless hypoglycemia is identified.** Dextrose may increase cerebral edema.
6. Open wounds of the cranial vault will be dressed carefully with a sterile dressing **without** the use of Betadine or other antiseptic solutions.

7. Blood from the ear after a head injury may be a sign of a skull fracture.

    a) Assess blood or drainage from the ear with a 4x4 dressing, and let it sit for about a minute.
    b) If a characteristic staining of the dressing appears like a target or halo (blood stain in the middle), cerebrospinal fluid may be draining from the ear. Cover the bleeding site with a sterile gauze pad and apply light compression by loosely wrapping the dressing around the head.

ALS

8. Monitor for signs and symptoms of ***increased*** *intracranial pressure (e.g. irregular respirations, bradycardia, and hypertension)* and/or *Trismus (clenched teeth)*, manage the airway appropriately as per **Protocol 7P**.

    a) Endotracheal intubation, if indicated, will be accomplished while maintaining in-line stabilization with no hyperextension of the head and neck.

9. Attempt to establish at least two large-bore IVs.

    a) **Do not delay transport to obtain intravenous access on the Trauma Alert patient.**
    b) **If vascular access is not quickly obtainable via the IV route, establish IO access.**

10. If *Neurogenic Shock (warm/dry skin (particularly below the area of the injury), hypotension with a heart rate WNL, paralysis)* is suspected as a result of trauma to the spine and remains hypotensive, age appropriate. Notify the receiving Trauma Center of possible Neurogenic Shock and treatment.

    a) **Infuse fluid bolus 20 mL/kg IV of Normal Saline** and reassess the patient. If there is no improvement in the cardiovascular status, additional boluses may be repeated in 20 mL/kg increments up to a total bolus of 60 mL/kg.

        i. Monitor patient's blood pressure and lung sounds often.

E. Epistaxis (Nose Bleed)

Pediatric Care

EMR/BLS

1. Position the patient leaning forward and sitting.
2. Apply direct pressure by pinching the nostrils together.
3. Apply a cold pack over the bridge of the nose.
4. Continue pinching the nose until the bleeding stops.
5. An alternative method if a cold pack is not available or if not tolerated by the patient, is to apply pressure using a rolled gauze bandage between the upper lip and gum.

F. Soft Tissue Injuries

General Care

BLS

1. Soft Tissue injuries can be irrigated with Normal Saline.
2. Be cautious with abrasions:
    a) A superficial wound caused by the skin rubbed or scraped over a rough surface; examples such as a road rash or mat burns – rubbing, brushing, or washing the wound will cause additional bleeding and pain.
    b) After irrigation of skin avulsions, gently fold the skin flap back onto the wound to assist in reperfusion.
    c) DO NOT use hydrogen peroxide or iodine/betadine on any open soft tissue injuries/wounds.
    d) Cover the wound with a dry sterile dressing and apply cold packs to the surrounding area to decrease pain and swelling.
3. Animal bites and human bites can cause soft tissue injuries and are treated as such with dry sterile dressings.

a) If there is gross contamination, irrigate the wound with Normal Saline.

b) If the arm or leg is injured, splint the extremity.

c) Consider all such bites as contaminated and potentially infected wounds that may require antibiotics, tetanus prophylaxis, and possibly suturing.

4. Amputations and open fractures will be dressed with a sterile dressing **Procedure 28**.

G. Suspected Fractures

General Care

EMR/BLS

1. Any fracture or suspected fracture will be immobilized to reduce the possibility of further injury.

2. Severe angulated fractures may be aligned once, if there is an absence of distal pulse or neurological function. Distal pulses, skin color, and temperature will be documented prior to and after splinting the angulated fracture.

3. Proximal and distal manual stabilization may be applied to the injured extremity, as necessary, when applying a splint. The splint should extend, if possible, one joint above and one joint below the fracture site.

4. The use of cold packs is recommended to help reduce swelling. Avoid direct application to exposed skin.

5. Primary care of open fractures involves removal of gross contamination. If protruding contaminated bone ends have been pulled back into the wound, it will be noted in the report. Dress open bone fractures with moist dressing using normal saline.

6. Because of the severe muscle spasm associated with femoral fractures, traction leg splints are to be used to adequately stabilize isolated fractures of the femur. **Do not use the traction splint if a pelvic fracture or knee/ankle injury is suspected.**

ALS

7. Attempt to establish an IV.

a) **Do not delay transport to obtain intravenous access on the Trauma Alert patient.**

b) **If vascular access is not quickly obtainable via the IV route, establish IO access.**

8. f the injury is an isolated extremity injury, with no hypotension or respiratory distress, provide Pain Management **Protocol 18P**.

9. If signs or symptoms suggest shock, for age-appropriate hypotension, infuse **fluid bolus 20 mL/kg IV of Normal Saline** and reassess the patient. If there is no improvement in the cardiovascular status, additional boluses may be repeated in 20 mL/kg increments up to a total bolus of 60 mL/kg.

    a) Monitor patient's blood pressure and lung sounds often.

H. Burn Injuries

General Care

EMR/BLS

1. Assess the burn:

    a) Determine the type of burn (thermal, chemical, etc.).

    b) Determine the area and depth: superficial (1st degree), partial thickness (2nd degree), or full thickness (3rd degree) burns.

    c) Determine the TBSA% injured with the Rule of Nines **Appendix 7**.

    d) Determine if the patient was in an enclosed space **Protocol 37P**.

    e) Perform Airway Management **Protocol 7P** as necessary and administer oxygen.

NOTE: The following burns benefit from Burn Center Care and may require advanced specialized burn management, and should be transported to a Burn Center:

- Patients meeting Burns Trauma Alert Criteria
- 2nd degree (partial-thickness) burns greater than 10% TBSA
- 3rd degree (full-thickness) burns in any age group
- Burns involving the face, eyes, hands, feet, genitalia, perineum, and/or major joints
- Respiratory burns, inhalation injury
- Electrical burns, including lightning injury

- Chemical burns
- Burns with associated major traumatic injury
- Circumferential burns to extremities that may cause vascular compromise and serious soft tissue swelling
- Any patient with burns and concomitant trauma (e.g. fractures) in which the burn injury poses the greatest risk of morbidity or mortality
- Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality

ALS

2. If smoke inhalation, obtain CO levels **Procedure 44** and treat appropriately for possible carbon monoxide and/or cyanide poisoning.
3. Establish IV access on all patients with second or third degree burns of 10% or greater body surface area. Attempt to establish at least two large-bore IVs.
   a) **Do not delay transport to obtain intravenous access on the Trauma Alert patient.**
   b) **If vascular access is not quickly obtainable via the IV route on the critical patient, establish IO access.**
4. Provide Pain Management **Protocol 18P**.
5. Electrical burn patients will require ECG monitoring for possible cardiac abnormalities.

Types of Burns

Pediatric Care

1. Thermal Burns

EMR/BLS

1. Cover areas of burn with dry sterile dressings and/or wrap patient in a sterile sheet or burn blanket to provide a warm environment.
2. Cover patient with a blanket or thermal mylar blanket, when available to maintain thermal regulation.
3. Cold (cryogenic) burns:
   a) Apply dry sterile dressings and/or sterile sheet.

b) Consult with HazMat if chemically induced and contact MCP for further treatment guidance.

4. When treating significant burns to the fingers, toes, or other surfaces where surfaces burned may contact each other.

    a) Place bandages between the burned skin areas to prevent the wounds from sticking to each other.

5. Assess for Airway Compromise such as:

    a) Singed facial or nasal hair, hoarseness, soot, wheezing, and swelling.

    b) Treat appropriately and administer oxygen.

6. Begin fluid resuscitation for burns ~~15~~ 10% or greater TBSA with **Normal Saline** at:

    a) Ages 14 years old or older: 80 gtts/min. with a 10 drop (macro) set.

        i. Recommended pre-hospital fluid resuscitation rate of 500 mL/hour.

    b) Pediatrics (1 year to 14 years): 40 gtts/min. with a 10 drop (macro) set.

        i. Recommended pre-hospital fluid resuscitation rate of 250 mL/hour.

    c) Infants (1 month to 1 year): 20 gtts/min. with a 10 drop (macro) set.

        i. Recommended pre-hospital fluid resuscitation rate of 125 mL/hour.

7. Monitor for shock and treat appropriately.

NOTE: Hot tar is a thermal burn not a chemical burn. Immerse the area in cold water to dissipate the heat from the tar and speed the process of hardening. Once hardened, it will not do further damage. **DO NOT** remove in the field.

2. Chemical Burns

Pediatric Care

EMR/BLS

1. Remove clothing and expose area.

Top

2. Brush off any visible dry chemicals or powder, maintaining proper respiratory precautions to prevent responder exposure.

3. Continuously flush the area with Normal Saline or copious amounts of potable water.

    a) If there is eye involvement, ensure to flush eyes copiously.

4. Consult with HazMat.

3. Electrical Burns

Pediatric Care

EMR/BLS

1. As with Thermal Burns, treat as indicated.
2. Search for entrance and an exit wound where the electrical current may have passed to the ground.
3. Assess for unseen internal injuries.

I. Eye Injuries

General Care

BLS

1. Obtain a brief injury history including the mechanism of injury, possible chemical exposure, and allergies.

2. Examine the eye(s) for signs of penetrating injury, foreign body, irritation, hemorrhage, prosthesis, or contact lenses.

3. Remove or ask the patient to remove contact lenses if still in the affected eye(s).

4. Determine gross visual acuity in both eyes, if possible.

5. If penetrating injury is known or suspected:

    a) Stabilize obvious penetrating objects.

Top

b) Avoid direct pressure on the eye or any maneuvers that might increase intraocular pressure.

c) Apply ocular shield or similar rigid device over affected eye. Cover both eyes to minimize eye movement.

6. If eyeball has been forced out of the socket:

a) Cover the entire eye area with a rigid container, such as a disposable drinking cup. Avoid direct contact with the exposed globe.
b) If bleeding, control by direct pressure with a sterile dry dressing.

7. If there are signs/symptoms or suspicion of ocular exposure to chemicals or foreign body without obvious or suspected penetrating injury or laceration of cornea or globe:

a) Irrigate with Normal Saline IV solution.

J. Reperfusion (Crush) Injury

If the patient's extremity or extremities have been trapped for an extended period of time greater than 60 minutes by a heavy object occluding peripheral perfusion, the patient must be treated to prevent reperfusion injury. Crush injury is to be distinguished from a simple entrapment. This treatment must be administered prior to the object being lifted from the patient.

Pediatric Care

EMR/BLS

Sodium Bicarbonate 8.4% - Reperfusion (Crush) Injury								
1yr	2yr	3yr	4yr	5yr	6yr	7yr	8yr	9yr
10 mL	12 mL	15 mL	17 mL	20 mL	22 mL	25 mL	27 mL	30 mL

1. Manage the airway appropriately and administer oxygen.

ALS

2. Infuse **40 mL/kg bolus (maximum bolus of 1000 mL) of Normal Saline.** Simultaneously administer **1 mEq/kg (maximum 50 mEq) of Sodium Bicarbonate IV.**

Normal Saline Bolus - Reperfusion (Crush) Injury								
1yr	2yr	3yr	4yr	5yr	6yr	7yr	8yr	9yr
400 mL	480 mL	600 mL	680 mL	800 mL	880 mL	1000 mL	1000	1000



3. Provide cardiac monitoring, when possible, in case of dysrhythmias and treat appropriately.

MCP

4. If Field Amputation is required, refer to **Procedure 16**.

K. Traumatic Asphyxia

Traumatic injuries that suddenly and forcefully compress the thoracic cavity, like an unrestrained driver hitting a steering wheel or a pedestrian, who is compressed between a vehicle and a wall, may induce traumatic asphyxia. The sudden compression of the chest causes a massive increase in pressure translated into the major veins of the head, neck and kidneys. The pressure increases then passes into the capillary beds, resulting in their rupture. Physical findings are characterized by cyanosis of the head, upper extremities, and the torso above the level of the compression. Ocular hemorrhage may be mild (subconjunctival hematoma) or extremely dramatic causing the eyes to protrude from their normal position (exophthalmos).

Pediatric Care

EMR/BLS

1. Take cervical spine precautions and perform spinal motion restriction as necessary.

2. Manage the airway appropriately and administer oxygen.

    a) Support ventilations with BVM.

ALS

3. Obtain vascular access as needed **Procedure 13.** If peripheral access is limited, external jugular access should be considered.

4. Monitor and manage any life-threatening injuries because of chest trauma such as pneumothorax.

5. Provide cardiac monitoring for dysrhythmias due to chest trauma. Treat dysrhythmias appropriately.

Top

A. Introduction

A complete and thorough assessment of the abdomen in patients with any type of abdominal complaint will help the rescuer to identify possible life threatening conditions as well as rule out some of these conditions.

There are many causes of acute abdominal pain and, while most are not associated with life-threatening problems, there are others that should be of immediate concern in the field. Be particularly suspicious of elderly patients with a complaint of abdominal pain radiating to the back or pain without a history of recent injury. Suspect abdominal aortic aneurysm in these patients. Any sexually active female of child bearing age with a complaint of sudden onset of lower quadrant pain should be highly suspect of having an ectopic pregnancy until proven otherwise. While the incidence of these causes may be relatively low, the consequences of a missed diagnosis will likely be grave.

B. Procedure

EMR/BLS

1. Assessment of the abdomen should be conducted in an orderly and systematic manner.
2. Assessment of the abdomen should begin by questioning the patient:
    a) Ask the patient to describe their symptoms as completely as they can (local, diffuse, when, where). Use the OPQRST method. Is it constant or spasmodic?
    b) Determine if the patient has had any other associated symptoms (nausea, vomiting, fever, diarrhea, bleeding).
    c) Ascertain pertinent past medical history including similar episodes (any surgeries, cancer, etc.).
    d) Determine last menstrual period. Is there any history of vaginal bleeding or discharge?
    e) Ask whether there have been any changes in bladder or bowel habits.
    f) Is there any vomiting? What does it look like (dark, bright, coffee grounds, green).
    g) Any history of esophageal or rectal bleeding?
3. Inspect the abdomen. Look for any bruising or discolorations, obvious protuberance or masses, and asymmetry of the abdomen.
4. Palpate the abdomen while the patient is supine. Using the pads of the fingers, begin in the quadrant farthest away from the area of pain and apply light to moderate pressure in a steady manner. Note whether the area is soft or rigid, tender or non-tender. Note the presence of any pulsating masses but be cautious of palpating these. Continue palpation of all four quadrants in a clockwise fashion.
5. Assess vital signs. Treat hypotension per Protocol 12**.** Palpate pulses in the lower extremities. Note whether equal or if absent.

6. Consider the possible causes based on history and physical assessment. Remember "GUTPAINS"

G	Gallstones, gas pains, gastroenteritis, gastritis, GYN.
U	Ulcers.
T	Trauma.
P	Pancreatitis, Pelvic Inflammatory Disease (PID), pregnancy.
A	Abdominal aortic aneurysm, appendicitis, alcoholic gastritis.
I	Infection, intestinal obstruction, ischemic bowel
N	Neoplasm.
S	Spasm of the esophagus, splenic rupture, stones (kidney).

C. Treatment

General Care

EMR / BLS

1. Initial Assessment/Care Protocol 1. Care should be directed at supporting vital signs. Follow the appropriate protocol.

ALS

2. The presence of abdominal pain is not a contraindication for the use of analgesics. Treat pain per Protocol 18.
3. If present treat Nausea and/or Vomiting:
   a. Administer **Zofran 4 mg** SL (Do not administer to pregnant females) Medication 33.

EMR / BLS

D. Transport Decision

1. Any female of child bearing age presenting with abdominal pain and ANY of the following signs/symptoms should be considered to have an ectopic pregnancy and WILL be transported ALS to the closest appropriate facility:

   a) Confirmed pregnancy < 6 weeks gestation.
   b) The last menstrual period (LMP) > 6 weeks.
   c) Referred shoulder pain.
   d) Vaginal bleeding.
   e) History of unprotected sexual activity since LMP.
   f) If taking birth control any missed doses.

A. Introduction

"**Drowning** is the process of experiencing respiratory impairment from submersion / immersion in liquid" The word *Drowning,* should be used to refer to a person who drowned (death) or to a person who was rescued (fatal drowning or non-fatal drowning.)

Water Rescue is the process of removing someone from the water in which dangerous conditions are present but the victim shows no signs of respiratory impairment.

General Care

1. Initial assessment/Care Protocol 1.
2. Administer **15 L/min Oxygen** via NRB mask.
3. Maintain normal body temperature to protect against hypothermia.

B. Drowning

EMR/BLS

1. Consider concurrent trauma and manage accordingly Protocol 21.
2. Consider insertion of I-gel with NG Tube (Lifeguards only) Procedure 49 and Procedure 12.
3. Determine important history from the patient or bystanders which includes:
   a) Duration of submersion
   b) Water temperature
   c) Any possibility of seizure activity
   d) Any associated drug or alcohol use
   e) How the patient entered the water
4. **All non-fatal drowning victims must be transported to the closest appropriate facility for evaluation, regardless of how well they may seem to have recovered. Delayed death or complications due to pulmonary edema or aspiration pneumonia are common.**

ALS

5. Consider insertion of an NG/OG Procedure 12.

6. Treat dysrhythmias per specific protocols. Consider hypoxia as a primary cause of the dysrhythmias.

C. Decompression Sickness/Air Embolism

EMR/BLS

1. Evaluate for specific signs and symptoms:
   a) Pain (primarily joint pain)
   b) Altered level of consciousness
   c) Generalized numbness or confusion
   d) Weakness or paralysis
   e) External or diagnosed internal bleeding
   f) Extreme vertigo
2. If this is a SCUBA diving accident, obtain a history from the patient or bystanders to include:
   a) Was the victim breathing compressed air or other gas mixtures (Heliox, nitrox, etc.)?
   b) Elapsed time (bottom time) of the dive.
   c) Maximum depth of the dive.
   d) Were multiple (repetitive) dives made? Note depths and times.
   e) Time since ascent.
   f) Has the patient been at a high altitude 1,000 feet or greater (depressurized aircraft) since the dive?
   g) If possible, obtain the tanks used or air (gas) for analysis.
   h) Was any dangerous marine life noted by victim or other divers that may have caused a rapid ascending?
   i) Any sudden onset of a medical condition that may have caused a rapid ascending?

ALS

4. Manage patient according to the appropriate protocol(s).
5. Transport to the most appropriate facility as per the Hospital Capability Chart, i.e. an approved Hyperbaric Chamber Appendix 2.

A. North American Pit Vipers
B. Coral Snake Bites
C. Exotic Snakes
D. Brown Recluse Spider Bites
E. Black Widow
F. Scorpion Stings
G. Marine Animal Envenomation
H. Marine Animal Stings

General Care

EMR/BLS

1. Initial Assessment/Care **Protocol 1.**

2. Attempt to identify the insect, reptile, or animal that caused the injury if it is safe to do so. If unknown or it is a known venomous reptile bite or spider bite, **have the FAO contact the Anti-Venom unit**.

3. Be alert for the development of any anaphylactic reaction and treat according to the Systemic Reaction **Protocol 17.**

4. Immobilize the affected area. Keep the patient calm.

5. Remove and secure in a safe location any rings, bracelets, jewelry, etc. that may be in the injured area before swelling becomes too great.

6. Do not apply tourniquets, cold packs, make incisions around the area, or attempt to suction.

7. If unable to contact an Anti-Venom unit, contact the **Poison Control Center, 1-800-222-1222** for assistance in managing specific envenomation.

Top

A. North American Pit Vipers



Includes rattlesnakes, copperheads, and cottonmouths.

EMR/BLS

1. For any known or suspected bite, refer to Antivenin Bank **Procedure 33**.

   Evaluate for specific signs/symptoms:

   a) Distinct "fang marks" or puncture wounds.

   b) Swelling and pain at the site.

   c) Weakness, nausea, and vomiting.

   d) Paresthesia, fasciculations.

   e) Numbness and tingling around the face and head.

   f) Metallic taste, change in taste sensation.

   g) Hypotension and shock.

   h) Allergic reactions.

2. Mark the end point of the initial swelling and the time directly on the skin. This should be repeated **every 15 minutes** if applicable. The time of the bite should also be recorded on the Florida EMS Report or the electronic patient care report (ePCR).

3. If possible, keep the injured area in a neutral or elevated position and splint to minimize movement.

ALS

5. Establish IV access.

6. Provide rapid transport and alert the receiving facility of the specific snake.

Top

B. Coral Snake Bites



Includes North American coral snakes.

EMR/BLS

1. For any known or suspected bite, refer to Antivenin Bank **Procedure 33.**

2. Evaluate for specific signs/symptoms:

   a) Most signs and/or symptoms may be delayed up to 12 hours and are related to the type of venom which is that of a neurotoxin. Therefore, CNS disturbances may be observed.

   b) Stroke-like signs and/or symptoms.

3. Respiratory paralysis may develop. Be prepared to manage respiratory distress and provide ventilatory assistance.

4. Wrap an elastic bandage snugly around the bitten limb starting at the site of the bite and working towards the heart (proximal), wrapping the entire extremity. Wrap the elastic bandage as snug as you would for a sprained ankle. Monitor distal circulation by capillary refill and/or pulse to ensure the wrap does not become a tourniquet.

5. If possible, keep the injured area in a neutral position and splint to minimize movement.

ALS

6. Establish IV access.

7. Provide rapid transport and alert the receiving facility of the specific snake.

C. Exotic Snakes



Includes cobras, vipers, mambas, etc.

In the case of an exotic bite, it is imperative to identify the snake's scientific name or at least its common name. Signs and symptoms will vary greatly among different species. Have the FAO contact the Anti-Venom Unit immediately.

Top

D. Brown Recluse Spider Bites



EMR/BLS

1. Evaluate for specific signs/symptoms;
    a. Small bleb surrounded by a white ring.
    b. Localized pain, redness and swelling.
    c. Localized tissue necrosis.
    d. Most patients are unaware that they were bitten until the area becomes ischemic and ulcerates.
2. There is no specific pre-hospital treatment.

E. Black Widow Spider Bites



EMR/BLS

1. For any known or suspected bite, refer to Antivenin Bank **Procedure 33.**
2. Evaluate for specific signs/symptoms:
    a) Immediate localized pain.
    b) Progressive muscle spasms (usually beginning in the back and abdomen).
    c) Rigid abdomen.
    d) Seizures.
    e) Paralysis.

Top

ALS

1. For severe muscle spasms, administer **Midazolam (Versed) 5 mg** IV/IO/IM.

Pediatric Care

1. Provide **rapid transport**.

2. For severe muscle spasms consider administration of **Midazolam (Versed) 0.1 mg/kg** IV/IO/IM.

MCP

3. Additional doses of Versed.

F. Scorpion Stings



EMR/BLS

1. Evaluate for specific signs/symptoms:

   a) Mild to sharp pain which often progresses to numbness.

   b) Salivation.

   c) Slurred speech.

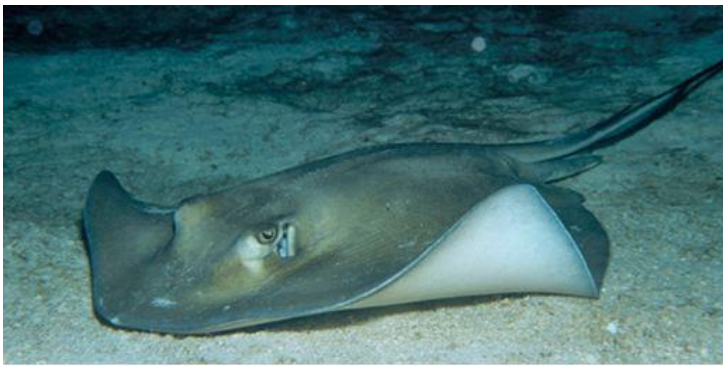
   d) Muscle twitching.

   e) Allergic reaction.

2. Provide rapid transport if symptomatic.

Top

G. Marine Animal Envenomation



Includes Stingrays, Scorpion fish, Catfish, Lionfish, Starfish, and Sea Urchins.

EMR/BLS

1. Immerse the puncture(s) in non-scalding hot water to tolerance (112-120 degrees Fahrenheit) to achieve pain relief. Transport should not be delayed; immersion in non-scalding hot water may be continued during transport as it may take 30-90 minutes for total relief.

    a) Gently apply hot packs to affected area for pain relief.

2. If the spine is still embedded, do not attempt removal in the field.

H. Marine Animal Stings



Includes Jellyfish stings (Man-O-War, Sea Nettle, Hyroid, and Fire Coral).

EMR/BLS

1. Rinse with seawater. **DO NOT use fresh water, ice, or rub the skin.**

2. Apply vinegar, if available, to temporize the release of venom.

3. Attempt to remove the tentacles with the edge of a stiff card such as a credit card. When using an edge, wipe down and away in a proximal to distal motion. Do not attempt to just wipe or roll the tentacles.

4. Repeat vinegar application.

5. Gently apply hot packs to affected area for pain relief.

Note: Refer to **Protocol 18** for pain management after appropriate care under this protocol has been administered.

Note: MDFR lifeguards may consider the use of hot water for at least 20 minutes. Hot water is available inside the lifeguard's station.

Top

Primary goals for emergency personnel in a hazardous materials incident or suspected nuclear, biological, or chemical terrorist (NBC) incident include: safety of rescue personnel, removal of the patient(s) from danger, patient decontamination, and providing definitive treatment.

Patients who are symptomatic due to a hazardous material or NBC exposure generally can be managed through our standard protocols and medication inventory. All personnel will adhere to this protocol up to the level of their training and capabilities. Hazmat units carry an expanded drug inventory provided for in this protocol. Special antidote therapy delineated by the prefix HMT will only be initiated by a department certified Hazmat Medic.

A. Overview
B. Carbon Monoxide (CO)
C. Organophosphates & Carbamates
D. Cyanide (CN)
E. Hydrogen Sulfides & Mercaptans
F. Nitrogen Containing Compounds (Nitrites & Nitrates)
G. Hydrofluoric Acid (HF)
H. Halogenated/Aromatic Hydrocarbons & Gasoline
I. Acid Mist/Chlorine & Ammonia Gas Inhalations
J. Chemical Nerve Agents

A. Overview

1. When treating a patient suspected of being chemically contaminated, do not overlook the possibility that they may also be suffering from an underlying condition related to trauma, impaired consciousness, etc., that must be treated in accordance with other protocols.

2. If a hazardous material is involved and has been identified, responders should locate information concerning the substance(s) using available references.

    a) North American Emergency Response Guidebook.

    b) NIOSH Pocket Guide.

    c) Emergency Care for Hazardous Materials Exposure.

    d) Handbook of Poisoning.

    e) Contact the **Poison Control Center at 1-800-222-1222** for consultation and then confirm guidance with receiving facility.

NOTE: The Hazardous Materials Response Unit will be notified of any incident involving a toxic chemical exposure.

Top

3. Separate victim from the causative agent.
    a) Rescue of a victim from a hazardous environment should not be attempted by individuals who are not properly trained and equipped with appropriate Personnel Protective Equipment (PPE).
    b) Rescue should not be delayed unnecessarily when only minimal risk is involved.

General Care

EMR/BLS

1. Initial Assessment/Care **Protocol 1.**

    a) Primary assessment can be undertaken while simultaneously performing a gross decontamination of patient.

    b) Rescue personnel must first address life-threatening emergencies before.

    c) Decontamination and supportive measures.

2. Chemical specific ALS treatment modalities will only be utilized if either of the following exists:

    a) Contact is with an identified contaminant.

    b) Contact is with an unidentified contaminant, but symptoms are consistent with a known or recognized contaminant.

B. Carbon Monoxide (CO)

Carbon Monoxide is a colorless, odorless, and tasteless gas that is non-irritating to the respiratory tract. It is a common byproduct of the incomplete combustion from any organic material and is a major toxic component in smoke inhalation.

Carbon Monoxide binds readily with hemoglobin to create carboxyhemoglobin. This interferes with oxygen's ability to bind with hemoglobin, thus reducing the oxygen carrying capacity of the blood. Carbon Monoxide levels can be measured in a non-invasive manner using the RAD-57 **Procedure 44** Measurements are read as a percentage of carboxyhemoglobin (SpCO).

CO Exposure specific signs and symptoms in order of progression include: headache, dizziness, tinnitus, nausea, muscle weakness, chest pain, dyspnea, syncope, seizures, and coma (Cherry red skin color is not an early sign of CO poisoning and is usually seen post-mortem). Top

BLS

1. Remove patient from the contaminated environment.
2. Initial Assessment/Care **Protocol 1.**
3. Apply the RAD-57 **Procedure 44** and document a pre-oxygen SpCO reading in the "Narrative" section of ePCR.
4. Administer Oxygen 15 L/min via a NRB mask. If the patient is unresponsive, ventilate via BVM with 100% oxygen.

ALS

6. Initiate Airway Management **Protocol 7**, perform endotracheal intubation and continue to hyperoxygenate.

    a) If CO poisoning is due to a suicide attempt, and the patient shows signs of respiratory depression, administer **Narcan (Naloxone) 0.5 mg** IV/IM SLOWLY as needed.

NOTE: Narcan (Naloxone) should be administered only to a patient showing signs of respiratory depression.

MCP

7. Transport to appropriate facility (refer to Hospital Compatibilities Chart and information below).

Transport considerations based upon SpCO levels using Pulse-CO Oximeter	
SpCO %	**Transportation Requirements per Protocol 25**
0-3%	Transport NOT required unless patient has another medical/trauma complaint
3-12%	No signs/symptoms = No Transport required unless patient has another medical/trauma complaint
3-12%	WITH signs/symptoms = ALS Transport to closest appropriate facility
≥13%	ALS Transport REQUIRED to closest appropriate facility

Note: Readings outside of the normal range will be confirmed on the opposite extremity.

Top

C. Organophosphates & Carbamates

Organophosphate insecticides are absorbed by all routes, including the skin, G.I. tract, conjunctiva, and respiratory tract. The Carbamates are not appreciably absorbed through intact skin and typically do not cause toxicity by this route.

Organophosphates & Carbamates inhibit the enzyme cholinesterase, blocking the activity of the enzyme acetylcholinesterase from deactivating the neurotransmitter acetylcholine. Thus, allowing the excessive accumulation of acetylcholine. This overabundance of acetylcholine cannot be broken down, which results in a sustained stimulation of the autonomic nervous system, skeletal muscle, and CNS as the acetylcholine binds at the muscarinic receptors and the nicotinic receptors.

When the muscarinic and nicotinic receptors are over stimulated, there is a predictable response occurring in the body leading to the classic signs/symptoms of Organophosphate & Carbamate poisoning that can be remembered with the mnemonics "**SLUDGE**" or "**DUMBELS**" when associated with the overstimulation at the muscarinic receptors sites. The symptoms in the "Bs" of "DUMBELS" are recognized as the "Killer Bs" as they are serious signs of an organophosphate that can become fatal if left untreated.

S – Salivation
L – Lacrimation
U – Urination
D – Defecation
G – Gastrointestinal
E – Emesis

D – Diarrhea
U – Urination
M – Muscle tremors, Miosis (pupillary constriction)
B – **B**radycardia, **B**ronchorrhea (excessive mucus), **B**ronchospasms
E – Emesis
L – Lacrimation
S – Secretions, Salivation, Sweating

The mnemonic of the days of the week, "**MTWHF**" can be utilized to recognize the signs/symptoms associated with organophosphate poisoning primarily affecting the nicotinic receptor sites.

M – Mydriasis (pupillary dilation)
T – Tachycardia
W – Weakness
H – Hyperglycemia, Hypertension
F – Fasciculations (fine muscle twitches)

NOTE: Secondary symptoms after inhalation may be caused by the hydrocarbon-based solvent, such as xylene, mixed with the pesticide. These symptoms may include: upper respiratory irritation, dizziness, headaches, and nausea.

BLS

1. Administer Oxygen 15 L/min via a NRB mask.

Top

2. As pulmonary secretions may be severe, suction airway frequently.

ALS

3. Administer **Atropine 2 mg** IV/IO depending on the severity of the symptoms.

4. Perform endotracheal intubation if needed.

5. If seizures develop, Administer **Midazolam (Versed) 5 mg** slow IV/IM/IO until seizures begin to diminish. This may be repeated once.

6. **Repeat Atropine, 2 mg IV/IO every five minutes** in until the drying of secretions or "Atropinization" occurs. The desired end-point is the drying of all secretions. There is no maximum dose in this situation.

D. Cyanide (CN)

Cyanide is an extremely toxic and fast acting toxin. It is used to produce chemicals which are used to manufacture many plastics. Fires involving plastics, wool, and silk may yield significant amounts of cyanide gas, (hydrogen cyanide, HCN).

Cyanide produces toxicity by interfering with oxygen utilization at the cellular level. Death may occur within minutes of exposure. With inhalation, toxic effects are seen in minutes If CN salts are ingested, effects may be delayed. Effects may first be seen in the following order: central nervous system, cardiovascular system, and respiratory systems.

General Care

BLS

1. Obtain and document a carboxyhemoglobin reading **Procedure 44.**

2. Administer oxygen **Procedure 1.**

Adult Care

ALS

3. Perform airway management, as indicated **Protocol 7.**

4. Establish vascular access.

Top

5. Prepare and mix **Hydroxocobalamin (CyanoKit)** as per **Appendix 09-7.**

6. Administer the **Hydroxocobalamin (CyanoKit) 5 gm.** Run IV with vented tubing at approximately 4 gtts/second to yield an administration of approximately 15 minutes.

   a) If the CyanoKit is not available, mix Sodium Thiosulfate as per **Appendix 09-5.**

   b) Administer **Sodium Thiosulfate 12.5 gm IV over 10 minutes**.

NOTE: The CyanoKit are only carried by EMS Captains, Battalion Chiefs and HazMat units.

E. Hydrogen Sulfides & Mercaptans

Hydrogen Sulfide (H_2S) is a colorless, irritating, and highly toxic gas with an odor similar to that of rotten eggs. H_2S, also known as sewer gas, can cause olfactory paralysis at high concentrations, making odor an unreliable sign. Mercaptans are extremely foul-smelling sulfur containing compounds used as an odorant in natural and other gases. Although all of these compounds are irritants, their mechanism of poisoning is similar to that of cyanide.

Low level exposures may cause irritation of the eyes, nose, and throat, producing a cough, headache, nausea, and dizziness. Higher exposures may cause syncope, seizures, coma, tracheobronchitis, and pulmonary edema (which may not appear for 48 to 72 hours after exposure). Death may occur within minutes of a massive exposure.

General Care

BLS

1. Administer Oxygen 15 L/m via a NRB mask.

Adult Care

HMT

2. Administer Amyl Nitrite inhalants while the patient is on oxygen. Amyl Nitrite therapy should precede or coincide with step 3.

   a) Break the inhalants and have the patient breath it for 30 seconds out of every minute.

   b) Use a fresh inhalant every few minutes.

Top

c) If assisting ventilations or the patient is intubated, place an inhalant in the oxygen reservoir of the BVM.

3. Administer **Sodium Nitrite 300 mg** IVP (10 mL of a 3% solution), over 2-4 minutes. **Discontinue Amyl Nitrite therapy after Sodium Nitrite administration has begun.**

NOTE: If symptoms worsen after Sodium Nitrite administration, consider Nitrite Toxicity, Section F. DO NOT administer Sodium Thiosulfate.

F. Nitrogen Containing Compounds (Nitrites & Nitrates)

Nitrogen containing compounds and their derivatives are found in many household products such as inks, shoe polishes, paints, and varnishes. These compounds are also used to produce medical agents, i.e.: amyl nitrite, nitroglycerine, silver nitrate.

Nitrites are the chemicals that most frequently produce methemoglobinemia. When hemoglobin is changed into methemoglobin, oxygen can no longer be transported by the changed hemoglobin.

Patients with a methemoglobin greater than 15% will appear gray or cyanotic, and their blood will appear chocolate brown. With higher concentrations hypoxic signs and symptoms are present, such as headache, dizziness, nausea, dyspnea, syncope, seizures, and coma. Other signs and symptoms that may be present include skin or respiratory irritation, vasodilatation, hypotension, and CNS depression.

General Care

BLS

1. Administer Oxygen 15 L/min via a NRB mask.

Adult Care

HMT

2. If the patient is exhibiting signs and/or symptoms of altered mental status:

b) Administer **Methylene Blue 1-2 mg/kg** IVP over 2-5 minutes. Observe for hypotension, nausea, and disorientation.

Top

G. Hydrofluoric Acid (HF)

Hydrofluoric acid is an inorganic acid that is widely used in the electronic, glass etching, and chemical industries. Fluoride salts mixed with acids may produce hydrogen fluoride, a toxic gas.

The trademark of HF acid exposure is that the pain outweighs the area of injury. The pain with this exposure is intense. HF acid bonds with calcium and magnesium and causes destruction of the cells.

Inhalation may cause eye, nose, and throat irritation, cough, tracheobronchitis, and pulmonary edema. Ingestion produces corrosive burns of the stomach and esophagus. Systemic absorption may cause cardiac arrest.

General Care

BLS

1. Administer Oxygen 15 L/min via NRB mask.

Adult Care

HMT

2. Don personal protective equipment utilizing gown, mask, eye protection and Nitrile gloves (two pairs). Remove all contaminated clothing and flood the affected skin area with copious amounts of water for at least one minute.

3. Apply **Calcium Gluconate Gel** liberally to the affected areas and continuously massaged into the skin until the pain has subsided and for at least 15 minutes afterwards. Apply more gel as necessary.

4. For patients in cardiac arrest secondary to HF exposure, administer **Calcium Chloride 1 gm** slow IV/IO**.**

H. Halogenated/Aromatic Hydrocarbons & Gasoline

Volatile substances such as aromatic hydrocarbons, halogenated solvents, and gasoline, when inhaled can sensitize myocardial tissue and cause sudden cardiac dysrhythmias, (V-Fib, V-tach, SVT).

Top

Adult Care

ALS

1. Treat tachydysrhythmias secondary to inhaled cardiac muscle sensitizers **Protocol 9.**

2. Treat bronchospasm or non-cardiogenic pulmonary edema produced by these respiratory irritants **Protocol 8.**

NOTE: Because these hydrocarbons are cardiac sensitizers, DO NOT administer Epinephrine for bronchospasms.

HMT

3. If tachydysrhythmias persist after Adenosine administration:

   a) Administer **Brevibloc 50 mg** slow IVP over one minute.

   b) Begin a **Brevibloc infusion** (2,500 mg/250 mL pre-mix) and run it at 30 drops/minute run utilizing a 60 drops/minute mini-drip set.

   c) If there is no change after five minutes, administer **Brevibloc 50 mg** slow IVP over one minute and increase the infusion to 60 drops/minute.

I. Acid Mist/Chlorine & Ammonia Gas Inhalations

These compounds act as direct irritants and corrosive agents to moist mucous membranes and to intact skin to a lesser extent. Fairly low concentration can produce rapid onset of eye, nose, and throat irritation. Higher concentrations can produce cough, stridor, wheezing, chemical pneumonia or non-cardiogenic pulmonary edema. Onset of pulmonary edema can be rapid or delayed up to 24 hours.

General Care

BLS

1. Administer Oxygen 15 L/min via NRB mask.

ALS

2. Treat bronchospasm or non-cardiogenic pulmonary edema produced by these respiratory irritants **Protocol 8.**

Top

J. Chemical Nerve Agents (Organophosphates)

Chemical nerve agents in the Organophosphate family include: Tabun (GA), Sarin (GB), Soman (GD), GF and VX. These compounds are well absorbed through intact skin, and thus pose a serious hazard to rescuers. An exposure to these types of chemical nerve agents will present with symptoms similar to Organophosphates and Carbamates as defined in Section C of this protocol (SLUDGE or DUMBELS).

HMT

Note: If fire department personnel are exposed or have symptoms of exposure to a chemical nerve agent, administer the DUODOTE™ Kit **Procedure 38.**

Note: DUODOTE is carried by Hazmat units, Battalion Chiefs and EMS Field Supervisor.

Adult Care

BLS

1. Administer Oxygen 15 L/min via a NRB mask.

2. As pulmonary secretions may be severe, suction airway frequently.

ALS

3. If shortness of breath or muscle fasciculation's (tremors) are present, administer **Atropine 2 mg** IV/IM **Procedure 17.** This can be accomplished with 5 mL from the multi-dose vial (8 mg/20 mL).

4. If symptoms continue, administer **Atropine 2 mg** IV/IM.

5. Perform endotracheal intubation if needed. At least an initial dose of Atropine should be given prior to intubation.

6. If seizures develop, administer **Midazolam (Versed) 5 mg** slow IV/IO/IN. This may be repeated once to a total of 10 mg. Maximum IN dose is 1 mL/nostril.

7. Repeat Atropine every five minutes in 2 mg increments until the drying of secretions or "Atropinization" occurs. The desired end-point is the drying of all secretions. There is no maximum dose in this situation.

Top

Primary goals for emergency personnel in a hazardous materials incident or suspected nuclear, biological, or chemical terrorist (NBC) incident include: safety of rescue personnel, removal of the patient(s) from danger, patient decontamination, and providing definitive treatment.

Patients who are symptomatic due to a hazardous material or NBC exposure generally can be managed through our standard protocols and medication inventory. All personnel will adhere to this protocol up to the level of their training and capabilities. Hazmat units carry an expanded drug inventory provided for in this protocol. Special antidote therapy delineated by the prefix HMT will only be initiated by a department certified Hazmat Medic.

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G. Hydrofluoric Acid (HF)
H. Halogenated/Aromatic Hydrocarbons & Gasoline
I. Acid Mist/Chlorine & Ammonia Gas Inhalations
J. Chemical Nerve Agents (Organophosphates)

A. Overview

1. When treating a patient suspected of being chemically contaminated, do not overlook the possibility that they may also be suffering from an underlying condition related to trauma, impaired consciousness, etc., that must be treated in accordance with other protocols.

2. If a hazardous material is involved and has been identified, responders should locate information concerning the substance(s) using available references.

    a) North American Emergency Response Guidebook.

    b) NIOSH Pocket Guide.

    c) Emergency Care for Hazardous Materials Exposure.

    d) Handbook of Poisoning.

    e) Contact the **Poison Control Center at 1-800-222-1222** for consultation and then confirm guidance with receiving facility.

NOTE: The Hazardous Materials Response Unit will be notified of any incident involving a toxic chemical exposure.

Top

3. Separate victim from the causative agent.
    a) Rescue of a victim from a hazardous environment should not be attempted by individuals who are not properly trained and equipped with appropriate Personnel Protective Equipment (PPE).
    b) Rescue should not be delayed unnecessarily when only minimal risk is involved.

General Care

EMR/BLS

1. Initial Assessment/Care **Protocol 1P**.
    a) Primary assessment can be undertaken while simultaneously performing a gross decontamination of patient.
    b) Rescue personnel must first address life-threatening emergencies before.
    c) Decontamination and supportive measures.
2. Chemical specific ALS treatment modalities will only be utilized if either of the following exists:
    a) Contact is with an identified contaminant.
    b) Contact is with an unidentified contaminant, but symptoms are consistent with a known or recognized contaminant.

B. Carbon Monoxide (CO)

Carbon Monoxide is a colorless, odorless, and tasteless gas that is non-irritating to the respiratory tract. It is a common byproduct of the incomplete combustion from any organic material and is a major toxic component in smoke inhalation.

Carbon Monoxide binds readily with hemoglobin to create carboxyhemoglobin. This interferes with oxygen's ability to bind with hemoglobin, thus reducing the oxygen carrying capacity of the blood. Carbon Monoxide levels can be measured in a non-invasive manner using the RAD-57 **Procedure 44** Measurements are read as a percentage of carboxyhemoglobin (SpCO).

CO Exposure specific signs and symptoms in order of progression include: headache, dizziness, tinnitus, nausea, muscle weakness, chest pain, dyspnea, syncope, seizures, and coma. (Cherry red skin color is not an early sign of CO poisoning and is usually seen post-mortem).

Top

Pediatric Care

BLS

1. Remove patient from the contaminated environment.
2. Initial Assessment/Care **Protocol 1P.**
3. Apply the RAD-57 **Procedure 44** and document a pre-oxygen SpCO reading in the "Narrative" section of ePCR.
4. Administer Oxygen 15 L/min via a NRB mask. If the patient is unresponsive, ventilate via BVM with 100% oxygen.

ALS

6. Initiate Airway Management **Protocol 7P**, perform endotracheal intubation and continue to hyperoxygenate.

    a) If CO poisoning is due to a suicide attempt, and the patient shows signs of respiratory depression, administer **Narcan (Naloxone) 0.1 mg/kg** (max single dose 0.5 mg) IV/IM SLOWLY as needed.

NOTE: Narcan (Naloxone) should be administered only to patients showing signs of respiratory depression.

MCP

7. Transport to appropriate facility (refer to Hospital Compatibilities Chart and information below).

Transport considerations based upon SpCO levels using Pulse-CO Oximeter	
SpCO %	**Transportation Requirements per Protocol 25**
0-3%	Transport NOT required unless patient has another medical/trauma complaint
3-12%	No signs/symptoms = No Transport required unless patient has another medical/trauma complaint
3-12%	WITH signs/symptoms = ALS Transport to closest appropriate facility
≥13%	ALS Transport REQUIRED to closest appropriate facility

Note: Readings outside of the normal range will be confirmed on the opposite extremity.

Top

C. Organophosphates & Carbamates

Organophosphate insecticides are absorbed by all routes, including the skin, G.I. tract, conjunctiva, and respiratory tract. The Carbamates are not appreciably absorbed through intact skin and typically do not cause toxicity by this route.

Organophosphates & Carbamates inhibit the enzyme cholinesterase, blocking the activity of the enzyme acetylcholinesterase from deactivating the neurotransmitter acetylcholine. Thus, allowing the excessive accumulation of acetylcholine. This overabundance of acetylcholine cannot be broken down, which results in a sustained stimulation of the autonomic nervous system, skeletal muscle, and CNS as the acetylcholine binds at the muscarinic receptors and the nicotinic receptors.

When the muscarinic and nicotinic receptors are over stimulated, there is a predictable response occurring in the body leading to the classic signs/symptoms of Organophosphate & Carbamate poisoning that can be remembered with the mnemonics "**SLUDGE**" or "**DUMBELS**" when associated with the overstimulation at the muscarinic receptors sites. The symptoms in the "Bs" of "DUMBELS" are recognized as the "Killer Bs" as they are serious signs of an organophosphate that can become fatal if left untreated.

S – Salivation
L – Lacrimation
U – Urination
D – Defecation
G – Gastrointestinal
E – Emesis

D – Diarrhea
U – Urination
M – Muscle tremors, Miosis (pupillary constriction)
B – **B**radycardia, **B**ronchorrhea (excessive mucus), **B**ronchospasms
E – Emesis
L – Lacrimation
S – Secretions, Salivation, Sweating

The mnemonic of the days of the week, "**MTWHF**" can be utilized to recognize the signs/symptoms associated with organophosphate poisoning primarily affecting the nicotinic receptor sites.

M – Mydriasis (pupillary dilation)
T – Tachycardia
W – Weakness
H – Hyperglycemia, Hypertension
F – Fasciculations (fine muscle twitches)

NOTE: Secondary symptoms after inhalation may be caused by the hydrocarbon-based solvent, such as xylene, mixed with the pesticide. These symptoms may include: upper respiratory irritation, dizziness, headaches, and nausea.

Pediatric Care

BLS

1. Administer Oxygen 15 L/min via a NRB mask.

Top

2. As pulmonary secretions may be severe, suction airway frequently.

ALS

3. If shortness of breath or muscle fasciculation's (tremors) are present, administer **Atropine 0.5-1 mg** IM **Procedure 17** or **0.02 mg/kg** IV.

4. Perform endotracheal intubation if needed.

5. If seizures develop, administer **Versed (Midazolam)** (0.1 mg/kg IV/IO/IM max total dose is 5 mg). **Versed** may be administered IN via the MAD (0.2 mg/kg maximum dose is 0.5 mL/nostril). This may be repeated once.

6. Repeat **Atropine every 5 minutes in 0.02 mg/kg IV or 0.5-1.0 mg IM** increments until the drying of secretions or "Atropinization" occurs. The desired end-point is the drying of all secretions. There is no maximum dose in this situation.

D. Cyanide (CN)

Cyanide is an extremely toxic and fast acting toxin. It is used to produce chemicals which are used to manufacture many plastics. Fires involving plastics, wool, and silk may yield significant amounts of cyanide gas, (hydrogen cyanide, HCN).

Cyanide produces toxicity by interfering with oxygen utilization at the cellular level. Death may occur within minutes of exposure. With inhalation, toxic effects are seen in minutes If CN salts are ingested, effects may be delayed. Effects may first be seen in the following order: central nervous system, cardiovascular system, and respiratory systems.

General Care

BLS

1. Obtain and document a carboxyhemoglobin reading **Procedure 44.**

2. Administer oxygen **Procedure 1.**

Pediatric Care

ALS

3. Perform airway management, as indicated **Protocol 7P.**

4. Establish vascular access.

Top

5. Prepare and mix **Hydroxocobalamin (CyanoKit)** as per **Appendix 09-7.**

6. Administer **Hydroxocobalamin (CyanoKit) 70 mg/kg.** Run IV with vented tubing at 1 gtt/sec for a duration not to exceed 1 minute per kg.

    a) If the CyanoKit is not available, mix Sodium Thiosulfate as per **Appendix 09-5.**

    b) Administer **Sodium Thiosulfate 1.2 mL/kg of a 25% solution (maximum of 50 mL)** slow IV over 10 minutes.

NOTE: The CyanoKit are only carried by EMS Captains, Battalion Chiefs and HazMat units.

E. Hydrogen Sulfides & Mercaptans

Hydrogen Sulfide (H_2S) is a colorless, irritating, and highly toxic gas with an odor similar to that of rotten eggs. H_2S, also known as sewer gas, can cause olfactory paralysis at high concentrations, making odor an unreliable sign. Mercaptans are extremely foul smelling sulfur containing compounds used as an odorant in natural and other gases. Although all of these compounds are irritants, their mechanism of poisoning is similar to that of cyanide.

Low level exposures may cause irritation of the eyes, nose, and throat, producing a cough, headache, nausea, and dizziness. Higher exposures may cause syncope, seizures, coma, tracheobronchitis, and pulmonary edema (which may not appear for 48 to 72 hours after exposure). Death may occur within minutes of a massive exposure.

General Care

BLS

1. Administer Oxygen 15 L/m via a NRB mask.

Pediatric Care

HMT

2. Administer Amyl Nitrite inhalants while the patient is on oxygen. Amyl Nitrite therapy should precede or coincide with step 3.

    a) Break the inhalants and have the patient breath it for 30 seconds out of every minute.

    b) Use a fresh inhalant every few minutes.

Top

c) If assisting ventilations or the patient is intubated, place an inhalant in the oxygen reservoir of the BVM.

3. Administer **Sodium Nitrite 0.2 mL/kg** IVP (max dose of 10 mL of a 3% solution), over 2-4 minutes. **Discontinue Amyl Nitrite therapy after Sodium Nitrite administration has begun.**

NOTE: If symptoms worsen after Sodium Nitrite administration, consider Nitrite Toxicity, Section F. DO NOT administer Sodium Thiosulfate.

F. Nitrogen Containing Compounds (Nitrites & Nitrates)

Nitrogen containing compounds and their derivatives are found in many household products such as inks, shoe polishes, paints, and varnishes. These compounds are also used to produce medical agents, i.e.: amyl nitrite, nitroglycerine, silver nitrate.

Nitrites are the chemicals that most frequently produce methemoglobinemia. When hemoglobin is changed into methemoglobin, oxygen can no longer be transported by the changed hemoglobin.

Patients with a methemoglobin greater than 15% will appear gray or cyanotic, and their blood will appear chocolate brown. With higher concentrations hypoxic signs and symptoms are present, such as headache, dizziness, nausea, dyspnea, syncope, seizures, and coma. Other signs and symptoms that may be present include: skin or respiratory irritation, vasodilatation, hypotension, and CNS depression.

General Care

BLS

1. Administer Oxygen 15 L/min via a NRB mask.

Pediatric Care

HMT

2. If the patient is exhibiting signs and/or symptoms of altered mental status:

b) Administer **Methylene Blue 1-2 mg/kg** IVP over 2-5 minutes. Observe for hypotension, nausea, and disorientation.

Top

G. Hydrofluoric Acid (HF)

Hydrofluoric acid is an inorganic acid that is widely used in the electronic, glass etching, and chemical industries. Fluoride salts mixed with acids may produce hydrogen fluoride, a toxic gas.

The trademark of HF acid exposure is that the pain outweighs the area of injury. The pain with this exposure is intense. HF acid bonds with calcium and magnesium and causes destruction of the cells.

Inhalation may cause eye, nose, and throat irritation, cough, tracheobronchitis, and pulmonary edema. Ingestion produces corrosive burns of the stomach and esophagus. Systemic absorption may cause cardiac arrest.

General Care

BLS

1. Administer Oxygen 15 L/min via NRB mask.

Pediatric Care

HMT

2. Don personal protective equipment utilizing gown, mask, eye protection and Nitrile gloves (two pairs). Remove all contaminated clothing and flood the affected skin area with copious amounts of water for at least one minute.

3. Apply Calcium Gluconate Gel liberally to the affected areas and continuously massaged into the skin until the pain has subsided and for at least 15 minutes afterwards. Apply more gel as necessary.

4. For patients in cardiac arrest secondary to HF exposure, administer **Calcium Chloride 20 mg/kg (0.2 mL/kg)** slow IV/IO**.**

Top

H. Halogenated/Aromatic Hydrocarbons & Gasoline

Volatile substances such as aromatic hydrocarbons, halogenated solvents, and gasoline, when inhaled can sensitize myocardial tissue and cause sudden cardiac dysrhythmias, (V-Fib, V-tach, SVT).

Pediatric Care

ALS

1. Treat tachydysrhythmias secondary to inhaled cardiac muscle sensitizers **Protocol 9P.**

2. Treat bronchospasm or non-cardiogenic pulmonary edema produced by these respiratory irritants **Protocol 8P.**

NOTE: Because these hydrocarbons are cardiac sensitizers, DO NOT administer Epinephrine for bronchospasms.

HMT

3. Brevibloc is **NOT** indicated for the pediatric patient.

I. Acid Mist/Chlorine & Ammonia Gas Inhalations

These compounds act as direct irritants and corrosive agents to moist mucous membranes and to intact skin to a lesser extent. Fairly low concentration can produce rapid onset of eye, nose, and throat irritation. Higher concentrations can produce cough, stridor, wheezing, chemical pneumonia or non-cardiogenic pulmonary edema. Onset of pulmonary edema can be rapid or delayed up to 24 hours.

General Care

BLS

1. Administer Oxygen 15 L/min via NRB mask.

Pediatric Care

ALS

2. Treat bronchospasm or non-cardiogenic pulmonary edema produced by these respiratory irritants **Protocol 8P.**

Top

J. Chemical Nerve Agents (Organophosphates)

Chemical nerve agents in the Organophosphate family include: Tabun (GA), Sarin (GB), Soman (GD), GF and VX. These compounds are well absorbed through intact skin, and thus pose a serious hazard to rescuers. An exposure to these types of chemical nerve agents will present with symptoms similar to Organophosphates and Carbamates as defined in Section C of this protocol (SLUDGE or DUMBBELS).

HMT

Note: If fire department personnel are exposed or have symptoms of exposure to a chemical nerve agent, administer the DUODOTE™ Kit **Procedure 38.** The DUODOTE auto-injector is indicated for the pediatric patient weighing more than 41 kg (90 pounds).

Note: DUODOTE is carried by Hazmat units, Battalion Chiefs and EMS Field Supervisor.

Pediatric Care

BLS

1. Administer Oxygen 15 L/min via a NRB mask.

2. As pulmonary secretions may be severe, suction airway frequently.

ALS

3. If shortness of breath or muscle fasciculation's (tremors) are present, administer **Atropine 0.5-1 mg** IM **Procedure 17.**

4. If symptoms continue, administer **Atropine 0.02 mg/kg** IV.

5. Perform endotracheal intubation if needed. At least an initial dose of Atropine should be given prior to intubation.

6. If seizures develop, administer **Midazolam (Versed) 0.1 mg/kg** slow IV/IO/IN. Maximum dose 5 mg (0.5 mL/nostril IN).

7. Repeat **Atropine** every five minutes in 0.02 mg/kg IV or 0.5-1 mg IM increments until the drying of secretions (atropinization) occurs. The desired end-point is the drying of all secretions. There is no maximum dose in this situation.

Top

A. Heat-Related Illness/Hyperthermia
B. Heat Cramps
C. Heat Exhaustion
D. Heat Stroke
E. Cold-Related Illness/Hypothermia
F. Hypothermia with a Perfusing Rhythm (Pulse)
G. Hypothermia without a Perfusing Rhythm (No Pulse)
H. Lightning Strike

A. Heat-Related Illness/Hyperthermia

Maintaining an even core body temperature (CBT) is a major component of homeostasis; all of the critical bodily functions operate most efficiently at normal body temperature, which ranges from 36.5° to 37.5° C (97.7°-99.5° F). The body generates most of its heat from metabolic processes in deep organs such as the liver, heart and brain, as well through small musculoskeletal contractions. When the body's thermoregulatory system is taxed beyond its limits or in cases of failure, the CBT will rise rapidly.

General Care

EMR/BLS

1. Initial Assessment/Care **Protocol 1**.
    a) Assess and monitor oral/axillary/infrared temperature.
2. Remove the patient from the hot environment to a cool environment.
    a) Apply passive/active cooling techniques as necessary, but do not allow the patient to begin shivering.
        1. Passive External Cooling Techniques
            i. Removal from environment causing illness
            ii. Remove articles of clothing
        2. Active Cooling Techniques
            i. Provide a cool environment with fans, misting or air conditioning
            ii. Apply cold packs to back of neck, axilla, and groin
            iii. Moisten patient with cool saline or place wet towels around the neck and head
3. Care should be directed at supporting vital signs. Follow the appropriate protocol.
    a) Support life-threatening problems associated with airway, breathing, and circulation.
    b) Administer oxygen, to maintain SPO2 94% or more.
    c) Perform Airway Management **Protocol 7** and support respirations as necessary with a BVM.

Top

4. Assess past medical history and nature of illness (NOI):

   - Medications
   - Exposure to increased temperatures, humidity
   - Extremes of age
   - Extreme exertion
   - Time, length of exposure
   - Poor oral intake
   - Fatigue, muscle cramping

5. Assess Signs and Symptoms:

   - Altered mental status
   - Unconsciousness
   - Hot, dry, or sweaty skin
   - Pale, clammy skin
   - Hypotension, shock
   - Seizures
   - Nausea
   - Weakness, dizziness, syncope
   - Rapid, shallow respirations

6. Follow most appropriate heat illness protocol according to presentation upon initial assessment.

B. Heat Cramps

Signs and symptoms begin with slight abdominal cramping and tingling sensations in the extremities (but can also include muscle twitching, followed by painful spasms, especially involving the lower extremities and abdomen). Other signs and symptoms can include nausea and vomiting, weakness and diaphoresis.

General Care

EMR/BLS

1. Follow general protocols for Heat Related-Illness/Hyperthermia, **Section A**.

2. If patient does not present with nausea/vomiting and maintains a patent airway, provide oral hydration of fluids when available.

   a) Preferably fluids of a balanced oral electrolyte solution.

3. Do not perform massage of the muscle cramps as it may aggravate the area and increase pain.

ALS

4. If patient is unable to take liquids by mouth, establish vascular access via IV/IO of Normal Saline and administer 500 mL bolus.

Top

C. Heat Exhaustion

Signs and symptoms include pallor, profuse sweating, hypotension, tachycardia, headache, weakness, fatigue and thirst.

General Care

EMR/BLS

1. Follow general protocols for Heat-Related Illness/Hyperthermia, **Section A**.
2. If patient does not present with nausea/vomiting and maintains a patent airway, provide oral hydration of fluids when available.
    a) Preferably fluids of a balanced oral electrolyte solution.
3. Do not perform massage of the muscle cramps as it may aggravate the area and increase pain.
4. Consider application of active cooling techniques gently until comfortable.

ALS

5. Establish vascular access via IV/IO of Normal Saline.
6. If patient's systolic B/P < 90 mmHg administer a **fluid bolus up to 1000 mL of NS**. Monitor B/P and lung sounds often.
    a) If the patient develops signs and symptoms of fluid overload respiratory distress (dyspnea, crackles, rhonchi, decreasing SpO2), slow the administration rate of the IV to KVO.
7. Monitor cardiac rhythm continuously and perform a 12-Lead ECG.

D. Heat Stroke

General Care

Signs and symptoms include altered mental status, hallucinations, or confusion, increased body temperature, minimal or no sweating, collapse, shortness of breath, shock, nausea and vomiting.

EMR/BLS

1. Follow general protocols for Heat-Related Illness/Hyperthermia, **Section A**.

Top

2. If Cold Water Immersion (CWI) and Tarp Assisted Cooling Oscillation (TACO) has begun by medical staff, continue the procedure for approximately 20-30 min. If CWI or TACO is available, follow **Procedure 60**.

3. If CWI or TACO is not available, begin application of active cooling techniques rapidly.

    a) Moisten or wet patient by dripping a NS solution bag until cooling efforts reaches ~102° F or apply wet towels around neck and head.

    b) Continue moistening and provide fanning during transport.

    c) Wrap the patient with wet sheets if there is good ambient airflow present.

4. Do NOT administer anything by mouth.

ALS

5. Establish vascular access via IV/IO of Normal Saline.

6. Administer a **fluid bolus up to 1000 mL of NS**. Monitor B/P and lung sounds often.

    a) If the patient develops signs and symptoms of fluid overload respiratory distress (dyspnea, crackles, rhonchi, decreasing SpO2), slow the administration rate of IV to KVO.

7. Monitor cardiac rhythm continuously and perform a 12-Lead ECG.

8. If seizures develop, administer **Midazolam (Versed) 5 mg** slow IV/IO/IN. This may be repeated once to a total dose of 10 mg.

E. Cold-Related Illness/Hypothermia

Hypothermia is typically defined as a decrease in core body temperature (CBT) less than 35° C (95° F). While most commonly seen in cold climates, it may develop without exposure to extreme environmental conditions. Hypothermia is not uncommon in temperate regions and may develop indoors even during summer. Hypothermia should be considered in any patient with an altered level of consciousness in a cool and/or wet environment. Individuals at the extremes of age and those of altered mental status are more susceptible to developing hypothermia. Vasoconstriction and bradycardia may cause extreme difficulty while attempting to palpate a pulse. Radiation accounts for the greatest form of heat loss. Conduction normally accounts for a much smaller amount, but increases significantly in wet clothes and astronomically in cold water. In patients that are hypothermic, pulse and respiratory rates may be slow or difficult to detect. ***If the hypothermic victim has no signs of life, begin CPR without delay.***

Top

General Care

EMR/BLS

1. Initial Assessment/Care **Protocol 1.**

    a) Assess and monitor oral/axillary/infrared temperature.

2. Remove the patient from the cold environment to a warm/sheltered environment.

    a) Apply passive/active warming techniques as necessary.

        i. Passive External Warming Techniques
            1. Removal from environment causing illness
            2. Prevent additional evaporative heat loss by removing wet garments.
            3. Dry and insulate the patient with blankets from further environmental exposures.

        ii. Active Warming Techniques
            1. Cover and protect patient against heat loss and excess windchill with the application of blankets and maintain heater unit to 82° F in back of the patient compartment.
            2. If necessary, apply hot packs under the patient's arms, behind the neck and the groin areas.

    b) Maintain patient in a supine position and limit any rough or excess movement.

3. Care should be directed at supporting vital signs. Follow the appropriate protocol.

    a) Support life-threatening problems associated with airway, breathing, and circulation.

    b) Administer oxygen, to maintain SPO2 94% or more.

    c) Perform Airway Management **Protocol 7** and support respirations as necessary with a BVM.

4. Assess past medical history and nature of illness (NOI):

- Medications
- Exposure to environment even in normal temperatures
- Exposure to extreme cold
- Extremes of age
- Drug use: alcohol, barbiturates
- Infection, sepsis
- Length of exposure, wetness

Top

5. Assess Signs and Symptoms:

- Cold, clammy
- Shivering
- Mental status changes
- Extremity pain, sensory abnormality
- Bradycardia
- Hypotension, shock

F. Hypothermia with a Perfusing Rhythm (Pulse)

EMR/BLS

1. Follow general protocols for Cold-Related Illness/Hypothermia, **Section E**.

    a) Perform assessment and general supportive procedures gently as these patients are prone to develop Ventricular Fibrillation (V-Fib).

ALS

2. Establish vascular access via IV/IO of Normal Saline KVO.

3. Monitor cardiac rhythm continuously and perform a 12-Lead ECG.

G. Hypothermia without a Perfusing Rhythm (No Pulse)

EMR/BLS

1. Begin CPR immediately **Protocol 9**.

2. Initiate passive rewarming with blankets and establish a warm environment in the patient compartment.

3. If there is any doubt about whether a pulse or breathing is present, immediately begin chest compressions.

4. Apply AED, provide shock if necessary and resume CPR.

    a) If the patient does not respond to one (1) defibrillation, continue performing CPR.

        1. Further defibrillation attempts should be deferred until active rewarming of the patient is achieved to 86° F.

ALS

5. Monitor cardiac rhythm continuously.

    a) Deliver shock if necessary and resume CPR.

Top

b) If the patient does not respond to one (1) defibrillation, further defibrillation attempts should be deferred until active rewarming of the patient is achieved to 86° F.

6. Establish vascular access via IV/IO of Normal Saline.

7. Provide Airway Management **Protocol 7** and secure an advanced airway.

8. Administer initial cardiovascular drugs based on presenting rhythm according to **Protocol 9**.

   a) If the patient fails to respond to the initial drug therapy, defer additional medication administrations until active rewarming of the patient is achieved to 86° F.

9. Continue with CPR and perform a thorough secondary assessment while maintaining a warm environment.

10. Transport patient to the closest STEMI facility.

H. Lightning Strike

Bolts of lightning produces energy sufficient enough to induce a depolarizing charge to the entire body. The sudden energy impact to the body causes ventricular fibrillation and/or asystole and respiratory arrest via diaphragm depolarization and a brainstem-induced central apnea. Immediately after depolarization, the heart automatically will attempt to spontaneously resume a normal perfusing rhythm. However, the body's respiratory drive does not resume spontaneously due to the stunned respiratory center of the brain stem (CNS), thus leaving patient to remain hypoxic leading the heart to go into secondary hypoxic arrest. Immediate resuscitation on a victim sustaining a lightning strike will drastically increase chances of survival by preventing hypoxemia. Due to the unusual neurological manifestations of lightning injuries, patients with fixed and dilated pupils may survive and live a normal life

Safety is paramount: When lightning is imminent or occurring, get the patient into the rescue truck or indoors as if your life depends on it — it does. Lightning DOES strike in the same area twice and fatal lightning may strike as much as six miles in front of a storm cloud, out of the clear blue sky.

In contrast with standard START Triage protocols, "Reverse Triage" is called for when treating multiple victims of a lightning strike. Rescuers should give highest priority to patients in respiratory or cardiac arrest. Victims with respiratory arrest may require only ventilation and oxygenation to avoid secondary hypoxic cardiac arrest. For victims found in cardiac arrest, treatment should be early, aggressive, and persistent. Lightning victims have higher resuscitative success rates than cardiac arrest from other causes, even after receiving prolonged resuscitation.

ALL lightning strike patients will be transported ALS to the closest appropriate facility.

Top

General Care

EMR/BLS

1. Perform "reverse triage" when dealing with multiple victims.

    a) All patients who have **NO** signs of life require to be assessed first and efforts of resuscitation began immediately in order to increase chances of survival.

    b) Patients that present with signs of life will likely recover from the lightning strike and can be assessed secondarily.

    c) A lightning strike resulting in an MCI, **ALL** victims with **NO** signs of life shall be assessed first and resuscitation efforts began immediately. Reverse triage is unlike the traditional approach to an MCI.

2. Manually stabilize the head and neck while assuring airway maintenance per Airway Management **Protocol 7** and Suspected Head/Spinal Injury **Protocol 21.**

3. Initial Assessment/Care **Protocol 1**.

4. Begin CPR immediately **Protocol 9**.
5. Apply AED, provide shock if necessary and resume CPR.

6. Provide supplemental oxygen to all conscious patients regardless of pulse oximetry.

ALS

7. Monitor cardiac rhythm continuously and treat arrhythmias as necessary according to **Protocol 9**.

    a) Deliver shock if necessary and resume CPR.

8. Establish vascular access via IV/IO of Normal Saline.

9. Provide Airway Management **Protocol 7** and secure an advanced airway.

10. Administer initial cardiovascular drugs based on presenting rhythm according to **Protocol 9** and continue following the most appropriate protocol sections for continued resuscitation.

11. Continue resuscitation and perform a thorough secondary assessment.

12. Transport patient to the closest STEMI facility.

Top

MCP

13. Hypertension following a lightning strike is usually transient and will only be treated at the discretion of the MCP.

Note: Resuscitation will be attempted on all lightning strike victims. Patients meeting Trauma Transport Criteria will be transported to the closest appropriate Trauma Center; however, a lightning strike in and of itself does NOT necessitate a declaration of a Trauma Alert. Unlike electrical injuries, burns from lightning strikes are usually superficial; however, skin under metal jewelry can sustain severe burns. Lightning can strike persons inside of a structure via plumbing fixtures, appliance wiring and especially hardwired telephones. As most lightning injuries are preventable, education and awareness about prevention practices are paramount.

Top

A. Withholding Resuscitation Procedures
B. DOA Procedures
C. Termination of Resuscitation
D. Special Notes

Cardiopulmonary resuscitation will be initiated on all patients who have suffered a cardiopulmonary arrest, except for those with obvious signs of irreversible biological death and those with a valid Do Not Resuscitate Order (DNRO) **Protocol 28**. ***Once resuscitation efforts have been initiated, they cannot be terminated unless a valid DNRO is presented, or obvious signs of irreversible biological death are discovered.*** The criteria used to withhold or terminate resuscitation **must** be documented in the Narrative Section of the Patient Care Report.

Extreme caution must be exercised in any decision to withhold cardiopulmonary resuscitation. When there is reasonable doubt about the patient's viability, resuscitation procedures will be initiated.

Cardiac arrest patients may present with any combination of the following ***presumptive*** signs and symptoms:

- Unwitnessed
- Pulseless
- Apneic
- Trismus
- Discolored
- Cool and pale
- Fixed and dilated pupils
- Asystole

These are NOT reasons to withhold resuscitation. These patients should still be resuscitated following the most appropriate algorithm in Protocol 9.

A. Withholding Resuscitation Procedures

The following guidelines are to be used to determine whether cardiopulmonary resuscitation may be withheld or terminated:

1. After a Primary Assessment **Protocol 1** it is determined that there is an absence of pulse and spontaneous respirations coupled with an EKG reading of asystole (confirmed in at least 2 leads), agonal rhythm less than 10 bpm, **and** any of the following ***conclusive*** signs:

    a) Tissue decomposition.

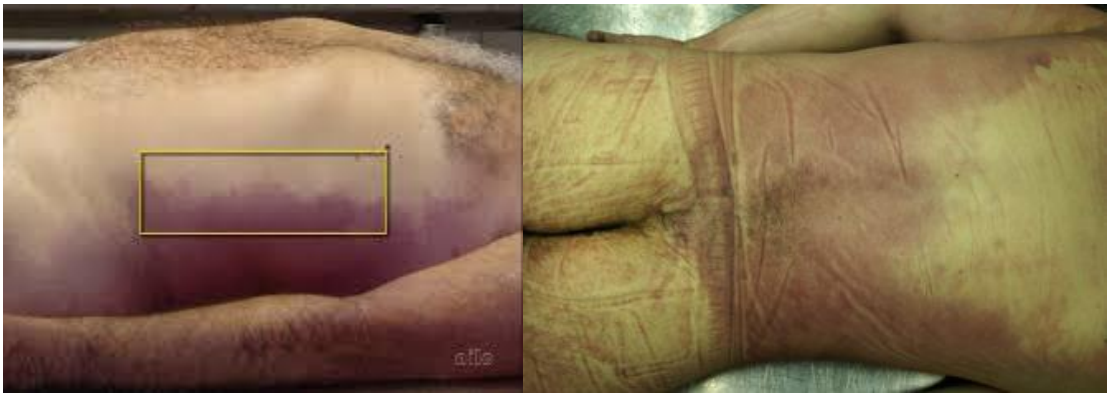
    b) **Rigor Mortis** with warm air temperature - hardening of the muscles of the body, making the joints rigid and the presence of fixed and non-reactive pupils.



Top

c) **Livor Mortis -** venous pooling of blood in dependent body parts causing purple discoloration of the skin, which does not blanch with pressure and the presence of fixed and non-reactive pupils.

Note: Similar but milder changes can be seen in severe, but reversible shock. Care must be exercised to distinguish between the two – mottling versus lividity.



2. ***Traumatic Cardiac Arrest Only***

After a Primary Assessment **Protocol 1** it is determined that there is an absence of pulse and spontaneous respirations coupled with an EKG reading of asystole (confirmed in at least 2 leads), agonal or idioventricular rhythm less than 10 bpm, Pulseless Electrical Activity (PEA) rhythm less than 50 bpm **and** any of the following ***conclusive*** signs:

a) Injuries obviously incompatible with life, e.g., decapitation, massive crush injury.

b) Obvious blunt trauma.

c) Isolated gunshot wound to the head.

b) Tissue decomposition.

c) **Rigor Mortis** with warm air temperature - hardening of the muscles of the body, making the joints rigid and the presence of fixed and non-reactive pupils.

d) **Livor Mortis** - venous pooling of blood in dependent body parts causing purple discoloration of the skin, which does not blanch with pressure and the presence of fixed and non-reactive pupils.

Note: Similar but milder changes can be seen in severe, but reversible shock. Care must be exercised to distinguish between the two – mottling versus lividity.

3. Absence of spontaneous respiration after repositioning the airway in a multiple casualty situation.

Top

4. In situations where CPR has been initiated on a patient who has previously expressed contrary desires through a properly documented DNRO, or a patient that would otherwise meet the guidelines above, CPR should be discontinued.

B. DOA Procedures

1. Advise the Fire Alarm Office to dispatch the appropriate law enforcement agency for institution of procedures for death on the scene.

2. Once all necessary information has been gathered and law enforcement have arrived, if the scene is stable (no family members in crisis or other patients being treated), the unit may clear.

C. Termination of Resuscitation

1. Extreme caution must be exercised in any decision to withhold cardiopulmonary resuscitation. When there is reasonable doubt about the patient's viability, resuscitation procedures will be initiated. Once CPR is begun, it should not be terminated except under the specific criteria outlined below or with a valid DNRO **Protocol 28**.

2. Resuscitation efforts may be terminated if **ALL** of the following criteria are met:

   a) The patient was a non-witnessed cardiac arrest **and,**

   b) The patient maintained a non-shockable EKG reading throughout the resuscitation **and,**

   c) The patient has no Return of Spontaneous Circulation (ROSC) after 20 minutes of resuscitation **and,**

   d) The patient has an advanced airway (ET Tube) in place and an ETCO2 reading < 10 after 20 minutes of resuscitation.

3. When a decision is made not to initiate resuscitation efforts or to terminate resuscitation efforts, the criteria on which the decision was based must be documented in the “narrative” section of the ePCR. All equipment used for airway, intraosseous and vascular access (i.e. ET tube, IV/IO catheters) should remain undisturbed in the position placed when resuscitative efforts were terminated.

D. Special Notes

1. Irreversible biological death is difficult to determine in the hypothermic, drowning, and electrocution patients. These patients can be pulseless, apneic and stiff, and still be viable candidates for resuscitation. Resuscitation efforts should not be terminated for these patients. Follow the most appropriate algorithm in **Protocol 9** and transport to the most appropriate facility.

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2. In situations where the deceased patient must be removed from the scene (environmental concerns, hostile situation, etc.) the medically related patient will be transported to the closest facility and the trauma related death to the closest appropriate Trauma Center for DOA procedures. In these instances, transport routine and have the FAO advise the appropriate law enforcement agency.

3. In extraordinary circumstances (extreme difficulty moving a patient from the scene and for the safety of the crews), an EMS Field Supervisor may approve the termination of efforts, even if one or more of the criteria are not met and at least 20 minutes of resuscitation efforts have been completed. The circumstances on which the decision was based must be documented in the “narrative” section of the ePCR.

4. In situations where patients are noted with gross decay and/or extremely obvious massive trauma (e.g., decapitation, massive crush injury), an EKG reading is not necessary to be attached to the ePCR. The assessment of the injuries and/or findings MUST be properly documented in a detailed narrative and physical assessment.

Top

Do Not Resuscitate Orders (DNRO) are legal documents that express the patient's desire to not be resuscitated. **The intent of such an order is for medical personnel to withhold resuscitation efforts on a patient found in respiratory and/or cardiac arrest.** This order honors the wishes and expectations of the patient, physician, and family.

The presence of a DNRO does not preclude the patient, however, from receiving other care outside the scope of resuscitation. The EMT or Paramedic will provide the patient comforting, pain-relieving and any other medically indicated care within the MOM, other than respiratory or cardiac resuscitation.

A. Valid DNRO

1. An original or completed copy of DH Form 1896, Florida Do Not Resuscitate Order, December 2002:

    a) DH Form 1896 may be duplicated provided that the content of the form is unaltered; the reproduction is of good quality, and on **yellow paper**.

    b) Any previous edition of DH Form 1896.

2. A DNRO Patient Identification Device. This device is a miniature version of form 1896 and Is Incorporated as part of the DNRO form. Use of this device is voluntary and is intended to provide a portable DNRO that travels with the patient.

3. Either the DNRO or Patient Identification Device must:

    a) Be signed by the patient's physician.

    b) Be signed by the patient, health care surrogate if the patient is unable to provide consent, or court appointed guardian or person acting in the pursuant to a durable power of attorney.

    NOTE: NO ELECTRONIC 'DNRO' WILL BE ACCEPTED

B. Confirmation and Documentation

1. Confirm the identity of the patient with a DNRO through a driver's license, other photo identification, or from a witness in the presence of the patient. If a witness is used to identify the patient, this shall be documented in the ePCR narrative section to include:

    a) The full name of the witness.

    b) The address and telephone number of the witness.

    c) The relationship of the witness to the patient.

2. Document in the narrative portion of the ePCR:

a) The **effective date** of the DNRO.

b) The name of the attending **physician who signed the DNRO**.

c) **Who signed the DNRO** (patient, health care surrogate, guardian, or proxy)?

d) The required information whenever the DNRO patient dies during transport.

3. Ensure a copy of the DNRO accompanies the live patient if transported. Upon arrival, personnel shall relinquish the DNRO form to the receiving facility.

4. A photograph of the DNRO will be documented on the ePCR. All OICs will ensure that the photo accurately reproduces the completed original, including any manual handwriting, signatures, and the yellow background (any shade of yellow is acceptable) of the original.

a) Select 'History'

b) Select 'Advance Directives' – State EMS DNR or Medical Order Form

c) The requirement to add a photo will be in "Photos/Images" and select 'Take a new Photo'

d) Enter in 'Caption': DNRO and hit 'save'.

C. Additional Information

1. If it is determined that the patient has a valid DNRO, personnel should not initiate CPR but, all other medical care, short of resuscitative measures is indicated.

2. If personnel are presented with an invalid DNRO or in the absence of a DNRO, initiation of CPR and other standard life-saving techniques is required.

3. If CPR has been initiated and it is later determined that the patient has a valid DNRO, CPR shall be discontinued. Proper documentation is required in accordance with section B.

4. A DNRO may be revoked at any time by the patient, designated health care surrogate, legal guardian, or proxy pursuant to section 765.104, FS.

D. DH Form 1896, State of Florida Do Not Resuscitate Order

- Sample DH Form 1896 attached to the following page.

DO NOT RESUSCITATE ORDER

State of Florida, Section 401.45, Florida Statutes

PATIENT'S OR AUTHORIZED PERSON'S STATEMENT

I , -
(Print or Type Full Legal Name) (Date of Birth)

being informed of my right to refuse cardiopulmonary resuscitation (CPR), including artificial ventilation, cardiac compression, endotracheal intubation, and defibrillation, direct that CPR be withheld or withdrawn from me.

By: ________________________________ Date: __________________
(Signature of Patient or Authorized Person)

I, ________________________________, am authorized to sign on the patient's behalf
(Print or Type Name of Authorized Person)

as the patient's ☐surrogate, ☐proxy, or ☐minor patient's principal (per s. 765.101, F.S.); or I am expressly authorized to make the patient's health care decisions under a ☐guardianship (per s. 744.102, F.S.), or ☐power of attorney (per s. 709.2102, F.S.).

HEALTH CARE PROVIDER'S STATEMENT

I, ________________________________, license number ____________________
(Print or Type Full Legal Name)

am the patient's ☐ physician, ☐ osteopathic physician, ☐ autonomous practice registered nurse, or ☐ physician assistant authorized by law to sign this order. I direct the withholding or withdrawal of CPR from the patient in the event of the patient's cardiac or respiratory arrest.

By: ________________________________ Date: __________________ Ph: --------------------
(Signature of Health Care Provider) (Emergency No.)

A copy of this order reproduced on yellow paper (any shade) is valid as the original.

Cut along line and fold in half to create DNRO Device (wallet card).

PATIENT'S OR AUTHORIZED PERSON'S STATEMENT

I ·-------------------------------------- - - - - - -
(Print or Type Full Legal Name) (Date of Birth)

being informed of my right to refuse cardiopulmonary resuscitation (CPR), including artificial ventilation, cardiac compression, endotracheal intubation, and defibrillation, direct that CPR be withheld or withdrawn from me.

By: ______________________ Date: ________________
(Signature of Patient or Authorized Person)

I, ______________________ , am authorized to sign on
(Print or Type Name of Authorized Person)

the patient's behalf as the patient's ☐surrogate, ☐proxy, or ☐minor patient's principal (per s. 765.101, F.S.); or I am expressly authorized to make the patient's health care decisions under a ☐guardianship (per s. 744.102, F.S.), or ☐power of attorney (per s. 709.2102, F.S.).

HEALTH CARE PROVIDER'S STATEMENT

I, ______________________________,
(Print or Type Full Legal Name)

license number ______________________

am the patient's D physician, D osteopathic physician, D autonomous practice registered nurse, or D physician assistant authorized by law to sign this order. I direct the withholding or withdrawal of CPR from the patient in the event of the patient's cardiac or respiratory arrest.

By: ______________________________
(Signature of Health Care Provider)

Date: ____________ _

Ph: ______________
(Emergency No.)

A copy of this order reproduced on yellow paper (any shade) is valid as the original.

ORDEN DE NO RESUCITAR

Estado de Florida, Sección 401.45, Estatutos de Florida

DECLARACIÓN DEL PACIENTE O DE LA PERSONA AUTORIZADA

Yo, _____, _____,
(Firma o Escritura del Nombre Legal Completo) (Fecha de nacimiento)

siendo informado de mi derecho a rechazar la resucitación cardiopulmonar (RCP), incluida la ventilación artificial, la compresión cardíaca, la intubación endotraqueal y la desfibrilación, ordeno que se me retenga o retire la RCP.

Por: _____ Fecha: _____
(Firma del paciente o persona autorizada)

Yo, _____, estoy autorizado para firmar en nombre del
(Firma o Escritura del Nombre de la Persona Autorizada)

paciente como ☐sustituto del paciente, ☐apoderado o ☐principal del paciente menor (según s. 765.101, F.S.); o estoy expresamente autorizado a tomar las decisiones de atención médica del paciente bajo ☐tutela (según s. 744.102, F.S.), o ☐poder notarial (según s. 709.2102, F.S.).

DECLARACIÓN DEL PROVEEDOR DE ATENCIÓN MÉDICA

Yo, _____, número de licencia _____,
(Firma o Escritura del Nombre Legal Completo)

soy el ☐médico del paciente, ☐el médico osteópata, ☐enfermera registrada de práctica autónoma o ☐asistente médico autorizado por la ley para firmar esta orden. Dirijo la retención o retirada de la RCP del paciente en caso de paro cardíaco o respiratorio del paciente.

Por: _____ Fecha: _____ Tel: _____
(Firma del proveedor de atención médica) (No. de Emergencia)

Una copia de esta orden reproducida en papel amarillo (cualquier tono) es válida como el original.

Corte por la línea y doble por la mitad para crear el dispositivo DNRO (tarjeta monedero).

DECLARACIÓN DEL PACIENTE O DE LA PERSONA AUTORIZADA

Yo, _____, _____,
(Firma o Escritura del Nombre Legal Completo) (Fecha de nacimiento)

siendo informado de mi derecho a rechazar la resucitación cardiopulmonar (RCP), incluida la ventilación artificial, la compresión cardíaca, la intubación endotraqueal y la desfibrilación, ordeno que se me retenga o retire la RCP.

Por: _____ Fecha: _____
(Firma del paciente o persona autorizada)

Yo, _____, estoy autorizado para firmar en
(Firma o Escritura del Nombre de la Persona Autorizada)

nombre del paciente como ☐sustituto del paciente, ☐apoderado o ☐ principal del paciente menor (según s. 765.101, F.S.); o estoy expresamente autorizado a tomar las decisiones de atención médica del paciente bajo ☐tutela (según s. 744.102, F.S.), o ☐poder notarial (según s. 709.2102, F.S.).

DECLARACIÓN DEL PROVEEDOR DE ATENCIÓN MÉDICA

Yo, _____,
(Firma o Escritura del Nombre Legal Completo)

número de licencia _____,

soy el ☐médico del paciente, ☐médico osteópata, ☐ enfermera registrada de práctica autónoma, o ☐ asistente médico autorizado por la ley para firmar esta orden. Dirijo la retención o retirada de la RCP del paciente en caso de paro cardíaco o respiratorio del paciente.

Por: _____
(Firma del Proveedor de Atención Médica)

Fecha: _____

Tel: _____
(No. de Emergencia.)

Una copia de esta orden reproducida en papel amarillo (cualquier tono) es válido como el original.

Formulario DH 1896, Revisado 02/2024, Incorporado por la Norma 64J-2.018, F.A.C.

A RESUSCITE LÒD

Eta Florid, Seksyon 401.45, Lwa Laflorid

DEKLARASYON PASYAN OSWA MOUN OTORIZASYON

Mwen, _____, _____,
(Ekri an lèt detache oswa tape Non Legal konplè) (Dat nesans)

Lè yo enfòme m sou dwa mwen pou m refize reanimasyon kadyopulmonè (CPR), ki gen ladan vantilasyon atifisyèl, konpresyon kadyak, entibasyon andotracheal, ak defibrilasyon, mwen ka mande pou yo sispann CPR oswa retire m.

Pa: _____ Dat: _____
(Siyati Pasyan oswa Moun Otorize)

Mwen menm, _____, mwen otorize pou m siyen nan
(Ekri an lèt detache oswa tape non moun ki otorize)

non pasyan an ☐kòm ranplasan, ☐prokurasyon, oswa ☐ direktè pasyan minè pasyan an (daprè s. 765.101, FS); oswa mwen gen otorizasyon eksprese pou pran desizyon sou swen sante pasyan an dapre a ☐gadyen legal (daprè s. 744.102, FS), oswa ☐ pwokirasyon (daprè s. 709.2102, FS).

DEKLARASYON FOUNISÈ SWEN SANTE

Mwen, _____, nimewo lisans _____,
(Ekri an lèt detache oswa Tape Non Legal konplè)

☐ se doktè pasyan an, ☐doktè osteopat, ☐enfimyè otonòm otonòm ki anrejistre, oswa ☐ asistan doktè ki otorize dapre lalwa pou siyen lòd sa a. Mwen mande pou yo kenbe oswa retire CPR sou pasyan an nan ka pasyan an fè arestasyon kadyak oswa respiratwa.

Pa: _____ Dat: _____ Telefòn: _____
(Siyati Founisè Swen Sante) (Ijans)

Yon kopi lòd sa a ki repwodui sou papye jòn (nenpòt lonbraj) valab kòm orijinal la.

Koupe sou liy lan epi pliye an mwatye pou kreye Aparèy DNRO (kat bous).

DEKLARASYON PASYAN OSWA MOUN OTORIZASYON

Mwen, _____, _____,
(Ekri an lèt detache oswa tape Non Legal konplè) (Dat nesans)

Lè yo enfòme m sou dwa mwen pou m refize reanimasyon kadyopulmonè (CPR), ki gen ladan vantilasyon atifisyèl, konpresyon kadyak, entibasyon andotracheal, ak defibrilasyon, mwen ka mande pou yo sispann CPR oswa retire m.

Pa: _____ Dat: _____
(Siyati Pasyan oswa Moun Otorize)

Mwen menm, _____,
(Ekri an lèt detache oswa tape non moun ki otorize)

mwen otorize pou m siyen nan non pasyan an ☐ kòm ranplasan, ☐ prokurasyon, oswa ☐direktè pasyan minè paysan an (daprè s. 765.101, FS); oswa mwen gen otorizasyon eksprese pou pran desizyon sou swen sante pasyan an dapre a ☐gadyen (daprè s. 744.102, FS), oswa ☐pwokirasyon (daprè s. 709.2102, FS).

DEKLARASYON FOUNISÈ SWEN SANTE

Mwen, _____,
(Ekri an lèt detache oswa Tape Non Legal konplè)

nimewo lisans _____,

☐ se doktè pasyan an, ☐doktè osteopat, ☐ enfimyè otonòm otonòm ki anrejistre, oswa ☐asistan doktè ki otorize dapre lalwa pou siyen lòd sa a. Mwen mande pou yo kenbe oswa retire CPR sou pasyan an nan ka pasyan an fè arestasyon kadyak oswa respiratwa.

Pa: _____
(Siyati Founisè Swen Sante)

Dat: _____

Telefòn: _____
(Ijans)

Yon kopi lòd sa a ki repwodui sou papye jòn (nenpòt lonbraj) valab kòm orijinal la.

Fòm DH 1896, Revize 02/2024, Enkòpore pa Règ 64J-2.018, FAC

A. Reporting to Community Assistance/Elder-Links

Any Miami-Dade Fire Rescue employee who encounters a person, whether it is a patient or under other circumstances, and they believe this person could benefit from assistance obtained through the Elder-Links Program or other community service providers should:

1. Complete an Elder-Links/Community Services Referral record through the MDFR intranet at **https://fire-vpcmsapps.fire.miamidade.gov/Elderlink** utilizing the ePCR tablet or the station desktop.

For any questions or concerns please contact the **Community Assistance Elder-Links Office #: 786-331-4925 or 786-331-4942**

B. Reporting Abuse, Neglect or Exploitation of Children or Vulnerable Adults

As defined by Florida Statute 415, any Fire Rescue employee who knows or has reasonable cause to suspect abuse, neglect, self-neglect, vulnerable or exploitation of a child or adult will immediately report such knowledge or suspicion to the Department of Children and Family Services (DCF) Florida Abuse Hotline. When the above conditions are witnessed by an employee, the following procedures should be applied. You can either report an incident to DCF via telephone or on-line. ***Online reporting should not be used for situations requiring immediate attention. If you suspect or know of a child or vulnerable adult in immediate danger, police must be contacted first.***

When reporting an incident to DCF select one of the following reporting options, either via telephone (option 1) or on-line via the DCF reporting weblink (option 2). Once DCF has been contacted by phone or on-line, you must complete and submit an Elder-Links Referral Record. Please do not forget to indicate on the Elder-Links report how DCF was notified. The State of Florida requires that a report be made by an eyewitness, rather than a third-party caller. DCF needs to be contacted first, then complete and submit the Elder-Links referral record.

OPTION 1: Call the DCF Florida Abuse Hotline for Public Safety Officials **1-866-532-2873** and report the incident. (Do not distribute this phone number to the public). This phone number is linked to the DCF Florida Abuse Hotline 1-800-96-ABUSE (1-800-962-2873). Upon contact with DCF Florida Abuse Hotline counselor, please document the counselor's name and identification number, as it will be needed when completing the Elder-Links Referral record. *(When reporting a case to DCF, calling is the preferred method)*

OPTION 2: Submit a DCF report via their on-line weblink, please gather all of your information in advance. Below is the DCF on-line weblink, once you are on their site select accordingly if the report completed will be for a child or an adult**. https://www.myflfamilies.com/services/abuse/abuse-hotline**

MUST COMPLETE an Elder-Links / Community Services Referral record through the MDFR intranet at **https://fire-vpcmsapps.fire.miamidade.gov/Elderlink** Please include the DCF Florida Abuse Hotline counselor's name and identification number in the Incident Information section of the Elder-Links record. Please be advised that by filling out an Elder-Links referral does not meet the State of Florida Mandated Reporting requirement for reporting abuse or neglect, you must contact DCF.

NOTES: If you are interrupted while filling out the Elder-Links referral record, click **Submit** and your record will be saved. You can access your record later via MDFR intranet at **Top Links > OPS Frequent Links > Elderlinks>Display > Submitted >** locate the **Patient Name** record and click the **Edit** button. Complete your Elder-Links record and click **Update Record** button. The updated information will be saved and submitted.

DO NOT fax records to the Florida DCF Abuse Hotline, as there is no guaranteed process to know that it has been received.

C. Additional Information

1. If the abused, neglected, self-neglected or exploited person is in immediate need of medical assistance and access to the patient is denied by a person or people on the scene, the Unit OIC will request police to respond for assistance.

2. In situations where there is reasonable cause to suspect that a criminal violation involving an incident of second party abuse or neglect has been attempted or committed, the Unit OIC will request police to respond to initiate an investigation.

3. Response by a law enforcement agency to the incident scene or transportation to a hospital does not release the Unit OIC from the responsibility of reporting the incident to Florida DCF via their Abuse Hotline or On-line weblink.

A. Introduction

The following are guidelines for compliance with requirements of FS 383.50, FS 383.51 **and Chapter 2024-213 Florida HB 775** as it relates to a newborn infant(s) released to fire station personnel.

B. Procedure

General Care

All Miami-Dade Fire Rescue stations will accept any newborn infant(s) left with a firefighter, emergency medical technician and/or paramedic. Fire Rescue personnel accepting the newborn infant(s) will consider the actions of the person delivering the newborn infant(s) to be implied consent and will:

1. Initiate emergency medical procedures for the newborn infant(s) to the extent he/she is trained, **and**

2. Arrange for immediate Miami-Dade Fire Rescue ALS transportation of the newborn infant(s) to the nearest appropriate facility. Any firefighter, emergency medical technician and/or paramedic accepting or providing emergency medical services to a newborn infant(s) pursuant to this Florida Statute is immune from criminal or civil liability for having performed the act.

3. Except where there is actual or suspected child abuse or neglect, any parent who leaves a newborn infant(s) with a firefighter, emergency medical technician and/or paramedic at a fire station and expresses intent to leave the newborn infant(s) has the absolute right to remain anonymous and to leave at any time and may not be pursued or followed. Do not pressure the parent(s) as they are not obligated to answer questions however medically related questions are permissible:

    1. Did the mother receive prenatal care through the pregnancy?

    2. Was the delivery of the newborn infant free from complications?

    3. Is there any past medical history related to the mother/father or relatives that may assist in care of the newborn infant?

4. A parent of a newborn infant(s) left at a fire station or hospital may claim his or her newborn infant(s) up until the court enters a judgment terminating his or her parental rights.

5. In the event signs or symptoms of abuse are seen or suspected, refer to Community Services & Abuse Reporting Protocol 29

6. A newborn infant(s) left at a fire station will be deemed surrendered, therefore not subject to reporting and investigation requirements, unless there is actual or suspected child abuse.

7. The identity of a parent who leaves a newborn infant(s) at a fire station is confidential.

C. Special Notes

1. Fire Rescue personnel includes firefighter, emergency medical technician and/or paramedic.

2. A newborn infant is defined as a child that a licensed physician reasonably believes to be **approximately 30 days or younger** at the time the child is left at a hospital or a fire station.

3. If a parent(s) returns to the fire station either prior to or after transporting the newborn to the hospital, it is recommended that the parent(s) be instructed to contact officials at the receiving hospital. This course of action enables that the baby receives medical attention and also possible services for the parent(s).

4. **A mother may call *911* from any location however she must remain with the baby and "Directly Surrender" it to the responders who answer the call.**

5. **For Safe Haven for Newborns FAQs**
https://urldefense.com/v3/__https://asafehavenfornewborns.com/wp-content/uploads/2012/10/Safe-Haven-FAQs.pdf__;!!LOelhlcw8ilLTokL!Y-7FpzqQl3L5_8Ub6boSVTEEkO1oBhWiMlJOjq6ukB-I3i3FN89piSftxbAPRZ-8x3NVDkvLpGPs5pjLLJRpiKnvrQ$

DISCONTINUED

A. Introduction

An AICD is an implantable defibrillator device that consists of a lead system that senses cardiac electrical activity, computer circuitry to analyze EKG rhythm, a power supply for unit function and generation of voltage, and a capacitor that stores and delivers shocks when indicated. The AICD has two functions: defibrillator and pacemaker. These devices may occasionally malfunction.

B. AICD discharges

BLS

1. Initial assessment/care Protocol 1
2. Airway Management Protocol 7
3. **Administer Aspirin** Protocol 10

ALS

1. Treat significant PVC's Protocol 9
2. Transport ALS with ECG Monitor, O2 via NRB mask and IV to the closest appropriate hospital.

C. AICD is confirmed by ECG to be discharging inappropriately

ALS

1. **Monitor ECG** and verify sinus rhythm AND inappropriate defibrillator discharge.
2. Consider **Versed (midazolam)** 5mg slow IV/IM, at any time with a conscious patient needing sedation.
3. Transport ALS with ECG Monitor, O2 via NRB mask and IV to the closest appropriate hospital.

Notes:

1. Identification information of the AICD type is usually given to the patient as a wallet card. This should accompany the patient to the ED.
2. CPR may be performed over an actively firing internal defibrillator. If external defibrillation is required, avoid placing patches over the implanted device.

Conducted Electrical Weapons (C.E.W) are designed to use propelled wires or direct contact to conduct electrical charge to primarily affect motor functions and/or the sensory nervous system.

Typically, C.E.W use by itself does not require transport to a hospital and law enforcement personnel are taught to remove the darts from the person once they are no longer needed for control. When MDFR personnel do encounter someone who has been controlled using a C.E.W a careful assessment is required to ensure that this individual is not suffering from excited delirium nor has some other condition that necessitates treatment.

General

A. History/Evaluation

A patient exhibiting any of the following will be treated by MDFR and transported ALS to the closest appropriate facility:

1. History of Events
    a) Evidence of excited delirium prior to the use of the C.E.W.
2. Evaluation
    a) Diaphoresis unexplained by the environment
    b) Evidence of hyperthermia by either touch (hot to touch away from direct sunlight) or oral/axillary temperature > 102^0 F
    c) Medical complaints or injuries that require ALS transport according to other MDFR protocols.

B. Patient Care

BLS

1. Initial Assessment/Care. Protocol 1
    a) Determine the dart locations if a C.E.W was used (if not already removed).
    b) If law enforcement is unable to remove a dart because of its location.
        1. Stabilize the probe in place as an impaled object.
        2. **Fire Rescue personnel will not remove C.E.W probes.**
        3. If the assessment does not reveal any ALS required conditions, the patient can be transported BLS to the closest appropriate hospital for removal of the impaled dart.

Sickle cell anemia is a chronic hemolytic anemia. It is characterized by the presence of sickle-shaped red blood cells. Sickle cell crisis results from the occlusion of a blood vessel by masses of these misshapen blood cells. Pain is the principal manifestation and represents the most common type of crisis. Typical pain occurs in the joints and back. Hepatic, pulmonary, or central nervous system involvement can occur, with each type being associated with its own group of symptoms. Keep in mind that patients with sickle cell disorder have a high incidence of life-threatening disorders at a very young age.

A. Sickle Cell Crisis

A sickle cell crisis is a painful episode that occurs in people who have sickle cell anemia. It happens when sickle-shaped red blood cells (RBCs) block blood vessels. Blood and oxygen cannot get to the tissues, causing pain. Also, a sickle cell crisis can damage your tissues, cause organ failure and can potentially become life-threatening.

Adult Care

EMR/BLS

1. Initial Assessment/Care **Protocol 1.**
2. Administer 100% oxygen via non-rebreather mask at 15L/min.
3. Provide emotional support, calm and reassure.
4. Apply hot packs to affected areas, especially joints and areas of increased pain.

ALS

5. Establish IV access of Normal Saline.
6. Administer **Normal Saline up to 1000 mL** assess B/P and lung sounds often.
7. If pain persists and systolic BP > 90 mmHg:
    a) Administer **Fentanyl 50 mcg** slow IVP. May be repeated once, the second dose can be titrated up to 50 mcg until relief of pain relief (Max total dose of 100 mcg) **Medication 16.**
    b) If IV/IO is not available, may administer Fentanyl Intranasal 50 mcg (max 1 mL/nostril). May repeat dose once 50 mcg (1 mL/nostril).
    c) Administer **Zofran 4 mg** SL (Do not administer to pregnant females) **Medication 33.**

B. Transport

Patterns of an acute sickle cell crisis are now recognizable. They are based on the part of the body where the crisis occurs.

- Acute chest syndrome: Sudden acute chest pain with coughing up of blood can occur. Low-grade fevers can be present. The person is usually short of breath. If a cough is present, it often is nonproductive. Acute chest syndrome is common in a young person with sickle cell disease. Chronic (long-term) sickle cell lung disease develops over time because the acute and subacute lung crisis leads to scarred lungs, as well as, other problems.

- Abdominal crisis: The pain associated with the abdominal crisis of sickle cell disease is constant and sudden. It becomes unrelenting. The pain may or may not be localized to any one area of the abdomen. Nausea, vomiting, and diarrhea may or may not occur.

- Joint crisis: Acute and painful joint crisis may develop without a significant traumatic history. Its focus is either in a single joint or in multiple joints. Often the connecting bony parts of the joint are painful. Range of motion is often restricted because of the pain. Avascular necrosis of the hips can occur, causing permanent damage.

Any patient with a history of sickle cell anemia presenting with any of the above three syndromes will be treated/transported ALS to the closest appropriate facility.

Any patient with signs, symptoms, and history suggesting inadequate tissue perfusion should be considered to be in shock. Make every effort to determine and treat the underlying cause regardless of etiology. Shock patients shall be transported **ALS** to the nearest appropriate facility for definitive care.

NOTE: This protocol is for the treatment of medical, atraumatic patients. To treat hypovolemic trauma patients, follow Protocol 21.

Suspect possible shock in patients that present with a history of:

a. Blood loss – vaginal or gastrointestinal bleeding
b. Fluid loss – vomiting, diarrhea
c. Fever, possible systemic infection
d. Infection
e. Cardiogenic shock or ischemia
f. Reaction to medications
g. Allergic reactions
h. Pregnancy, possible ectopic pregnancy
i. History of poor oral intake

General Care

EMR/ BLS

1. Initial Assessment/Care Protocol 1.
2. Signs and Symptoms:
    a. Restlessness, confusion
    b. Weakness, dizziness
    c. Tachycardia
    d. Pale, cool, clammy skin
    e. Delayed capillary refill
    f. Coffee-ground emesis, tarry stools
3. Hypotension (systolic B/P < 90 mmHg) is a mandatory ALS Rescue transport.
4. **Any patient with a normal blood pressure, but with two or more of the above signs and symptoms will be considered to be in compensated shock and treated/transported as an ALS patient.**
5. Keep the patient supine.
6. Prevent heat loss by covering with warm blankets if available, and if the patient is not febrile.

ALS

7. In hypotensive patients, IV fluid administration should be based on physiological signs rather than routine IV fluid administration. Start an IV of Normal Saline.

    a. Administer a **fluid bolus up to 1000 mL**. Monitor B/P and lung sounds often it is not mandatory to administer the entire liter of fluid prior to proceeding to Vasopressor. Clinical judgement should be utilized in determining when to proceed to Vasopressor.

8. If BP remains less than 90 mmHg, administer **Epinephrine Infusion 5-40 mcg/min.** Titrate to desired effect up to 40 mcg/min**.** **Appendix 9.2**.

    Mix Epinephrine 1mg/1mL, 10 mg (10 mL) into a 500mL NS bag with a 60 gtt/mL set to yield a concentration of 20 mcg/mL and begin administration at approximately 1 drop every 4 seconds and titrate to desired effect. Max dose of 40 mcg/minute (2 drops every second).
    Appendix 9.2

9. If the desired effects are not achieved with the Epinephrine Infusion, administered **Dopamine Infusion** at **10 mcg/kg/minute** and titrate to effect to achieve a blood pressure of 90-100mmHg systolic, max dose rate of **20 mcg/kg/min**. **Appendix 9.1**

A. Hypoglycemia

Signs and symptoms of acute hypoglycemia (insulin shock) include, but are not limited to: altered mental status up to and including unresponsiveness, weakness, dizziness, irritability, nausea, sweating, and combative behavior. Hypoglycemia can also precipitate seizures and display signs and symptoms of a stroke.

If the blood glucose level is < 70 mg/dL with signs/symptoms of hypoglycemia OR < 50 mg/dL without signs/symptoms of hypoglycemia:

BLS

1. Administer **Oral Glucose (Glutose) 15 grams** PO if the patient is conscious and able to swallow.

2. Reassess blood glucose level. If patient is still symptomatic and blood glucose level is < 70 mg/dL proceed to ALS care.

ALS

3. Administer **100 mL (10 grams) Dextrose 10%** IV OR **25 mL (12.5 grams) Dextrose 50%** IV**.** May be repeated once if blood glucose level remains below 80 mg/dL.

   NOTE: The recommended administration of IV Dextrose 50% is over 1 minute.

   a) If unable to establish IV access, administer **Glucagon (Glucagen) 1 mg** IM.

4. Reassess blood glucose level.

5. Transport ALS to the closest appropriate facility.

   NOTE: After administering oral glucose and/or Glucagon, blood glucose levels should be reassessed after 15 minutes. After administering Dextrose IV, blood glucose levels should be reassessed after 5 minutes.

B. Hyperglycemia

The signs and symptoms of hyperglycemia have an onset that can range from days to weeks. Hyperglycemia can be divided into two types: **Diabetic Ketoacidosis (DKA)** and **Hyperosmolar Hyperglycemic Non-Ketotic Coma (HHNK).**

Signs and symptoms can include, but are not limited to: lethargy, dizziness, seizure, nausea, vomiting, “fruity or acetone” breath (DKA), tachypnea or Kussmaul’s respirations (DKA), polyuria (frequent urination), polydipsia (thirst).

1. If blood glucose level is **≥ 300 mg/dL,** assess ETCO2

   a) If ETCO2 is ≤ 29 mmHg, suspect DKA.

b) Initiate IV access.

c) Administer a **normal saline bolus of up to 1 L (1,000 mL)** in the absence of CHF.

d) Transport ALS to the closest appropriate facility.

2. If blood glucose level is **between 300 mg/dL and 500 mg/dL without signs/symptoms**, assess ETCO2.

   a) If ETCO2 is ≥ 30 mmHg, patient may be transported BLS to the most appropriate facility by the most appropriate means.

$ETCO_2$ may be assessed via the "Smart CapnoLine"

3. If the blood glucose level is **≥ 500 mg/dL:**

   a) Initiate IV access.

   b) Administer a **Normal Saline bolus of 1 L (1,000 mL)** in the absence of CHF.

   c) Transport ALS to the closest appropriate facility.

NOTE: Care should be taken to look for underlying conditions when assessing patients with both DKA and HHNK as triggers can include myocardial infarction, stroke, infection, sepsis, and drug/alcohol abuse.

A. Hypoglycemia

Signs and symptoms of acute hypoglycemia (insulin shock) include but are not limited to: altered mental status up to and including unresponsiveness, weakness, dizziness, irritability, nausea, sweating, and combative behavior. Hypoglycemia can also precipitate seizures and display signs and symptoms of a stroke.

If the blood glucose level is < 70 mg/dL with signs/symptoms of hypoglycemia OR < 50 mg/dL without signs/symptoms of hypoglycemia:

BLS

1. Administer **Oral Glucose (Glutose) 15 grams** PO to patients ONLY if the patient is conscious and able to swallow.

   DO NOT administer oral glucose to patients younger than 3 years of age.

2. Reassess blood glucose level. If patient is still symptomatic and blood glucose level is < 70mg/dL proceed to ALS care.

ALS

3. Administer **5mL/kg Dextrose 10% 0.5g/kg** IV, **Max 100 mL**. May be repeated once if blood glucose level remains below 80 mg/dL.

   a) If unable to establish IV access, administer **Glucagon** IM.

      i. Patient's less than or equal to 20 kg – **0.5 mg IM**

      ii. Patient's greater than 20 kg – **1 mg IM**

   NOTE: After administering oral glucose and/or Glucagon, blood glucose levels should be reassessed after 15 minutes. After administering Dextrose IV, blood glucose levels should be reassessed after 5 minutes.

4. Transport ALS to the closest appropriate hospital.

B. Hyperglycemia

The signs and symptoms of hyperglycemia have an onset that can range from days to weeks. Hyperglycemia can be divided into two types: **Diabetic Ketoacidosis (DKA)** and **Hyperosmolar Hyperglycemic Non-Ketotic Coma (HHNK).**

Signs and symptoms can include, but are not limited to: lethargy, dizziness, seizure, nausea, vomiting, "fruity or acetone" breath (DKA), tachypnea or Kussmaul respirations (DKA), polyuria (frequent urination), polydipsia (thirst).

1. If blood glucose level is **≥ 300mg/dL**, assess $ETCO_2$

   a) If $ETCO_2$ is ≤ 25 mmHg, suspect DKA.

$ETCO_2$ may be assessed via the "Smart CapnoLine"

b) Administer a **Normal Saline bolus of 20 mL/kg** IV.

c) Transport ALS to the closest appropriate hospital.

NOTE: Care should be taken to look for underlying conditions when assessing patients with both DKA and HHNK as triggers can include infection, sepsis, stroke and drug/alcohol ingestion.

A. Introduction

The following protocol focuses on victims of fire and smoke inhalation. Victims who have evacuated or are rescued from occupancies with a significant presence of smoke must be evaluated and treated by MDFR and an ePCR must be completed.

B. Suspected Smoke Inhalation

BLS

1. Initial Assessment/Care **Protocol 1.**
2. Establish and maintain a patent airway **Protocol 7.**
    a) Airway compromise must be anticipated in patients who have visible signs of smoke inhalation such as:
        - Soot around the nostrils and mouth
        - Burns to the face or neck
        - Signs of respiratory distress

ALS

3. Establish IV/IO access.
    a) IV/IO access should be considered early in cases of suspected smoke inhalation in order to provide airway management. See “Intubation with sedation” **Protocol 7.**
4. Perform ECG with continuous monitoring and 12-Lead ECG **Protocol 10.**

Patients showing signs of shock secondary to smoke inhalation are indicated for CyanoKit administration **Medication 37**. Signs/symptoms may include:

- Patients trapped in a compartmentalized fire for extended periods of time
- Severe respiratory distress/depression
- Altered mental status/unconsciousness
- Hypotension
- Obvious cyanosis
- ETCO2 < 29 mmHg
- Cardiac Arrest secondary to smoke inhalation

5. Mix Hydroxocobalamin (CyanoKit) as per **Appendix 09-7**.

    a) Administer **Hydroxocobalamin (CyanoKit) 5 gm** over 15 minutes.

6. If the CyanoKit is not available, mix Sodium Thiosulfate as per **Appendix 09-5**.

    a) Administer **Sodium Thiosulfate 12.5 gm IV over 10 minutes**.

C. Carbon Monoxide (CO)

Carbon Monoxide is a colorless, odorless, and tasteless gas that is non-irritating to the respiratory tract. It is a common byproduct of the incomplete combustion from any organic material, and is a major toxic component in smoke inhalation.

Carbon Monoxide binds readily with hemoglobin to create carboxyhemoglobin. This interferes with oxygen's ability to bind with hemoglobin, thus reducing the oxygen carrying capacity of the blood. Carbon Monoxide levels can be measured in a non-invasive manner using the RAD-57 **Procedure 44** Measurements are read as a percentage of carboxyhemoglobin (SpCO).

BLS

1. Remove patient from the contaminated environment.

2. Initial Assessment/Care **Protocol 1**.

3. Apply the RAD-57 **Procedure 44** and document a pre-oxygen SpCO reading in the "Narrative" section of ePCR.

4. CO Exposure specific signs and symptoms in order of progression include: headache, dizziness, tinnitus, nausea, muscle weakness, chest pain, dyspnea, syncope, seizures, and coma. (Cherry red skin color is not an early sign of CO poisoning and is usually seen post-mortem).

5. Administer Oxygen 15L/min via a NRB mask. If the patient is unresponsive, ventilate via BVM with 100% oxygen.

ALS

6. Perform endotracheal intubation and continue to hyper-oxygenate.

7. If CO poisoning is due to a suicide attempt, and the patient shows signs of respiratory depression, administer **Naloxone (Narcan) 0.5 mg** slow IV or IM as needed **Medication 26**.

8. Transport to appropriate facility (refer to Hospital Capabilities Chart and information below).

Transport considerations based upon SpCO levels using Pulse-CO Oximeter	
SpCO %	**Transportation Requirements per Protocol 25**
0-3%	Transport NOT required unless patient has another medical/trauma complaint
3-12%	No signs/symptoms = No Transport required unless patient has another medical/trauma complaint
3-12%	WITH signs/symptoms = ALS Transport to closest appropriate facility
≥13%	ALS Transport REQUIRED to closest appropriate facility

Note: Readings outside of the normal range will be confirmed on the opposite extremity.

E. Transportation

All smoke inhalation victims should be transported ALS via Rescue unit to the closest most appropriate facility.

A. Introduction

The following protocol focuses on victims of fire and smoke inhalation. Victims who have evacuated or are rescued from occupancies with a significant presence of smoke must be evaluated and treated by MDFR and an ePCR must be completed.

B. Suspected Smoke Inhalation

BLS

1. Initial Assessment/Care **Protocol 1P**.
2. Establish and maintain a patent airway **Protocol 7P**.
    a) Airway compromise must be anticipated in patients who have visible signs of smoke inhalation such as:
        - Soot around the nostrils and mouth
        - Burns to the face or neck
        - Signs of respiratory distress

ALS

3. Establish IV/IO access.
    a. IV/IO access should be considered early in cases of suspected smoke inhalation in order to provide airway management. See "Intubation with sedation" **Protocol 7P**.
4. Perform ECG with continuous monitoring and 12-Lead ECG **Protocol 10**.

Patients showing signs of shock secondary to smoke inhalation are indicated for CyanoKit administration **Medication 37**. Signs/symptoms may include:

- Patients trapped in a compartmentalized fire for extended periods of time
- Severe respiratory distress/depression
- Altered mental status/unconsciousness
- Hypotension
- Obvious cyanosis
- ETCO2 < 29 mmHg
- Cardiac Arrest secondary to smoke inhalation

5. Mix Hydroxocobalamin (CyanoKit) as per **Appendix 09-7**.

    a) Administer **Hydroxocobalamin (CyanoKit) 70 mg/kg.**

        i. Run IV 1 gtt/sec for a duration not to exceed 1 minute per kg.

6. If the CyanoKit is not available, administer **Sodium Thiosulfate 1.2 mL/kg over 10 minutes** IV/IO as per **Appendix 09-5**.

    a) Draw out **Sodium Thiosulfate 1.2 mL/kg.**
    b) Mix into a 50 mL NS bag.
    c) Completely infuse mixed bag at 1 gtt/sec with a 10 gtt (macro) set.

C. Carbon Monoxide (CO)

Carbon Monoxide is a colorless, odorless, and tasteless gas that is non-irritating to the respiratory tract. It is a common byproduct of the incomplete combustion from any organic material, and is a major toxic component in smoke inhalation.

Carbon Monoxide binds readily with hemoglobin to create carboxyhemoglobin. This interferes with oxygen's ability to bind with hemoglobin, thus reducing the oxygen carrying capacity of the blood. Carbon Monoxide levels can be measured in a non-invasive manner using the RAD-57 **Procedure 44** Measurements are read as a percentage of carboxyhemoglobin (SpCO).

BLS

1. Remove patient from the contaminated environment.

2. Initial Assessment/Care **Protocol 1P**.

3. Apply the RAD-57 **Procedure 44** and document a pre-oxygen SpCO reading in the "Narrative" section of ePCR.

4. CO Exposure specific signs and symptoms in order of progression include: headache, dizziness, tinnitus, nausea, muscle weakness, chest pain, dyspnea, syncope, seizures, and coma. (Cherry red skin color is not an early sign of CO poisoning and is usually seen post-mortem).

5. Administer Oxygen 15L/min via a NRB mask. If the patient is unresponsive, ventilate via BVM with 100% oxygen.

ALS

6. Perform endotracheal intubation and continue to hyper-oxygenate.

7. If CO poisoning is due to a suicide attempt, and the patient shows signs of respiratory depression, administer **Naloxone (Narcan) 0.1 mg/kg** slow IV or IM (Max single dose 0.5 mg) as needed **Medication 26**.

    a) 1 mg IN via MAD o Do not administer more than 0.5 mL per nostril. May be repeated once if patient's respiratory drive remains depressed.

8. Transport to appropriate facility (refer to Hospital Capabilities Chart and information below).

Transport considerations based upon SpCO levels using Pulse-CO Oximeter	
SpCO %	**Transportation Requirements per Protocol 25**
0-3%	Transport NOT required unless patient has another medical/trauma complaint
3-12%	No signs/symptoms = No Transport required unless patient has another medical/trauma complaint
3-12%	WITH signs/symptoms = ALS Transport to closest appropriate facility
≥13%	ALS Transport REQUIRED to closest appropriate facility

Note: Readings outside of the normal range will be confirmed on the opposite extremity.

E. Transportation

All smoke inhalation victims should be transported ALS via Rescue unit to the closest most appropriate facility.

This protocol is designed to provide guidance to MDFR paramedics assigned to the Miami-Dade Police Department Special Response Team. Tactical paramedics will often find themselves working in austere conditions with their ability to evacuate patients often significantly delayed. These working conditions can also frequently create multiple patient scenarios with very few medical providers. The expanded scope of care allowed in this protocol is intended for treating on duty police officers and firefighters injured during tactical operations.

A. Care Under Fire

Treatment rendered in the area where the patient was initially wounded while the tactical paramedic and patient are still under attack. The major goals of this stage of treatment are to prevent additional injuries and move the patient to cover.

EMR/BLS

1. If patient is able, direct patient to move to a safer position and begin self-aide.
2. When tactically feasible, move patient to cover.
3. Control life threatening extremity hemorrhage if tactically feasible **Procedure 9**.
4. Protect the airway with simple positioning (seated or recovery position).

B. Tactical Field Care

Treatment provided as soon as the patient or tactical paramedic is no longer under hostile fire and rapid treatment of life-threatening conditions can be addressed.

EMR/BLS

1. Consolidate patients into a Casualty Collection Point (CCP) and perform triage.
2. Control life threatening hemorrhage if not already accomplished **Procedure 9.**
3. Remove weapons and communications equipment from all patients with AMS. Clothing and body armor should be kept on the patient if possible.
4. Spinal Motion Restriction **Protocol 40** if required.
5. Position patient for airway maintenance (recovery position or seated).
6. Apply chest seals to penetrating thoracic wounds **Procedure 6.**

ALS

7. Perform advanced airway management, as indicated **Protocol 7**.
8. Establish vascular access, as indicated.
9. Provide chest decompression, as indicated **Procedure 5**.
10. Administer **Tranexamic Acid (TXA) 2 grams slow IVP** as indicated **Medication 38**.
    a. **Do not infuse concurrently in the same IV line with blood products or Hextend.**
    b. Use permanent marker to write “2 grams TXA given” on patient’s chest.
    c. Administer IV/IO fluids as required to achieve a palpable radial pulse.

MCP

11. If casualties cannot be evacuated, attempt to contact medical control for implementation of extended care protocol.

A. Introduction

Chemical patient restraint is a means of modifying a patient's physical activities to protect the patient or others from injury as it may be the case, although rare, in a true Hyperactive Delirium Syndrome with Severe Agitation Emergency. Hyperactive Delirium Syndrome with Severe Agitation is a potentially life-threatening clinical condition of vital sign abnormalities (e.g., elevated temperature and blood pressure), pronounced agitation, altered mental status, and metabolic derangements. Physically the organs within the patient are functioning at such an excited rate that they begin to shut down. The patient will likely resist normal efforts of physical control and possibly even Conducted Electrical Weapon (CEW) deployment. Possible causes of Hyperactive Delirium Syndrome with Severe Agitation may include but are not limited to overdose or withdrawal from stimulant or hallucinogenic drugs, psychiatric patient on or off medication, illness, low blood sugar, psychosis and head trauma.

Chemical restraint with IM or IV medications should only be used when less restrictive means of controlling a patient's behavior have been exhausted. The reason for restraint, the method used, and a pre-sedation Glasgow Coma Score (GCS) should be documented on the electronic Patient Care Report.

B. Assessment

1. Determine scene safety. Request law enforcement to assist with manual restraint.
2. Initial Assessment/Care **Protocol 1**.
3. Chemical patient restraint may be indicated for the following:
    a. A patient exhibiting violent behavior towards themselves or others as defined under "The Baker Act", FS 394.463 **Protocol 2.**
    b. A violent non-cooperative patient who requires emergency medical treatment and/or transportation as defined under the "Incapacitated Persons Act" FS 401.445 **Protocol 2.**

C. Patient Care

EMR/BLS

1. Position patient supine or lateral recumbent position only, to limit chances of positional asphyxia.
2. Apply manual or soft restraints if necessary to ensure patient and crew safety **Procedure 27**.
3. Administer oxygen as needed **Procedure 1.**
4. Check and document blood glucose level (once restrained).

5. *If Hyperactive Delirium Syndrome with Severe Agitation is suspected:*
    a) Assess oral/axillary/infrared temperature to rule out hyperthermia (> 102° F).
    b) If the patient is hyperthermic, use external cooling measures **Protocol 26**.

    NOTE: Consider an active/passive cooling approach.
6. If the patient was restrained by CEW provide care in accordance to **Protocol 33**.

ALS

NOTE: When physical and/or chemical restraints are used, a complete ALS assessment and treatment will be required.

1. Patients exhibiting signs of severe agitation compromising patient care or the safety of themselves and the crew and the continuation of struggle against physical restraints, consider chemical patient restraint. Administer **Ketamine 2 mg/kg (Max 200 mg)** slow IV or IM**.**
    a) For IM administration, a second dose can be administered in a different IM injection site.
2. Follow with administration of **Midazolam (Versed) 2.5 mg** slow IV or IM/IN.
3. Attempt to infuse up to **1 L** of **Normal Saline**.
4. Monitor ECG continuously and perform a 12-Lead ECG (once restrained).
5. Perform aggressive airway suctioning due to hypersalivation:
    a) If hypersalivation compromises respiratory efforts and is not controlled with aggressive oral suctioning, administer **Atropine 0.5 mg** IV/IO/IM.
6. Assess for other toxicity and provide treatment in accordance to **Protocol 15.**
    a) Contact Poison Control at 1-800-222-1222 in the event of drug or chemical intoxications beyond current standing orders

Introduction

Spinal motion restriction is indicated for patients experiencing signs / symptoms of a possible spinal cord injury subsequent to trauma. All patients complaining of neck / back pain OR who have sustained injury from a mechanism of injury consistent with spinal cord injury will have a spinal injury assessment performed.

A. Spinal Assessment

SPINAL MOTION RESTRICTION EXCLUSION CRITERIA

Spinal motion restriction is not required when ALL of the following apply:

1. Stable patient with normal peripheral perfusion signs.
2. Reliable Patient:
   a) ≥ 9 years old.
   b) Calm and cooperative.
   c) No altered mental status (e.g., dementia, preexisting brain injury, developmental delay, psychosis, etc.).
   d) No evidence of alcohol or drug intoxication.
   e) No acute stress reaction.
   f) Not distracted by circumstances or injuries to self or others.
   g) No communication barriers (e.g., deafness, language, etc.).
3. Patient denies spinal pain and no spinal tenderness is elicited with palpation. (This includes cervical, lumbar, thoracic and sacral pain).
4. Normal neurological function in all extremities:
   a) No numbness or tingling (paresthesia).
   b) Motor strength is full and symmetrical:
      1. Full range of motion on all uninjured limbs.
      2. Full range of motion of the neck

If the patient fails to meet **ANY** of the above conditions, or assessment cannot be completed, then the patient will be placed on a backboard with full spinal motion restriction.

**__NOTE:__

1. When Air Rescue is called for transport, the backboard or patient carry-all should be used to facilitate transport regardless of spinal motion restriction inclusion or exclusion criteria.

2. Any penetrating injury to the neck, chest or abdomen resulting in difficulty breathing or airway compromise may be placed in a position most beneficial to the patient as long as the patient can be transported safely in the aircraft as well as in a rescue.

SPINAL MOTION RESTRICTION INCLUSION CRITERIA

Spinal Motion Restriction is necessary to prevent potentially life-threatening or further disabling injuries during the movement and transportation of the trauma victim. Indications for spinal motion restriction include:

1. **Physical findings:**

   a) Pain to or pain on movement of the neck or back.

   b) Point tenderness, deformity, and/or guarding of the spine area.

   c) Paralysis, paresis, numbness, or tingling in the arms or legs at any time post-insult.

   d) Signs or symptoms of neurogenic shock.

   e) Unconsciousness with suspected trauma.

   f) Possible injury to the spine when evaluation is difficult due to altered mental status.

   g) Significant injuries above the clavicles.

   h) High energy mechanism of injury together with:

      1) Alcohol and/or drug intoxication.
      2) Distracting, painful injury or communication barrier.

         A. “Distracting Painful Injuries associated with Cervical Spinal Injuries in “Blunt Trauma”, suggests:

            a) Any long bone fracture.
            b) Visceral injury necessitating possible surgery.
            c) Meets trauma criteria.

In situations not covered by the above, if clinical judgment indicates spinal cord injury, the patient may be placed on a backboard with full spinal motion restriction.

Spinal Motion Restriction Guidelines

1. Assemble necessary equipment:
    a) Long spine board
    b) Appropriate cervical collar
    c) Padding
    d) Blanket roll, or Headbed
    e) Straps (minimum of 3)
    f) 2-inch tape

B. Spinal Motion Restriction of the supine/prone patient

Adult Care

EMR / BLS

1. Begin with manual stabilization of the head in a neutral, in-line position. Manual stabilization should be provided without interruption until complete patient spinal motion restriction is accomplished.
2. Contraindications to placement in an in-line position include:
    a) Neck muscle spasm
    b) Increased pain
    c) Onset of or increase of a neurological deficit such as numbness, tingling, or loss of motor ability.
    d) Compromise of the airway or ventilation
    e) If the patient's injuries are so severe that the head presents with such misalignment that it no longer appears to extend from the midline of the shoulders.
3. Size and apply the appropriate cervical collar. To size the collar, measure the distance, using your fingers, between the bottom of the jaw to the top of the trapezius muscle (**Illustration #1**).

a) In the rare instance an appropriately sized cervical collar is not available, maintain manual spinal restriction and complete the spinal motion restriction process without a cervical collar.

4. While maintaining manual stabilization with a collar in place, log roll the patient, position the backboard, and roll patient onto the board in a supine position.

5. Place blanket roll or head immobilizer in place.

6. Pad the space, as needed, between the back of the head and backboard to prevent hyperextension of the cervical vertebrae.

7. Secure the patient's body to the board with straps:

   a) Immobilize the upper torso to prevent upward sliding of patient's body during movement and transportation. This is accomplished by bringing straps over the shoulders and across the chest to make an X.

   b) Additional straps must be placed to prevent side-to-side movement of the body on the board. This can be accomplished by using circumferential straps across the upper chest, iliac crests, mid-to-distal thigh, or at the pelvis with groin loops.

   c) Arms should be placed at patient's side to prevent movement of the shoulder girdle.

   d) Secure both feet together to prevent rotary movement of the legs.

   e) Apply 2-inch tape directly across the forehead and secure the head while extending the tape under the backboard. DO NOT apply tape directly across the chin as this may create an airway obstruction. Tape may be placed across the surface of the semi-rigid cervical collar.

Note: If no straps are available for immobilizing a patient then elastic bandages (Ace® wrap type) may be utilized.

Pediatric Care

EMR / BLS

1. Begin with manual in-line stabilization of the head in a neutral, in-line position. Manual stabilization should be provided without interruption until complete spinal motion restriction is accomplished.

2. Contraindications to placement in an in-line position include:

   a) Neck muscle spasm

   b) Increased pain

   c) Onset of or increase of a neurological deficit such as numbness, tingling, or loss of motor ability.

d) Compromise of the airway or ventilation

e) If the patient's injuries are so severe that the head presents with such misalignment that it no longer appears to extend from the midline of the shoulders.

3. Size and apply the appropriate cervical collar. To size the collar, measure the distance, using your fingers, between the bottom of the jaw to the top of the trapezius muscle.

   a) If an appropriately sized cervical collar is not available, maintain manual stabilization and complete the spinal restriction process without a cervical collar.

4. While maintaining manual stabilization with a collar in place, log roll the patient, position the backboard, and roll patient onto the board in a supine position.

5. Place blanket roll or head immobilizer in place.

6. Pad underneath the scapula and back, lifting the shoulders and preventing hyperflexion of the neck due to the prominent occiput of the pediatric patient.

7. Secure the patient's body to the board with straps:

   a) Immobilize the upper torso to prevent upward sliding of patient's body during movement and transportation. This is accomplished by bringing straps over the shoulders and across the chest to make an X.

   b) Additional straps must be placed to prevent side-to-side movement of the body on the board. This can be accomplished by using circumferential straps across the upper chest, iliac crests, mid-to-distal thigh, or at the pelvis with groin loops.

   c) Strap the patient to the board after filling lateral void spaces, making the body as wide as the board.

   d) Arms should be placed at patient's side to prevent movement of the shoulder girdle.

   e) Secure both feet together to prevent rotary movement of the legs.

   f) Apply 2-inch tape directly across the forehead and secure the head while extending the tape under the backboard. DO NOT apply tape directly across the chin as this may create an airway obstruction. Tape may be placed across the surface of the semi-rigid cervical collar.

Note: If no straps are available for immobilizing a patient then elastic bandages (Ace® wrap type) may be utilized.

B. Spinal Motion Restriction of the standing patient

Adult Care

EMR / BLS

1. Initiate manual stabilization of the head in a neutral in-line position. Approach the patient from the front to eliminate lateral movements.
2. Apply the appropriate cervical collar.
3. With one rescuer at each side of the board and the third holding the head, slowly lay the board down.
4. With the patient supine on the board now follow steps A4 thru A9.

C. Vest-type extrication device (KED)

Adult Care

BLS

1. Initiate manual in-line stabilization of the head.
2. Apply the appropriate cervical collar.
3. Insert the device behind the patient. Try to limit movement while positioning the device.
4. Position the device so it fits securely under the axilla. Open the side flaps and place them around the patient's torso.
5. Position, connect and adjust the torso straps. Leave the uppermost strap loose until the head is immobilized.
6. Position and fasten each groin loop. Adjust one side at a time to prevent excess movement of the patient.
7. Place the pad behind the patient's head, filling the void to prevent hyperextension.
8. Position the head flaps. Fasten the forehead strap and apply the chinstrap over the cervical collar.

CAUTION: The handles of the KED should not be used to lift, carry or move the patient.

The MDFR Spinal Injury Assessment

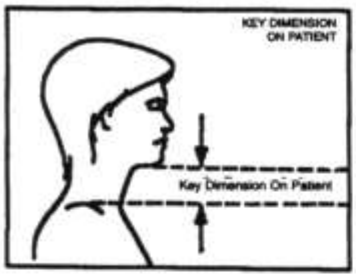
The following steps will be taken when you are assessing a patient with a complaint of neck and / or back pain associated with a traumatic incident.

1	The patient must be greater than or equal to 9 years of age, calm and cooperative with stable vital signs	If the patient is < 9 years of age, uncooperative, or you cannot get a reliable history of the incident, spinal motion restriction is indicated.
2	Assess the GCS. The patient should NOT have altered mental status	If the patient has altered mental status with suspected spinal injury, spinal motion restriction is indicated.
3	Assess for signs of drug or alcohol intoxication. Determine if the history of the incident includes intoxication.	If the patient has signs of drug or alcohol intoxication with suspected spinal injury, spinal motion restriction is indicated.
4	Palpate the midline neck and back over the spine	If the patient has tenderness over the area palpated or if you feel deformity, spinal motion restriction is indicated.
5	Have the patient move his/her extremities. Have the patient move the head up and down, then rotate left and right.	If the patient does not have an acceptable range of motion, or experiences severe neck pain upon movement of the head, spinal motion restriction is indicated.

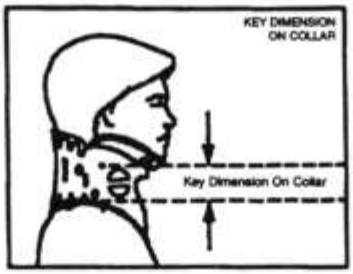
If the presentation of the patient indicates a spinal cord injury, spinal motion restriction is indicated.

ILLUSTRATION #1

SIZING METHOD



1. Proper sizing is critical for good patient care. Too short a collar may not provide enough support, while too tall a collar may hyperextend. The ***key dimension*** on a patient is the distance between an imaginary line drawn across the top shoulders, where the collar will sit and the bottom plane of the patient's chin.



2. The **key dimension** on the collar is the distance between the ***sizing post*** (back fastener) and the lower edge of the rigid plastic encircling band (not the foam padding).



3. When the patient is being held in a neutral [illegible], use your fingers to measure the distance [illegible] shoulder to the chin **(key dimension).**

ILLUSTRATION #2



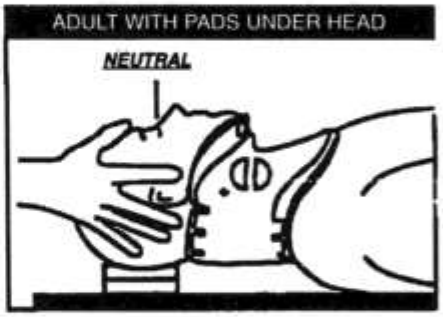
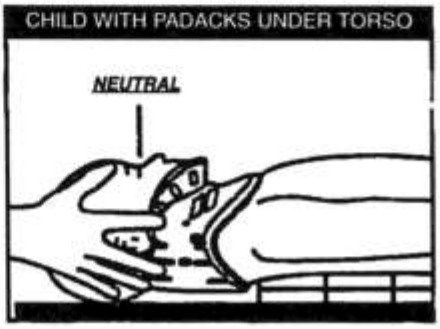


ILLUSTRATION #3





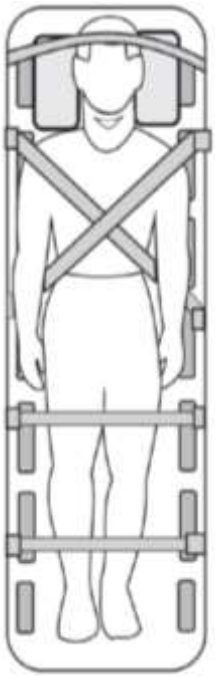


Illustration #4

Attach straps across the chest forming an "X"

Secure the head with 2" Tape

Secure the upper and lower legs

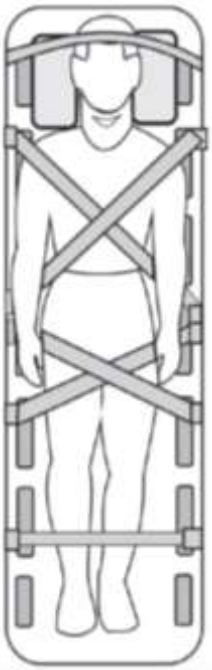


Illustration #5

Secure the chest by crossing the straps forming an "X"

Secure the pelvis and upper legs by crossing the straps forming an "X"

Secure the head with 2" Tape

Secure the lower legs

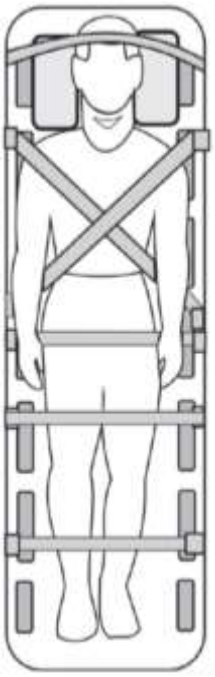


Illustration #6

Attach straps across the chest forming an "X"

Secure the pelvis with a strap across the iliac crests

Secure the head with 2" Tape

Secure the upper and lower legs

DISCONTINUED

Sepsis is defined as a life-threatening condition that arises when the body's response to infection causes injury to its own tissues and organs. Recent studies regarding the mortality rate due to sepsis have necessitated a change in the pre-hospital approach to these patients. When assessing the patient suffering from suspected sepsis, the most critical element in subsequent treatment is the early recognition of the condition and aggressive management.

General Care

EMR/BLS

1. Initial Assessment/Care **Protocol 1**.

2. Any patient with any one (1) of the following suspected conditions:

    a. Flu like symptoms, pneumonia or respiratory infection (cough/thick mucus)
    b. Urinary tract infection
    c. Blood stream/catheter related infection
    d. Abdominal pain and/or diarrhea or known abdominal infection
    e. Wound infection
    f. Skin/soft tissue infection

    AND

3. Any three (3) of the following conditions will be considered a suspected sepsis patient:

    a. Hyperthermia (> 101° F or > 38° C)
    b. Respiratory rate > 22 breaths per minute
    c. Heart rate > 90 BPM
    d. Signs of poor perfusion or systolic BP $\leq$ 100 mmHg
    e. Altered Mental Status

4. The term “Suspected Sepsis Patient” will be documented in the narrative section on the patient care report.

5. The patient will be transported ALS to the most appropriate facility by MDFR and treated as indicated below.

6. The unit OIC will notify the appropriate receiving facility that the patient is a “Suspected Sepsis Patient” prior to arrival at the hospital.

ALS

7. Monitor cardiac rhythm and and perform a 12-Lead ECG.

8. Establish vascular access via IV/IO.

9. Assess and manage all underlying emergencies according to the most appropriate protocols.

10. Administer **fluid bolus up to 1000 mL of NS.** Monitor B/P and lungs sounds often.

Note: This is a PILOT program specifically for units transporting to HCA FL. Kendall Hospital as their primary and closest facility.

Patients with surgical emergencies experience higher complication and mortality rates than those without. Emergency Surgical Treatment and Triage (ESTAT) has been developed to expedite patients with high-risk emergency conditions to receive optimal care and/or surgical intervention. Unlike trauma patients, who have the benefit of being identified as such and whose care is expedited by way of a comprehensive system, non-trauma surgical patients may fester with deteriorating physiology and consume their reserves before they are even identified as having a surgical emergency. Therefore, early recognition is key.

A. Emergency Surgical Treatment and Triage (ESTAT) Alert

An ESTAT Alert notification will activate the appropriate clinical management team to expedite timely diagnostic workup and clinical management to include up to immediate surgery.

The most critical element is recognition and assessment with accurate documentation of the onset of symptoms. Once established, begin appropriate field treatment and rapid transport to the appropriate ESTAT receiving facility.

General Care

EMR/BLS

1. Initial Assessment/Care Protocol 1.

    a. Respiratory rate and ETCO2

    b. Heart rate and B/P.

    c. Temperature

2. As a preliminary assessment, any patient with an SBP less than or equal to 90 mmHg prior to treatments and having any of the following complaints/symptoms/history will be transported to the closest ESTAT facility:

    a. Bleeding from an AV fistula/graft

    b. History of Chest or Abdominal Aneurysm

    c. History of surgery or cosmetic procedure of the chest, abdomen or buttocks within 14 days (e.g. Brazilian Butt Lift (BBL), breast augmentation/lift, tummy tuck and/or Liposuction.)

    d. Post-operative abdominal wound with evisceration

    e. Sudden onset of abdominal pain or distention

DRAFT

f. Bloody vomit or rectal bleeding

g. Pulsatile abdominal mass

h. Sudden onset of severe back pain

i. Pregnant female with sudden onset of severe vaginal bleeding (not just “spotting”)

j. New onset of cold limb and one of the following:

1. Pallor

2. Mottling

3. Loss of limb sensation

3. Establish as accurately as possible when symptoms first occurred. Use family members and establish time markers as to when patient was last seen without symptoms.

4. Request that the person who last saw patient without symptoms accompanies the patient and/or provide a contact number.

5. Attempt to determine the amount of blood loss.

6. Proper Documentation will be obtained with the following information:

a. Surgical Procedure/s that were performed

b. Surgeon who performed procedure.

c. Location and/or name where procedure was performed.

7. An ESTAT alert must be communicated to the receiving facility prior to arrival

Note: HCA FL Kendall Regional must be the closest facility for the ESTAT pilot program.

8. Hypotension (systolic B/P ≤ 90 mmHg) is a mandatory ALS Rescue transport.

9. Keep the patient supine.

10. Maintain body temperature by covering patient with blankets or a thermal Mylar blanket, when available and consider turning off A/C unit in the patient compartment during transport for patients who are not febrile.

DRAFT

ALS

11. Establish at least one large-bore IV

a. Do not delay transport to obtain intravenous access.

b. If vascular access is not obtainable via IV, consider IO access.

c. Normal Saline fluid administration should be based on physiologic signs rather than routine IV fluid administration.

1. Administer a fluid bolus up to 500mL. Monitor B/P and lung sounds often.

2. If hemorrhagic shock is suspected and symptoms originated within 3 hours consider the administration of Tranexamic Acid (TXA) 1 gm over 10 minutes by IV infusion as soon as possible.

12. The ESTAT receiving facility must be notified that 1 gm of TXA has been administered.

13. Provide cardiac monitoring for dysrhythmias due to complications from hypovolemia, septicemia or electrolyte imbalance. Identify and treat the underlying cause according to the appropriate protocol.

DRAFT

MIAMI – DADE FIRE RESCUE

ESTAT

EMERGENCY SURGICAL TREATMENT AND TRIAGE

ESTAT Pre-Alert Field Activation Criteria for EMS Providers

Is met when a (n) systolic blood pressure of less than or equal to 90 millimeters of mercury has been measured in conjunction with one of the following

SBP ≤ 90 mmHg and <u>one</u> of the following:

- Bleeding from an AV fistula/graft
- History of Chest or Abdominal Aneurysm
- History of Surgery or cosmetic procedure of the chest, abdomen or buttocks within 14 days (e.g. Brazilian Butt Lift / BBL, breast augmentation/lift, tummy tuck and/or Liposuction)
- Post-operative abdominal wound with evisceration
- Sudden onset of abdominal pain or distention
- Bloody vomit or rectal bleeding
- Pulsatile abdominal mass
- Sudden onset of severe back pain
- Pregnant female with sudden onset of severe vaginal bleeding (not just "spotting")
- New onset of cold limb and one of the following: (Pallor, Mottling, Loss of Limb sensation)

A. Initial Contact

The following procedure is designed to focus on specific needs, and the proper treatment and transport for victims of a possible sexual assault/battery. These patients will have suffered through both physical and/or mental trauma, therefore must be treated with care and compassion in all aspects of the interaction with Miami Dade Fire Rescue Personnel. The treatment and transport of these patients will also differ from traditional trauma related incidents. An EMS Report will be completed on all encounters of this nature.

EMR/BLS

B. General Care

1. Initial assessment will be done in accordance with Protocol 1, Protocol 1P. These patients may be traumatized by the experience, so use compassion and best judgment to convince the patient to allow for assessment and treatment. Document any assessments or treatments not allowed by the patient.

   Note: The scene of a possible sexual assault/ battery must be considered a possible crime scene and must be left undisturbed as much as possible.

2. The patient may have evidence on themselves or at the scene that will be useful to the Police AHJ and must be preserved in accordance with Law Enforcement direction and recommendations.

3. No treatments and/or transports will be withheld at the detriment of a patient's wellbeing, for the sole reason of evidence collection.

4. Treatment of medical conditions and traumatic injuries will be done in accordance with all MDFR protocols that apply to specific injuries and/or conditions discovered during the Initial Assessment and Detailed Assessment.

5. Once assessments and treatments have been completed, refer to the Transport Criteria and Special Considerations section of this protocol to determine next appropriate action.

C. Transport Determination

1. If the patient is determined to have life threatening injuries and meets the ALS unstable criteria or the patient appears to be in acute distress in need of immediate medical attention at an Emergency Department, the patient will be transported by MDFR ALS Rescue to the closest appropriate facility for further treatment.

2. If the patient meets ALS Stable criteria or BLS criteria and does not appear to be in distress, the patient will be transported by ALS Rescue or BLS Ambulance to the facility determined most appropriate by both MDFR Personnel and the Police Department AHJ. Refer to Protocol 4 for the proper method of transport. This may include direct transport to **HCA Kendall Hospital or Jackson Memorial Main Campus, where the only Rape Crisis Center in Miami Dade County is located**.

3. If the patient does not state any further medical complaints or needs and does not require ALS or BLS treatment and/or transport, work with the Police Department AHJ to determine the method of getting the patient to the appropriate treatment facility. This may require transport without medical need. Under No Circumstance will a patient be left on scene without a final determination of further transport needs (Transported by MDFR ALS, BLS Ambulance, Police Transport, ETC.). Document the final decision on the narrative portion of the EMS Report.

A. If the patient is determined to be a candidate for a Rape Kit, the OIC will confirm with the possible transport destination that a kit is available, and that there is someone on staff capable of administering this kit. Document if the transport destination is not capable, causing a different destination.

B. MDFR Personnel are expected to be advocates for the patient and will determine and support the appropriate decision for facility and method of transport. This will include the requests of the patients, who may feel more comfortable with one method of transport versus another.

C. If there is a conflict in destination or transport method between Police AHJ and MDFR Personnel, contact a Field Supervisor for assistance. EMS Field Supervisors decision will be final.

D. Special Considerations

1. If police have not made an arrival or have not been contacted upon discovery of a possible sexual assault/ battery patient, ensure scene safety and collect as much information about the incident as possible. This information will be useful to responding PD units for investigations.

2. If the patient has been a victim of a possible sexual assault/ battery, advise the patient not to shower or remove clothing. This will allow for a better outcome of the upcoming investigation.

3. If the location of response is the location in which the incident may have occurred, attempt to leave the scene as undisturbed as possible. Move the patient to a safe and comfortable location for further evaluation and treatment if possible.

4. Share all findings of the initial scene conditions and patient statements with investigating PD without violating HIPPA. If there are any questions, contact an EMS Field Supervisor for guidance.