Summary of 2014 Protocol Changes

PROTOCOL TITLE	Change begins on page (Total # of new 2-sided pgs)	Change, Addition, or Deletion
Cover	NA (1)	
Memo	iii (1)	Updated '14 memo to EMS providers.
Table of Contents	v (3)	Updated Table of Contents.
General Information	5 (3)	Multiple health care facility names changed to also represent affiliation.
General Information	12 (1)	Peninsula Regional Medical Center has been removed as a Perinatal Referral Center.
General Information	13 (1)	Nanticoke Memorial Hospital in Seaford, DE has been added as a CIC.
GPC	26 (3)	Breathing section has been amended.
GPC	32 (1)	Communication section now includes reference to MCI/Unusual Incident Protocol.
GPC	34 (2)	Documentation section has new verbiage outlining how to document pronouncement of death.
Treatment	39 (1)	IN naloxone added in BLS section; language regarding presentation of opiate OD in ALS section amended
Treatment*	52 (12)	12-lead is required if ROSC is achieved in adult and pediatric patients.
	56-4 (formerly pg. 150)	Physician assistant added under Oral EMS/DNR Orders; Protocol name changed to EMS DNR/MOLST.
	56-8 (formerly pg. 154)	Section (2) under the Resuscitate/Do Not Resuscitate Criteria has been amended.
	56-12 (formerly pg. 158)	Section (2) and (3) of the Documentation section now allow physician assistant signature.
Treatment	60-2 (1)	Midazolam range replaced with maximum single dose of 5 mg.
Treatment	73 (1)	EMS DNR Flowchart moved to another section
Treatment	85-1 (1)	Acupressue on P6 point added in BLS treatment section.
Treatment	92 (1)	IN naloxone added in BLS section; language regarding presentation of opiate OD in ALS section amended
Treatment	94 (3)	IN naloxone added in BLS section; language regarding presentation of opiate OD in ALS section amended
Treatment	99 (1)	IN naloxone added in BLS section; language regarding presentation of opiate OD in ALS section amended
Treatment	108 (1)	Maximum dose of dexamethosone added.
Treatment	116 (1)	Inclusion time for stroke center referral extended to 3.5 hours.
Treatment	117 (1)	Inclusion time for stroke center referral extended to 3.5 hours in fibrinolytic check list for ischemic stroke.
Treatment	130 (1)	Language regarding assessment for termination of resuscitation added. ALERT language amended.
Appendices	138 (1)	Definition of eMEDS® added to glossary.
Appendices	139 (1)	Definition of intranasal and hemostatic dressing added to glossary. IWMI accronym added to glossary.
Appendices	142 (1)	RVMI accronym added to glossary.
Appendices	144 (1)	Chart amended: IN medication administration; pronouncement of death; hemostatic dressing.
Appendices	146 (1)	Chart amended: Hydroxocobalamin; naloxone (IN).
Appendices	150–162 (1)	Section removed/reinserted elsewhere
Procedures	181-1 (1)	Midazolam range replaced with maximum single (adult) and total (pediatric) dose of 5 mg.
Procedures	182 (1)	AED with pediatric capability using pediatric pad is *preferred* over an adult AED for 1-8 year old.
Procedures	198-4 (2)	Multiple changes to helicopter safety information, including LZ size, slope, and approach.
Procedures	204-4 (1)	New "Acupressure for Nausea" protocol has been added as an approved procedure.
Procedures	204-5 (2)	New "Multiple Casualty Incident/Unusual Event" protocol has been added.
BLS Pharmacology	207-1 (2)	Formulary for intranasal naloxone has been added.
ALS Pharmacology	222 (1)	Maximum dose for dexamethosone added.
ALS Pharmacology	239-1 (1)	Midazolam range replaced with maximum single dose of 5 mg.
ALS Pharmacology	239-2 (1)	Midazolam range replaced with maximum total dose of 5 mg.
Pilot	254 (1)	Midazolam and succinylcholine dosing ranges replaced with maximum single dose.
Pilot	255 256 (1 pg total)	Midazolam range replaced with maximum single dose of 5 mg. Vecuronium range replaced with maximum single dose of 10 mg.
Pilot	261 (1)	Midazolam range replaced with maximum single dose of 5 mg.
Pilot	263 (1)	Midazolam and vecuronium dosing ranges replaced with maximum single dose.
Pilot	266 (1)	Midazolam range replaced with maximum single dose of 5 mg.
Pilot	267 268 (1 pg total)	Succinylcholine range replaced with maximum single dose of 200 mg Vecuronium range replaced with maximum single dose of 10 mg
Pilot	268-18 (1)	New "Transport to Queenstown Freestanding Medical Facility" pilot program has been added.
Optional	272-1 (3)	New "Intranasal Naloxone for BLS Providers" OSP has been added (EMR & Commercial EMT).
Optional	274-6 (1)	New "BLS Glucometer" OSP has been added.
Optional	274-7 (2)	New "High Performance CPR" OSP has been added.

** This set includes relocated pages (51-1 to 56-14) containing the Tachycardia, Cardiac Arrest, TOR, Pronouncement of Death, and DNR/MOLST protocols*

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The Maryland
Medical Protocols
for Emergency Medical Services Providers

Effective July 1, 2014

Maryland Institute for
Emergency Medical Services Systems

The complete “Maryland Medical Protocols for Emergency Medical Services Providers” is also available on the Internet. Check out the MIEMSS website **www.MIEMSS.org.**

This text was produced from materials from the Div. of State Documents, Office of the Secretary of State, State of Maryland. Only text obtained directly from the DSD is enforceable under Maryland law.
For copies of the official text, call the DSD at 1-800-633-9657

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To All Health Care Providers in the State of Maryland:

Re: 2014 revisions, updates, and additions to *The Maryland Medical Protocols for EMS Providers*

EMS providers will be able to download the replacement pages from the MIEMSS website at www.miemss.org and will be receiving a single copy of the 2014 pocket protocols.

The EMS Board has approved these protocols for implementation on July 1, 2014. Prior to July 1, all EMS providers must complete the protocol update "Meet the Protocols" (visit the Online Training Center) that will highlight the new material.

Some major protocol additions, deletions, and changes are listed below, but this list is not comprehensive.

Protocol Changes:

- Many hospitals have changed their names to reflect their primary affiliations.
- New oxygen administration guidelines in the GPC section are based on clinical presentation rather than priority.
- There are new documentation instructions outlining how to properly select the "Dead on Scene" option in eMEDS® patient care reports.
- Intranasal (IN) naloxone has been added as a standing order for the public service EMT.
    - IN naloxone becomes a standing order for all public safety EMTs as of July 1, 2014. This protocol is available for commercial services and EMRs as an optional supplement. The use of naloxone for ALS providers remains unchanged.
    - IN BLS administration has been incorporated into the adult and pediatric BLS treatment section of the following protocols:
        - Altered Mental Status: Unresponsive Person
        - Overdose/Poisoning: Absorption
        - Overdose/Poisoning: Ingestion
        - Overdose/Poisoning: Injection
- Cardiac Arrest—12-Lead ECG must now be performed in cardiac arrest patients when ROSC is achieved.
- Dexamethasone—a maximum dosage of 10 mg has been established for pediatric patients in the croup protocol.
- Midazolam—the 2–5 mg dosage range for Midazolam administration has been replaced with a maximum single dose of 5 mg throughout the document.
- Acupressure protocol—the use of acupressure using the P6 point is now approved as a BLS treatment for nausea and vomiting in the adult patient.
- Stroke Protocol—the 2-hour window for transporting a patient to a stroke center has been extended to 3.5 hours to reflect new AHA guidelines. All acute stroke patients are now priority one and providers should use the verbiage "Stroke Alert" during their consultation with a Stroke Referral Center.
- Trauma Arrest Protocol—new verbiage has been added to reflect the addition of the termination of resuscitation protocol in 2013.
- The Cardiac Arrest, Termination of Resuscitation, Pronouncement of Death, and DNR/MOLST protocols have been placed sequentially in the treatment section of the protocols to facilitate quick referencing.
- Hemostatic impregnated dressing may now be used by all providers for hemorrhage control (jurisdictional discretion).
- MOLST/DNR Protocol
    - Under Maryland law, a physician assistant is now authorized to sign a Maryland DNR/MOLST form. The document should include the signature and date to be considered valid.
    - If a provider believes that resuscitation or further resuscitation is futile, he or she should initiate the termination of resuscitation protocol rather than consult for termination in the field.

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- Multi-Casualty/Unusual Incident Protocol—this is intended to support jurisdictions and enhance communication between incident command, EMRC, receiving hospitals, and other resources during multiple casualty incidents.
- Medevac Utilization—MSP is currently using both the Dauphin and the new AW-139 helicopters. The AW-139 is a larger helicopter and requires modification of the landing zone site selection, approaches, size, slope, and security.
- RSI pilot protocol
  - Midazolam—established a maximum single dose of 5 mg rather than a range.
  - Succinylcholine—established a maximum single dose of 200 mg rather than a range.
  - Vecuronium—established a maximum single dose of 10 mg rather than a range.
- BLS glucometer protocol—this was created to support the jurisdictional optional supplement that is currently used.
- Freestanding medical facility pilot protocol—trial allowing freestanding medical facility (Queenstown Emergency Center *only*) to be a base station and allow stable priority 2 patients to be transported to a freestanding medical facility provided they do not require a time-critical intervention.
  - When considering the transport of a priority 1 or 2 patient to a freestanding medical facility, the provider must consult with the facility, which will direct the provider to the appropriate destination.
- High Performance CPR—this is a jurisdictional option that uses the pit crew approach to providing resuscitation of arrest victims, emphasizing high quality compressions with minimal interruptions

Remember it is the responsibility of each provider to review the 2014 material to ensure he/she is familiar with the revisions. If you have any questions regarding the update, please contact the Office of the State EMS Medical Director at 410-706-0880. Thank you for your hard work and dedication.

Richard L. Alcorta, MD, FACEP
State EMS Medical Director, MIEMSS

Robert Bass, MD, FACEP
Executive Director, MIEMSS

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TABLE OF CONTENTS

I. GENERAL INFORMATION

A. General Provisions 1
B. Important Numbers 3
C. Health Care Facility Codes 5
D. Maryland Trauma and Specialty Referral Centers 11
E. Protocol Key 15
F. Protocol Usage Flow Diagram 16
G. Protocol Variation Procedure 17
H. Inability to Carry Out Physician Order 19
I. Physician Orders for Extraordinary Care 21
J. Quality Review Procedure for Pilot Programs 23

II. GENERAL PATIENT CARE 25

III. TREATMENT PROTOCOLS

Abuse/Neglect

A. Abuse/Neglect 35

Altered Mental Status

B. Seizures 37
C. Unresponsive Person 39

Apparent Life-Threatening Event (ALTE)

D. Apparent Life-Threatening Event (ALTE) 41

Behavioral Emergencies

E. Behavioral Emergencies 42

Cardiac Emergencies

F. Cardiac Guidelines 44
Universal Algorithm for Adult Emergency Cardiac Care for BLS 45
Universal Algorithm for Adult Emergency Cardiac Care for ALS 46
Universal Algorithm for Pediatric Emergency Cardiac Care for BLS 47
Universal Algorithm for Pediatric Emergency Cardiac Care for ALS 48
G. Bradycardia 49
Adult Bradycardia Algorithm 50
Pediatric Bradycardia Algorithm 51
G1. Tachycardia 51-1
Adult Tachycardia Algorithm 51-3
Pediatric Tachycardia Algorithm 51-4
H. Cardiac Arrest 52
Adult Asystole Algorithm 53
Pediatric Cardiac Arrest Algorithm 54
Pulseless Electrical Activity (PEA) Algorithm 55
VF Pulseless VT Algorithm 56
H1. Termination of Resuscitation 56-1
H2. Pronouncement of Death in the Field 56-3

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TABLE OF CONTENTS

H3. EMS DNR/MOLST 56-4
H4. EMS/DNR Flowchart 56-14
I. Chest Pain/Acute Coronary Syndrome 57
J. Hyperkalemia: Renal Dialysis/Failure or Crush Syndrome 59
J1. Implantable Cardioverter Defibrillator (ICD) Malfunction 60-1
K. Intentionally Omitted
L. Premature Ventricular Contractions (PVCs) 64
M. ST Elevation Myocardial Infarction (STEMI) 65
N. Sudden Infant Death Syndrome (SIDS) 67
O. Intentionally Omitted
P. Intentionally Omitted

Environmental Emergencies

Q. Cold Emergencies (Frostbite) 74
R. Cold Emergencies (Hypothermia) 76
S. Depressurization 78
T. Hazardous Materials Exposure 79
U. Heat-Related Emergencies 81
V. Near-Drowning 82
W. Overpressurization 83

Hyperbaric Emergencies

X. Hyperbaric Therapy 84

Nausea and Vomiting

X1. Nausea and Vomiting 85-1

Non-Traumatic Shock

Y. Hypoperfusion 86

Obstetrical/Gynecological Emergencies

Z. Childbirth Algorithm 88
AA. Newly Born 90
Universal Algorithm for Newly Born for BLS 90
Universal Algorithm for Newly Born for ALS 90-1
BB. Vaginal Bleeding 91

Overdose/Poisoning

CC. Absorption 92
DD. Ingestion 94
EE. Inhalation 97
FF. Injection 99
FF1. Stimulant Toxicity 100-1

Pain Management

GG. Pain Management 101

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TABLE OF CONTENTS

Respiratory Distress

HH. Allergic Reaction/Anaphylaxis 103
II. Asthma/COPD 106
JJ. Croup 108
KK. Pulmonary Edema/Congestive Heart Failure 110
Universal Algorithm for Pediatric Respiratory Distress for BLS 114
Universal Algorithm for Pediatric Respiratory Distress for ALS 115

Stroke

LL. Stroke: Neurological Emergencies 116

Trauma Protocol

MM. Burns 118
NN. Eye Trauma 120
OO. Hand/Upper/Lower Extremity Trauma 122
PP. Multiple/Severe Trauma 124
Glasgow Coma Scale 126
QQ. Sexual Assault 127
RR. Spinal Cord Injury 128
SS. Trauma Arrest 130
TT. Trauma Decision Tree 132

IV. APPENDICES

A. Glossary 137
B. Procedures, Medical Devices, and Medications for EMS and Commercial Services 144
C. Rule of Nines 148
D. Normal Vital Signs and APGAR Chart 149
E. Intentionally Omitted
F. Intentionally Omitted
G. Intentionally Omitted
G1. Proposed Protocol Submission Request Policy 163
G2. Proposed Protocol Submission Template 164-1
G3. Protocol Concept/Sponsor Request 164-2
H. Procedures 165
Accessing Central Venous Catheters and Devices 165

Airway Management

Bag-Valve-Mask Ventilation 168
Continuous Positive Airway Pressure (CPAP) 170-1
Latex-Free Dual Lumen Tube 170-3

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TABLE OF CONTENTS

Airway Management (continued)

Gastric Tube 171
Nasotracheal Intubation 172
Needle Decompression Thoracostomy (NDT) 174
Obstructed Airway Foreign Body Removal: Direct Laryngoscopy 175
Orotracheal Intubation 176
Tracheostomy Change 179
Tracheostomy Suctioning 181
Ventilatory Difficulty Secondary to Bucking or Combativeness 181-1

Electrical Therapy

Automated External Defibrillation 182
Cardioversion 184
Defibrillation 186
External Transcutaneous Cardiac Pacing 187
Go-Team Activation 189
External Jugular (EJ) 191
Glucometer Protocol 192
Intraosseous Infusion (IO) 194
Intravenous Maintenance Therapy for EMT 196
Medevac Utilization 198-1
Patient-Initiated Refusal of EMS 198-7
Peripheral Intravenous Access for CRT-(I) and Paramedic, and IV Access Option for EMT Approved by the EMS Operational Program 199

Physical and Chemical Restraints 202
Neuroprotective Induced Hypothermia 204-1
12-Lead Electrocardiogram 204-3
Acupressure (NEW '14) 204-4
Multiple Casualty Incident/Unusual Event (NEW '14) 204-5

I. BLS Pharmacology

Acetaminophen 205
Activated Charcoal (Without Sorbitol) 205-1
Albuterol 205-2
Aspirin 206
Epinephrine Auto-Injector 207
Naloxone **(NEW '14)** 207-1
Nitroglycerin 208
Oral Glucose 209
Oxygen 210

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TABLE OF CONTENTS

J. ALS Pharmacology

Acetaminophen	210-1
Activated Charcoal (Without Sorbitol)	211
Adenosine	212
Albuterol	213
Aspirin	215
Atropine Sulfate	216
Atrovent	218
Calcium Chloride	220
Dexamethasone	222
Dextrose 50%	222-1
Diazepam	223
Diltiazem	224
Diphenhydramine Hydrochloride	226
Dopamine Hydrochloride	227
Epinephrine	229
Fentanyl	232
Glucagon	233
Haloperidol (Haldol)	234
Lactated Ringer's	236
Lidocaine	237
Midazolam	239
Morphine Sulfate	240
Naloxone	242
Nitroglycerin	243
Nitroglycerin Paste	244
Ondansetron	244-1
Oxygen	245
Sodium Bicarbonate	247
Terbutaline Sulfate	247-2

Interfacility

K. Lidocaine Infusion for Interfacility Transport 249

L. Morphine Sulfate Infusion for Interfacility Transport 250

Pilot Programs

M. Adult Rapid Sequence Intubation

RSI Pilot Program	253
Ventilatory Difficulty Secondary to Bucking or Combativeness in Intubated Patients	255
Protocol for Cricothyroidotomy (Surgical and Needle)	257
RSI Quality Assurance Process	259

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TABLE OF CONTENTS

N. Pediatric Rapid Sequence Intubation
RSI Pilot Program 260
Ventilatory Difficulty Secondary to Bucking or Combativeness in Intubated Patients 262
Protocol for Cricothyroidotomy 264
RSI Quality Assurance Process 265
N1. Rapid Sequence Intubation Pharmacology 265-1
Etomidate 265-1
Ketamine 265-2
Midazolam 266
Succinylcholine 267
Vecuronium 268
N2. EMT Acquisition of 12-Lead Electrocardiography 268-7
N3. Pelvic Stabilization Binder Device 268-10
N4. On-Scene Protocol and Alternative Dispatch Protocol 268-12
N5. Video Laryngoscopy for Orotracheal Intubation 268-15
N6. Transport to Queenstown Freestanding Medical Facility **(NEW '14)** 268-18

V. JURISDICTIONAL OPTIONAL PROTOCOLS

O. Cyanide Poisoning 269
P. Glycoprotein IIb/IIIa Antagonist Infusions 271
Glycoprotein IIb/IIIa Antagonist 272
P1. Intranasal Naloxone: EMR & Commercial BLS **(NEW '14)** 272-1
Q. Heparin Infusion for Interfacility Transport 273
Heparin 274
Q1. Impedance Threshold Device 274-1
Q2. Laryngeal Tube Airway Device 274-3
Q3. Bi-Level Positive Airway Pressure (BiPAP) 274-5
Q4. BLS Glucometer **(NEW '14)** 274-6
Q5. High Performance CPR **(NEW '14)** 274-7
R. MARK I / DuoDote Kits (Atropine and 2-PAM Auto-injectors) 275
S. Specialty Care Paramedic 279
T. Tactical EMS 283
U. Transport of Acute Ventilated Interfacility Patients 300
V. Transport of Chronic and Scene Ventilated Patients 302
W. Transport to Freestanding Medical Facility 305
X. Wilderness Emergency Medical Services Protocols 306
Y. Maryland Vaccination & Testing Program 322

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C. HEALTH CARE FACILITY CODES

Code	Health Care Facility Name
345	10th Street Medical Center, Ocean City, MD
346	26th Street Medical Center, Ocean City, MD
379	63rd Street Medical Center, Ocean City, MD
380	75th Street Medical Center, Ocean City, MD
347	93rd Street Medical Center, Ocean City, MD
409	126th Street Medical Center, Ocean City, MD
527	Adventist Behavioral Health - Rockville
529	Adventist Rehabilitation Hospital - Rockville
492	Alleghany General Hospital, Alleghany, PA (former facility code 422)
397	Altoona Rehabilitation Hospital
231	Andrew Rader Clinic, VA
221	Anne Arundel Medical Center (Base Station, Cardiac Interventional, Primary Stroke)
382	Anne Arundel Medical Park
550	Annie M. Warner Hospital
381	Atlantic General Hospital (Base Station, Primary Stroke)
590	Baltimore City Public Service Infirmary (former facility code 520)
222	Baltimore Washington Medical Center (UM) (Base Station, Cardiac Interventional, Primary Stroke)
350	Bayhealth Kent Hospital (formerly Kent General) (Cardiac Interventional)
359	Bayhealth Medical Center, Milford Hospital (formerly Milford Memorial Hospital)
234	Beebe Medical Center Millville Center, DE
358	Beebe Medical Center Sussex County, DE
208	Bon Secours Hospital
353	Bowie Health Center
235	Brooke Lane Psychiatric Center
236	Brunswick Medical Center
553	Bryn Mawr Hospital
752	Bryn Mawr Rehabilitation Hospital
754	Bryn Mawr Rehabilitation Hospital at Midtown Campus (UM) (formerly Maryland General Hospital)
771	Calvert County Nursing Home Center
266	Calvert Memorial Hospital (Base Station, Primary Stroke)
554	Carlisle Regional Medical Center, PA
555	Carpenter's Clinic
219	Carroll Hospital Center (Base Station, Cardiac Interventional)
755	Central Industrial Medical Center
276	Chambersburg Hospital, PA
291	Charles Regional (UM) (formerly Civista Medical Center)
284	Charlestown Area Medical Center
241	Chemtrec Chemical Manufacturers Association Chemical Transportation Emergency Center, Washington, DC
296	Chestertown (UMSRH) (Base Station) (formerly Chester River Health)
243	Chestnut Lodge Hospital
225	Children's Hospital & Center for Reconstructive Surgery - Baltimore, MD
756	Children's Hospital of Philadelphia, PA
317	Children's National Medical Center, DC (Neonatal, Pediatric Base Station, Pediatric Burn, Pediatric Trauma)
304	Christiana Care Health System, Christiana Hospital (Cardiac Interventional)

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Code	Health Care Facility Name
299	Christiana Care Health System, Wilmington Hospital
341	City Hospital, Martinsburg, WV
245	Columbia Hospital for Women Medical Center, Washington, DC
383	Columbia Medical Plan
757	Cooper Trauma Center, NJ
248	Crownsville State Hospital
252	Cullen Center
342	DC General Hospital (Neonatal)
293	Deer's Head State Hospital
556	Delaware Memorial Hospital, DE
256	DeWitt Army Hospital, VA
329	Doctor's Community Hospital (formerly Doctor's Hospital of P.G. Co.) (Base Station)
257	Dominion Hospital, VA
294	Dorchester (UMSRH)
310	Dover U.S. Air Force Clinic (formerly Dover U.S. Air Force Hospital)
302	DuPont Memorial Hospital
491	Eastern Neurological Rehabilitation Hospital (formerly facility code 421)
331	Eastern Shore State Hospital
297	Easton (UMSRH) (Base Station, Primary Stroke)
557	Elizabethtown Children's Hospital
306	Ellsmere Veteran's Administration Hospital, DE
558	Emmitsburg Hospital
258	Finan Center
279	Fort Dietrick Medical Center
247	Fort Howard Veteran's Administration Hospital
522	Fort Washington Hospital
203	Franklin Square (MedStar) (Base Station, Cardiac Interventional, Primary Stroke)
239	Frederick Memorial Hospital (Base Station, Cardiac Interventional, Perinatal)
253	Freeman Hospital
286	Fulton County Medical Center, PA
322	Garrett County Memorial Hospital (Base Station)
580	Geisinger Medical Center, PA
335	George Washington University Hospital, DC
337	Georgetown University (MedStar), DC
240	Gettysburg Hospital, PA
759	Gladys Spellman Nursing Center
226	Good Samaritan Hospital (MedStar) (Base Station, Primary Stroke)
559	Grant Memorial Hospital
217	Greater Baltimore Medical Center (Base Station, Primary Stroke, Neonatal)
261	Greater Northeast Medical Center, DC (see also Northeast Georgetown #313)
316	Greater Southeast Community Hospital, DC
760	The Greenery
348	Groupe Memorial Hospital
263	Gundry Hospital
363	Hadley Memorial Hospital, DC
560	Hagerstown State Hospital
561	Hampshire Memorial Hospital, WV

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Code	Health Care Facility Name
242	Hanover Hospital, PA
211	Harbor Hospital (MedStar) (Base Station, Primary Stroke)
220	Harford Memorial Hospital (UMUCH) (Base Station, Primary Stroke)
562	Harryon State Hospital
399	Health South Chesapeake Rehabilitation Center (formerly Chesapeake Rehabilitation Hospital)
490	Health South Rehabilitation Hospital of Altoona (former facility code 420)
267	Highland State Health Facility Psychiatric Unit
244	Holy Cross Hospital (Base Station, Cardiac Interventional, Primary Stroke)
450	Hospice of Baltimore - Gilchrist Center - Baltimore, MD
268	HSC Pediatric Center, DC
223	Howard County General Hospital (JHM) (Base Station, Cardiac Interventional, Primary Stroke)
270	Howard University Hospital, DC
230	Inova Alexandria Hospital, VA
340	Inova Fair Oaks Hospital, VA
305	Inova Fairfax Hospital, VA
326	Inova Loudoun Hospital, VA
287	Inova Mount Vernon Hospital, VA
349	Isle of Wight Medical Center
273	Jefferson Memorial Hospital, Arlington, VA
314	Jefferson Memorial Hospital, Ranson, WV
201	Johns Hopkins Bayview (Adult Burn, Adult Trauma, Base Station, Cardiac Interventional, Neonatal, Perinatal, Primary Stroke)
766	Johns Hopkins Bayview Medical Center Transitional Care Unit
761	Johns Hopkins Comprehensive Geriatric Center
204	Johns Hopkins Hospital (Adult Trauma, Base Station, Cardiac Interventional, Eye Trauma, Neonatal, Pediatric Base Station, Pediatric Burn, Pediatric Trauma, Perinatal, Primary Stroke)
706	Johns Hopkins Hospital Inpatient Rehabilitation Center
451	Joseph Richey Hospice - Joseph Richey House, Baltimore, MD
274	Kennedy-Krieger Institute (formerly John F. Kennedy Institute for Handicapped Children)
277	Keswick Multi-Care Center (Formerly Keswick Home for the Incurables of Baltimore City)
262	Kimbrough Army Hospital
563	King's Daughters Hospital, WV
259	Kirk Army Hospital
403	Lancaster General Hospital, PA
564	Lancaster Osteopathic Hospital, PA
352	Laurel Regional Hospital (formerly Greater Laurel Beltsville Hospital)
773	Laurel Regional Hospital–Rehabilitation
565	Leesburg Hospital, VA
278	Levindale Hebrew Geriatric Center & Hospital
209	Liberty Medical Center (formerly Provident Hospital)
205	Liberty Medical Center Psychiatric Center (formerly Lutheran Hospital)
255	Lincoln Memorial Hospital
354	Malcolm Grow U.S. Air Force Medical Center
280	Mary Washington Hospital, VA
281	Maryland Penitentiary Hospital

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Code	Health Care Facility Name
300	Maryland Poison Information Center at UMAB
285	Masonic Eastern Star Home, DC
566	McConnellsburg Hospital
332	McCready Memorial Hospital (Base Station)
339	McGuire Veteran's Administration Hospital, VA
398	Mechanicsburg Rehabilitation Hospital
774	Medlink, DC
327	MedStar Washington Hospital Center, DC (Adult Trauma, Burn, Cardiac Interventional)
404	Memorial Hospital, PA
567	Memorial Osteopathic Hospital, PA
207	Mercy Medical Center (Base Station, Neonatal, Perinatal, Primary Stroke)
389	Meritus Medical Center (formerly listed as Washington County Health System #289) (Adult Trauma, Base Station, Cardiac Interventional, Primary Stroke)
799	Meritus Medical Center, Comprehensive Inpatient Rehabilitation Services (formerly listed as Washington County Health System, Comprehensive Inpatient Rehabilitation Services #789)
499	Meritus Medical Center, Psychiatric Unit (formerly listed as Washington County Health System, Psychiatric Unit # 456)
798	Meritus Medical Center, Skilled Nursing Facility (formerly listed as Washington County Health System, Skilled Nursing Facility #764)
206	Midtown (UM) (Base Station, Primary Stroke) (formerly Maryland General Hospital)
271	Monongalia General Hospital, WV
228	Montebello Center - Baltimore, MD
264	Montgomery Medical Center (MedStar) (Base Station, Primary Stroke)
292	Mount Washington Pediatric Hospital
400	Myersdale Medical Center, PA
351	Nanticoke Memorial Hospital, DE (Cardiac Interventional)
295	National Capital Poison Center, Washington, DC
334	National Hospital for Orthopedics & Rehabilitation, VA
308	National Institute of Mental Health
356	National Institutes of Health Clinical Center
309	National Rehabilitation (MedStar) at Irving Street, Washington, DC
751	Nemours/Alfred I. DuPont Hospital for Children (formerly Alfred I. DuPont Institute)
307	Newark Emergency Center, Newark, DE
568	Newark Hospital, NJ
762	Newmedico Rehabilitation
753	Northampton-Accomac Memorial Hospital
313	Northeast Georgetown Medical Center (see also Greater Northeast # 261)
315	Northern Virginia Doctor's Hospital, VA
218	Northwest Hospital Center (Base Station)
408	Peninsula Regional Medical Center (Adult Trauma, Base Station, Cardiac Interventional, Primary Stroke)
454	Peninsula Regional Medical Center, Transitional Care Unit
419	Penn State Children's Hospital, Hershey, PA
301	Penn State Milton Hershey Medical Center, PA
318	Perkins State Hospital
357	Perry Point Veteran's Administration Hospital
569	Pittsburgh Institute for Rehabilitation

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Code	Health Care Facility Name
362	Pocomoke City Medical Center
361	Pocomoke Family Health Center
338	Police & Fire Clinic, Washington, DC
325	Potomac Hospital, VA
401	Potomac Valley Hospital, WV
232	Prince George's Hospital Center (Adult Trauma, Cardiac Interventional, Base Station, Neonatal)
344	Prince William Hospital, VA
288	Providence Hospital, DC
378	Psychiatric Institute of DC
364	Psychiatric Institute of Montgomery County
387	Queenstown Emergency Center (UMSRH)
634	R Adams Cowley Shock Trauma Center (UM) (Adult Trauma, Base Station, Hyperbaric, Neurotrauma)
570	Reading Medical Center
227	Rehabilitation & Orthopaedic Institute (UM) (formerly Kernan Hospital)
571	Riverside Hospital, DE
311	Riverside Hospital, VA
365	Rosewood Center
461	Ruby Hospital Morgantown, WV
572	Sacred Heart Hospital, PA
573	Saint Agnes Burn Center, PA (formerly listed as a Delaware facility)
212	Saint Agnes Hospital (Base Station, Cardiac Interventional, Neonatal, Perinatal, Primary Stroke)
366	Saint Elizabeth's Hospital, Washington, DC
303	Saint Francis Hospital, WV
460	Saint Francis Hospital, Wilmington, DE
213	Saint Joseph (UM), MD (Base Station, Cardiac Interventional, Primary Stroke)
405	Saint Joseph Hospital, PA
367	Saint Luke Institute
333	Saint Mary's Hospital (MedStar) (Base Station, Primary Stroke)
455	Salisbury Genesis Center
384	Shady Grove Adventist Emergency Center at Germantown
265	Shady Grove Adventist Hospital (Base Station, Cardiac Interventional, Primary Stroke)
368	Sheppard & Enoch Pratt Hospital
324	Sibley Memorial Hospital (JHM), Washington, D.C.
750	Sinai Head Injury Rehabilitation Hospital
210	Sinai Hospital of Baltimore (Adult Trauma, Base Station, Cardiac Interventional, Neonatal, Perinatal, Primary Stroke)
770	Sinai Rehabilitation Hospital
772	Solomon's Nursing Home Center
360	Southern Chester County Medical Center, PA
343	Southern Maryland Hospital (MedStar) (Base Station, Cardiac Interventional, Primary Stroke)
369	Spring Grove State Hospital
406	Springfield State Hospital
370	Springwood Psychiatric Institute, VA
521	State Post Mortem Examiner's (Morgue)
452	Stella Maris Hospice - Dulaney Valley Road - Timonium, MD
453	Stella Maris Hospice at Mercy Medical Center - Baltimore, MD
249	Suburban Hospital (JHM) (Adult Trauma, Base Station, Cardiac Interventional, Primary Stroke)

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Code	Health Care Facility Name
371	Tawes-Bland Bryant Nursing Center
574	Taylor Hospital, WV
312	Taylor Manor Hospital
372	TB Clinic
373	Tidewater Memorial Hospital, VA
254	University Specialty Hospital (formerly Deaton Hospital & Medical Center of Christ Lutheran Church)
374	U.S. Naval Medical Clinic, Annapolis
576	U.S. Public Health Hospital, MD
375	U.S. Soldier's and Airmen's Home, DC
298	Union Hospital of Cecil County (Base Station)
214	Union Memorial Hospital (MedStar) (Base Station, Cardiac Interventional, Hand/Upper Extremity, Primary Stroke)
215	University of Maryland Medical Center (Base Station, Cardiac Interventional, Neonatal, Perinatal, Primary Stroke)
575	University of Pennsylvania Hospital
551	University of Pittsburgh Medical Center Bedford Memorial, PA
224	Upper Chesapeake Medical Center (UMUCH) (Base Station, Cardiac Interventional, Primary Stroke)
407	Upper Shore Mental Health Center
246	Veteran's Administration Hospital - Baltimore, MD
577	Veteran's Administration Hospital - Wilmington, DE
376	Veteran's Administration Medical Center, DC
275	Veterans Affairs Medical Center, Martinsburg, VA (formerly Martinsburg V.A. Hospital and Newton T. Baker Hospital)
233	Virginia Hospital Center, VA
238	Walter P. Carter Center
377	Walter Reed Hospital Annex
355	Walter Reed National Military Medical Center, Bethesda, MD
282	War Memorial Hospital, Berkeley Springs, WV
552	War Memorial Hospital, Berkeley Springs, WV
328	Washington Adventist Hospital (Base Station, Cardiac Interventional)
269	Waynesboro Hospital, Waynesboro, PA
323	West Virginia University Hospital, WV
290	Western Maryland Center, MD
395	Western Maryland Regional Medical Center (Adult Trauma, Base Station, Cardiac Interventional, Primary Stroke)
776	Western Maryland Regional Medical Center, Psychiatric Unit
402	Western Pennsylvania University Hospital, PA
283	Winchester Medical Center
578	Woodrow Wilson Rehabilitation Center, VA
579	Yale - New Haven Hospital
272	York Hospital, PA
765	York Rehabilitation Hospital, PA
888	**Other Facility**

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D. MARYLAND TRAUMA AND SPECIALTY REFERRAL CENTERS

Trauma Centers

Primary Adult Resource Center

- R Adams Cowley Shock Trauma Center (UM), Baltimore

Level I Trauma Center

- The Johns Hopkins Hospital Adult Trauma Center, Baltimore

Level II Trauma Centers

- Johns Hopkins Bayview Medical Center, Baltimore
- Prince George's Hospital Center, Cheverly
- Sinai Hospital of Baltimore
- Suburban Hospital (JHM), Bethesda

Level III Trauma Centers

- Meritus Medical Center, Hagerstown
- Peninsula Regional Medical Center, Salisbury
- Western Maryland Regional Medical Center, Cumberland

Out-of-State Centers

- Christiana Care Health System, Wilmington, DE
- MedStar Washington Hospital Center, Washington, DC

Specialty Referral Centers

Eye Trauma

- Wilmer Eye Institute at The Johns Hopkins Hospital, Baltimore

Hand/Upper Extremity Trauma

- The Curtis National Hand Center for Treatment of the Hand and Upper Extremity/Union Memorial Hospital (MedStar), Baltimore

Hyperbaric Medicine

- Hyperbaric Medicine Center/R Adams Cowley Shock Trauma Center (UM), Baltimore

Neurotrauma (Head and Spinal Cord Injuries)

- Neurotrauma Center/R Adams Cowley Shock Trauma Center (UM), Baltimore

Pediatric Trauma

- Pediatric Trauma Center at The Johns Hopkins Children's Center, Baltimore
- Pediatric Trauma Center at Children's National Medical Center, Washington, DC

Burns

- Baltimore Regional Burn Center at Johns Hopkins Bayview Medical Center, Baltimore
- Burn Center at MedStar Washington Hospital Center, Washington, DC
- Pediatric Burn Center at The Johns Hopkins Children's Center, Baltimore
- Pediatric Burn Center at Children's National Medical Center, Washington, DC

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Specialty Referral Centers

Perinatal Referral Centers

- Anne Arundel Medical Center, Annapolis
- Franklin Square Hospital Center (MedStar), Baltimore
- Frederick Memorial Hospital, Frederick
- Greater Baltimore Medical Center, Towson
- Holy Cross Hospital, Silver Spring
- Howard County General Hospital (JHM), Columbia
- Johns Hopkins Bayview Medical Center, Baltimore
- Mercy Medical Center, Baltimore
- Prince George's Hospital Center, Cheverly
- Saint Agnes Hospital, Baltimore
- Saint Joseph Medical Center (UM), Baltimore
- Shady Grove Adventist Hospital, Gaithersburg
- Sinai Hospital of Baltimore
- The Johns Hopkins Hospital, Baltimore
- University of Maryland Medical Center, Baltimore

Primary Stroke

- Anne Arundel Medical Center, Annapolis
- Atlantic General Hospital, Berlin
- Baltimore Washington Medical Center (UM), Glen Burnie
- Calvert Memorial Hospital, Prince Frederick
- Charles Regional (UM), La Plata
- Easton Medical Center (UMSRH)
- Franklin Square Hospital Center (MedStar), Baltimore
- Frederick Memorial Hospital, Frederick
- Good Samaritan Hospital (MedStar), Baltimore
- Greater Baltimore Medical Center, Baltimore
- Harbor Hospital Center (MedStar), Baltimore
- Harford Memorial Hospital (UMUCH), Havre De Grace
- Holy Cross Hospital, Silver Spring
- Howard County General Hospital (JHM), Columbia
- Johns Hopkins Bayview Medical Center, Baltimore
- Mercy Hospital Center, Baltimore
- Meritus Medical Center, Hagerstown
- Midtown Campus (UM), Baltimore
- Montgomery Medical Center (MedStar), Olney
- Northwest Hospital, Baltimore
- Peninsula Regional Medical Center, Salisbury
- Saint Agnes Hospital, Baltimore
- Saint Joseph Medical Center (UM), Baltimore
- Saint Mary's Hospital (MedStar), Leonardtown
- Shady Grove Adventist Hospital, Gaithersburg

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MARYLAND TRAUMA AND SPECIALTY REFERRAL CENTERS (Continued)

Primary Stroke (Continued)

- Sinai Hospital of Baltimore
- Southern Maryland Hospital (MedStar), Clinton
- Suburban Hospital (JHM), Bethesda
- The Johns Hopkins Hospital, Baltimore
- Union Hospital of Cecil County, Elkton
- Union Memorial Hospital (MedStar), Baltimore
- University of Maryland Medical Center, Baltimore
- Upper Chesapeake Medical Center (UMUCH), Bel Air
- Washington Adventist Hospital, Takoma Park
- Western Maryland Regional Medical Center, Cumberland

Cardiac Interventional

- Anne Arundel Medical Center, Annapolis
- Baltimore Washington Medical Center (UM), Glen Burnie
- Bayhealth Kent General Hospital, Dover, DE
- Carroll Hospital Center, Westminster
- Christiana Care Health System, Newark, DE
- Franklin Square Hospital Center (MedStar), Baltimore
- Frederick Memorial Hospital, Frederick
- Holy Cross Hospital, Silver Spring
- Howard County General Hospital (JHM), Columbia
- Johns Hopkins Bayview Medical Center, Baltimore
- MedStar Washington Hospital Center, Washington, DC
- Meritus Medical Center, Hagerstown
- Nanticoke Memorial Hospital, Seaford, DE **(NEW '14**)
- Peninsula Regional Medical Center, Salisbury
- Prince George's Hospital Center, Cheverly
- Saint Agnes Hospital, Baltimore
- Saint Joseph Medical Center (UM), Baltimore
- Shady Grove Adventist Hospital, Gaithersburg
- Sinai Hospital of Baltimore
- Southern Maryland Hospital (MedStar), Clinton
- Suburban Hospital (JHM), Bethesda
- The Johns Hopkins Hospital, Baltimore
- Union Memorial Hospital (MedStar), Baltimore
- University of Maryland Medical Center, Baltimore
- Upper Chesapeake Medical Center (UMUCH), Bel Air
- Washington Adventist Hospital, Takoma Park
- Western Maryland Regional Medical Center, Cumberland

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II. GENERAL PATIENT CARE (GPC)

A. RESPONSE

Review the dispatch information and select appropriate response.

B. SCENE ARRIVAL AND SIZE-UP

1. Consider Body Substance Isolation (BSI).

2. Consider Personal Protective Equipment (PPE).

3. Evaluate the scene safety.

4. Determine the number of patients.

5. Consider the need for additional resources.

C. PATIENT APPROACH

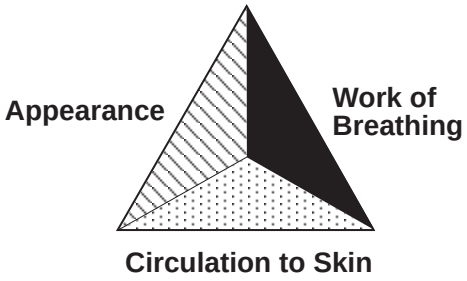
1. Determine the Mechanism of Injury (MOI)/Nature of Illness (NOI).

2. If appropriate, begin triage and initiate Mass Casualty Incident (MCI) procedures.

D. INITIAL ASSESSMENT

ALERT

CORRECT LIFE-THREATENING PROBLEMS AS IDENTIFIED.
STABILIZE CERVICAL SPINE WHEN APPROPRIATE.



FOR PEDIATRIC PATIENTS, CONSIDER USING THE PEDIATRIC ASSESSMENT TRIANGLE.

1. Assess mental status
   a) **A**lert
   b) Responds to **V**erbal stimuli
   c) Responds to **P**ainful stimuli
   d) **U**nresponsive

2. Airway
   a) Open and establish airway using appropriate adjunct.
   b) Place patient in appropriate position.
   c) Suction airway as needed, including tracheostomy tubes.

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IF A PATENT AIRWAY CANNOT BE ESTABLISHED, THE PATIENT MUST BE TRANSPORTED TO THE NEAREST APPROPRIATE HOSPITAL-BASED EMERGENCY DEPARTMENT **OR DESIGNATED FREESTANDING MEDICAL FACILITY**. ONCE THE PATIENT PRESENTS TO THE HOSPITAL **OR DESIGNATED FREESTANDING MEDICAL FACILITY** FOR TREATMENT OF AN EMERGENCY CONDITION, TREATMENT AND TRANSFER DECISIONS ARE THE RESPONSIBILITY OF THE HOSPITAL UNDER APPLICABLE LAW. THE PROVIDER SHOULD STAND BY TO BE AVAILABLE FOR AND ASSIST WITH TRANSFER OF THE PATIENT IF THE HOSPITAL DETERMINES SUCH A TRANSFER IS APPROPRIATE.

IN INFANTS AND YOUNG CHILDREN, INSPIRATORY STRIDOR IS AN INDICATION OF UPPER AIRWAY FOREIGN BODY OR PARTIAL AIRWAY OBSTRUCTION. REQUEST ALS RENDEZVOUS. TRANSPORT THE PATIENT RAPIDLY AND CAUTIOUSLY AND HAVE FOREIGN BODY AIRWAY REMOVAL EQUIPMENT READY FOR IMMEDIATE USE IN CASE THE PATIENT'S AIRWAY BECOMES OBSTRUCTED.

3. Breathing **(NEW '14)**
   a) Determine if breathing is adequate. Assess oxygen saturation (SpO2) with portable pulse oximeter (required on all transport units since 2012).
      (1) If patient's ventilations are not adequate, provide assistance with 100% oxygen using Bag-Valve Mask (BVM)
         (i) If patient's age is > 12 yo, provide 1 breath every 5 seconds
         (ii) If patient's age is < 12 yo, provide 1 breath every 3 seconds (manually activated positive pressure oxygen delivery device is not recommended for this group)
      (2) The decision to oxygenate will be based upon the patient's clinical condition.
         (i) SpO2 ≥ 94% is considered normoxia in adults and children. Supplemental oxygen is not needed if SpO2 ≥ 94% unless the patient is in respiratory distress, acutely dyspneic, or suffering from suspected CO poisoning. Patients in severe respiratory distress may benefit from high flow oxygen from a nonrebreather.
         Note: Respiratory distress is present if the patient has retractions, nasal flaring, wheezing, stridor, or difficulty speaking.
         (ii) Unless in respiratory distress, avoid administration of high flow oxygen to patients presenting with the following conditions:
            (a) STEMI/Angina
            (b) CVA/stroke
            (c) Post arrest
         (iii) CO Exposure: Apply 100% oxygen via NRB mask. Maintain SpO2 at 100%

INACCURATE OR MISLEADING SPO2 READINGS MAY OCCUR IN THE FOLLOWING PATIENTS: HYPOTHERMIC, HYPOPERFUSION (SHOCK), CO POISONING, HEMOGLOBIN ABNORMALITY, ANEMIA, AND VASOCONSTRICTION.

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Percent O_2 Saturation	Ranges	General Patient Care
94–100%	Normal	Give Oxygen as necessary
91–93%	Mild Hypoxia	Give Oxygen as necessary
86–90%	Moderate Hypoxia	Give 100% Oxygen Assisting Ventilations if necessary
$\leq$ 85%	Severe Hypoxia	Give 100% Oxygen Assist Ventilations If indicated, Intubate
False SPO_2 readings may occur in the following patients: Hypothermic, Hypoperfusion (Shock), Carbon Monoxide Poisoning, Hemoglobin Abnormality, Anemic, and Vasoconstriction.		

(3) If available, utilize end-tidal CO2 waveform monitoring in intubated patients (required on all ALS transport units for advanced airway management by 2015)
(4) Consider carbon monoxide measurement, if available

b) Hyperventilate the head injured patient only if signs/symptoms of herniation are present, including posturing, loss of pupillary light response, dilation of one or both pupils, vomiting, hypertension, bradycardia, and/or irregular respirations
(1) If hyperventilating, use the following rates
Adult 20 breaths per minute
Child 30 breaths per minute
Infant 35 breaths per minute
(2) If hyperventilating, use ETCO2 monitoring if available

NEVER WITHHOLD OXYGEN FROM A PATIENT IN RESPIRATORY DISTRESS!

DEVICE	FLOW RATE	CONCENTRATION
Nasal Cannula	2–6 lpm	24–44%
Venturi Mask	Variable	24–50%
Partial Rebreather Mask	6–10 lpm	35–60%
Simple Face Mask	6–10 lpm	35–60%
Pocket Mask	12–15 lpm	50–60%
Non-Rebreather Mask	12–15 lpm	80–100%
Bag-Valve-Mask	12–15 lpm	90–100%

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4. Circulation

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ONCE CONFIRMED PULSELESS, HIGH-QUALITY CONTINUOUS CPR WITH FREQUENT PROVIDER ROTATION IS AN ESSENTIAL COMPONENT IN THE SUCCESSFUL RESUSCITATION OF THE ARRESTED PATIENT. THIS MAY BE ACCOMPLISHED THROUGH MANUAL OR MECHANICAL MEANS AS APPROPRIATE.

PERFORM CPR WHILE PREPARING FOR RHYTHM ANALYSIS AND DEFIBRILLATION

a) Assess pulse.
   (1) Patients from birth up to those who have not reached their 12th birthday
      (a) If pulse is absent, use AED/manual defibrillator or begin CPR.
      (b) If patient is symptomatic with poor perfusion (unresponsive or responds only to painful stimuli) and pulse is less than 60 bpm**:**
         (i) Ventilate for 30 seconds.
         (ii) If after 30 seconds, the pulse is less than 60 bpm, begin CPR.
      (c) If pulse greater than 60 bpm, continue assessment.
   (2) Patients 12 year of age or older:
      (a) If pulse is absent, use AED/manual defibrillator or begin CPR.
      (b) If pulse is present, continue assessment.
b) Assess for and manage profuse bleeding.
c) Assess skin color, temperature, and capillary refill.

5. Disability
   a) Perform Mini-Neurologic Assessment (Pulse/Motor/Sensory).
   b) Cervical Spine Immobilization
      (1) The provider shall determine the appropriate device for use in spinal immobilization of the patient. Infant or child car seats may NOT be used as a spinal immobilization device for the pediatric patient.
      (2) If patient presents with any blunt traumatic mechanism which could cause cervical spine injury and meets ANY of the following criteria, complete Spinal Immobilization (C-spine and back maintaining neutral alignment and padding when appropriate) should occur.
         (a) History of Loss of Consciousness (LOC) or unconscious?
         (b) Disoriented or altered level of consciousness?
         (c) Suspected use of drugs or alcohol?
         (d) Midline cervical tenderness or pain?
         (e) Focal neurologic deficit?
         (f) Has a painful distracting injury that could mask cervical pain or injury?
         (g) Child less than 8 years of age

ALERT

      (3) If NO to all of the above, transport as appropriate.

IF PATIENT IS UNABLE TO COMMUNICATE OR APPROPRIATELY RESPOND TO THE ABOVE QUESTIONS, PERFORM A COMPLETE SPINAL IMMOBILIZATION.

6. Exposure

   To assess patient's injuries, remove clothing as necessary, considering condition and environment.

7. Assign Clinical Priority

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a) Priority 1 — Critically ill or injured person requiring immediate attention; unstable patients with life-threatening injury or illness.
b) Priority 2 — Less serious condition yet potentially life-threatening injury or illness, requiring emergency medical attention but not immediately endangering the patient's life.
c) Priority 3 — Non-emergent condition, requiring medical attention but not on an emergency basis.
d) Priority 4 — Does not require medical attention.
e) In the event of a multiple casualty incident, the Simple Triage And Rapid Treatment (START and/or JumpSTART) technique will be instituted for rapid tagging and sorting of patients into priority categories for both treatment and transport.

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E. HISTORY AND PHYSICAL EXAMINATION/ASSESSMENT

1. Conduct a Focused Examination/Detailed Examination/Ongoing Assessment.

2. Collect and transport documentation related to patient's history (example: Emergency Information Form, Medic Alert, EMS DNR, or jurisdictional form).

3. Obtain an EKG when appropriate.

F. TREATMENT PROTOCOLS

1. Refer to **ALL** appropriate protocols.

2. Patients who have had an impaled conducted electrical weapon used on them will be transported to the nearest appropriate facility without dart removal (Exception Tactical EMS).

3. Providers may assist the patient or primary caregiver in administering the patient's prescribed rescue medication.
   a) BLS providers may assist with the administration of the patient's fast-acting bronchodilator MDI and sublingual nitroglycerin.
   b) ALS providers may administer the patient's prescribed benzodiazepine for seizures, Factor VIII or IX for Hemophilia A or B, or re-establish IV access for continuation of an existing vasoactive medication.
   c) Providers should obtain on-line medical direction to administer other prescribed rescue medications not specifically mentioned in *The Maryland Medical Protocols for EMS Providers* (e.g., Solucortef for Adrenal Insufficiency). The rescue medication must be provided by the patient or caregiver and the label must have the patient's name and the amount of medication to be given.

ALERT DO NOT ADMINISTER ORAL MEDICATIONS (EXCEPT GLUCOSE PASTE) TO PATIENTS WITH AN ALTERED MENTAL STATUS.

4. For pediatric patients
   a) Pediatric section of the treatment protocol will be used for children who have **not** reached their 15th birthday (trauma and medical), except as otherwise stated in the treatment protocol.
   b) Medication dosing
      (1) Pediatric doses apply to patients weighing less than 50 kg
      (2) For pediatric patients equal to or greater than 50 kg, utilize adult dosing.
   c) The developmental age of the infant/child must be considered in the communication and evaluation for treatment.
   d) Destination consideration:
      For those patients who are 15 years of age or older who receive specialized care at a pediatric facility, consider medical consultation with a pediatric base station for patient destination.
   e) Infants and children must be properly restrained prior to and during transport.
   f) When appropriate, family members should remain with pediatric patients.

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G. COMMUNICATIONS

1. All Priority 1 patients require on-line medical consultation.

2. All Priority 2 patients who have persistent symptoms or need further therapeutic intervention(s) require on-line medical consultation.

3. Notification ("information only call" that can be through EOC or EMS communication system following local standard operating procedures) should be made to the receiving hospital for Priority 2 or Priority 3 patients whose symptoms have resolved and whose vital signs are within normal limits.

ON-LINE MEDICAL CONSULTATION MAY BE OBTAINED AT ANY TIME FOR ANY PATIENT, IF DESIRED BY THE PREHOSPITAL EMS PROVIDER. PEDIATRIC AND SPECIALTY CONSULTATION IS ENCOURAGED FOR TRAUMA AND MEDICAL PATIENTS. CONSULTATION WITH PEDIATRIC AND SPECIALTY CENTERS SHALL OCCUR SIMULTANEOUSLY WITH A BASE STATION CONSULT.

4. If medical consultation is genuinely unavailable, or if the time necessary to initiate consultation significantly compromises patient care, the provider shall proceed with additional protocol directed care, so long as transport will not be significantly delayed. "Exceptional Call" must be indicated on the Patient Care Report (PCR).

5. Trauma Communications
   The following information must be communicated to the appropriate Trauma Center and/or Local Hospital
   a) Patient's age, injuries, ETA
   b) Number of victims
   c) Detailed description of the incident.
   d) Provide patient Trauma Decision Tree Category (Alpha, Bravo, Charlie, Delta)
   e) Provide assigned patient priority (1 to 4)
   f) Pertinent patient signs and symptoms (e.g., HR, RR, BP, Pulse Ox and GCS)

CONSIDER ACTIVATION OF THE GO-TEAM FOR SERIOUSLY INJURED PATIENTS WHO REQUIRE A PROLONGED EXTRICATION AND WHO MEET THE INDICATIONS FOR GO-TEAM ACTIVATION.

6. Mass Casualty Incident (MCI) Communications
   a) When a local jurisdiction declares an MCI, it is extremely important to maximize patient care resources and reserve EMS communications for emergent situations. Except for extraordinary care interventions, EMS providers may perform all skills and administer medications within protocol, during a declared MCI. When the MCI condition is instituted, the Exceptional Call box must be checked on the PCR.
   b) During an MCI, the EMS Officer-in-Charge (OIC) shall designate an EMS Communicator who shall establish appropriate communications.
   c) Reference the Multiple Casualty Incident/Unusual Incident Protocol. **(NEW '14)**

7. Communications with and through EMRC/SYSCOM are recorded. In addition, as part of the quality assurance and quality improvement process, communications with hospitals are frequently recorded. Therefore, you should assume that all your communications among EMS providers, hospitals, public safety communications centers, and EMRC/SYSCOM are being recorded.

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H. REASSESSMENT

1. Reassess unstable patients frequently (recommended every 5 minutes).
2. Reassess stable patients at a minimum of every 15 minutes.
3. Reassess patients being discharged to home or long-term care at the beginning and end of the transport or more frequently, at the provider's discretion.

I. DISPOSITION

1. Destination
   a) Priority 1 patients shall be triaged according to Maryland Medical Protocols to the closest appropriate hospital-based emergency department, designated trauma, or designated specialty referral center. Critically unstable patients in need of immediate life-saving interventions that cannot be provided in the field shall, with the approval of EMS System medical consultation, be diverted to the closest facility (including freestanding medical facility) capable of immediately providing those interventions.
   b) Priority 2 patients shall be triaged according to the Maryland Medical Protocols to the closest appropriate hospital-based emergency department, designated trauma or designated specialty referral center unless otherwise directed by EMS System medical consultation.
   c) Stable priority 3 or 4 patients who do not need a time critical intervention may also be transported to the local emergency department or freestanding medical facility.
2. Mode of transport (air, land, water, etc.)
   a) Medevac patients with indications for specialty referral center should be flown to the appropriate type of specialty center if not more than 10–15 minutes further than the closest trauma center. (Patients with an airway, breathing, or circulatory status who would be jeopardized by going an additional 10–15 minutes should go to the closest trauma center.)
   b) Consider utilization of a helicopter when the patient's condition warrants transport to a trauma or specialty referral center and the use of a helicopter would result in a clinically significant reduction in time compared with driving to a trauma/specialty center.

ALL REQUESTS FOR SCENE HELICOPTER TRANSPORTS SHALL BE MADE THROUGH SYSCOM. FOR TRAUMA DECISION TREE CATEGORY CHARLIE OR DELTA, RECEIVING TRAUMA CENTER MEDICAL CONSULTATION REQUIRED WHEN CONSIDERING WHETHER HELICOPTER TRANSPORT IS OF CLINICAL BENEFIT.

   c) If the time of arrival at the trauma or specialty referral center via ground unit is less than 30 minutes, there will generally not be a benefit in using the helicopter, especially for Trauma Decision Tree classes Charlie and Delta.
   d) Refer to the trauma decision tree when considering use of aeromedical transport. Provide SYSCOM with the patient's Category (Alpha, Bravo, Charlie, or Delta).
   e) On-line medical direction should be obtained from the local trauma center and the specialty referral center when transport to the specialty center would require more than 10–15 minutes additional transport time.
      (1) Pediatric Trauma Patients: Indications as per the pediatric section of the trauma protocols.

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(2) Spinal Trauma Patients: Indications as per spinal trauma protocol.
(3) Burn Patients: Indications as per burn protocol. Special note: Isolated burn patients without airway injury or other associated trauma should normally be flown to a burn center, regardless of the location of the closest trauma center.
(4) Hand Injury Patients: Indications as per hand protocol. Special note: Medevac patients with appropriate indications for hand center referral should normally be flown to the hand center, regardless of the location of the closest trauma center.

3. Status
   Evaluate the need for emergent versus non-emergent transportation.

DO NOT WAIT ON-SCENE FOR ADVANCED LIFE SUPPORT. ATTEMPT TO RENDEZVOUS EN ROUTE TO THE HOSPITAL.

J. TRANSFER OF CARE/RENDEZVOUS AND TRANSITION OF PATIENT CARE ALS TO BLS

The ALS provider-patient relationship is established when the ALS provider initiates patient assessment and

1. ALS medication(s)* is/are administered or
2. ALS procedure(s)* is/are performed or
3. Upon ALS provider assessment of the patient there is potential risk of deterioration.

* Based on the medication or procedure as listed in the protocol pages 144–147

ALS providers may only terminate their EMS provider-patient relationship when they are assured that the patient will continue to receive care at the same or greater levels, or when they have documented with on-line medical direction that the patient's condition has improved and that patient care may be transferred safely to an EMS Provider with a lower scope of practice.

BLS providers have the right to decline the transition of patient care. When consensus between the providers cannot be gained, ALS shall get on-line medical direction.

Providers will relay assessment findings and treatment provided to the individual(s) assuming responsibility for the patient(s).

K. DOCUMENTATION

A Patient Care Report (PCR) will be completed and delivered to the receiving facility as soon as possible, ideally upon transfer of care. If this is not immediately possible, providers must provide documentation of the patient's prehospital care on a template and in a format provided or approved by MIEMSS for inclusion in the patient care record before leaving the receiving facility, then deliver the completed PCR within 24 hours after transfer of care, in compliance with COMAR 30.03.04.04.

Only the unit that pronounces death will select the "Dead on Scene" option in the Patient Care Report (eMEDS®) and thus all other units will report "Operational Support Only." If no interventions are performed, the highest level EMS provider on scene

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will pronounce death and document “Dead on Scene.” If BLS care was rendered by a BLS unit and then termination of resuscitation and pronouncement of death occurred, the BLS unit will select “Dead at Scene with BLS Intervention” option on the eMEDS® PCR. If ALS care was rendered by an ALS unit and then termination of resuscitation and pronouncement of death occured, the ALS unit will select “Dead at Scene with ALS Intervention” option on the eMEDS® PCR. **(NEW ’14)**

L. CONFIDENTIALITY

Patient confidentiality must be maintained at all times.

M. PROFESSIONAL CONDUCT

All patients should be treated with dignity and respect in a calm and reassuring manner.

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C. ALTERED MENTAL STATUS: UNRESPONSIVE PERSON

1. Initiate General Patient Care.

2. Presentation
   Patients may exhibit confusion, focal motor sensory deficit, unusual behavior, unresponsiveness to verbal or painful stimulus.

ALCOHOL CAN CAUSE ALTERED MENTAL STATUS BUT IS NOT COMMONLY A CAUSE OF TOTAL UNRESPONSIVENESS TO PAIN.

3. Treatment
   a) Obtain pulse oximetry, if available.

   b) Administer glucose paste (10–15 grams) between the gum and cheek. Consider single additional dose of glucose paste if not improved after 10 minutes.

   c) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, (NEW '14)**
   Administer naloxone
   2 mg intranasal atomizer (Divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).

   d) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, (NEW '14)**
   Administer naloxone
   0.4–2 mg SLOW IVP/IO/IM/Intranasal (If delivery device is available - divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril)
   Titrate to adequate respiratory effort.

   e) Establish IV access with LR.
   Administer fluid bolus, if appropriate.
   20 mL/kg of LR IV

   f) Titrate to a systolic pressure of 100 mmHg.

   g) Consider obtaining blood sample using closed system.

   h) Use glucometer and treat accordingly.

   i) Consider an additional dose of naloxone.

   j) Consider additional fluid administration
   Maximum 2,000 mL without medical consultation.

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ALTERED MENTAL STATUS: UNRESPONSIVE PERSON (Continued)

k) Obtain pulse oximetry if available.

l) Administer glucose paste (10–15 grams) between the gum and cheek. Consider single additional dose of glucose paste if not improved after 10 minutes.

m) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, (NEW '14)**
Administer naloxone
28 days to 8 years: Administer naloxone 0.8–1 mg intranasal atomizer (Divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).
8 years to adult: Administer naloxone 2 mg intranasal atomizer (Divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril)

n) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, (NEW '14)**
Administer naloxone
0.1 mg/kg SLOW IVP/IO/IM/Intranasal (If delivery device is available—divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril)
Maximum dose 0.4–2 mg

o) Consider repeating naloxone.

p) Establish IV/IO access with LR.
(1) If age-related vital signs and patient's condition indicate hypoperfusion, administer initial fluid bolus of 20 mL/kg LR IV/IO.
If patient's condition does not improve, administer the second bolus of fluid at 20 mL/kg LR IV/IO.
OR
For volume-sensitive children administer initial fluid bolus of 10 mL/kg LR IV/IO. If patient's condition does not improve, administer the second bolus of fluid at 10 mL/kg LR IV/IO.

Volume-sensitive children include: neonates (0–28 days), children with congenital heart disease, chronic lung disease, or chronic renal failure.

(2) Consider obtaining blood sample using closed system.

q) Use glucometer and treat accordingly.

r) Third and subsequent fluid boluses at 20 mL/kg IV/IO except in volume-sensitive children, then bolus at 10 mL/kg.

4. Continue General Patient Care.

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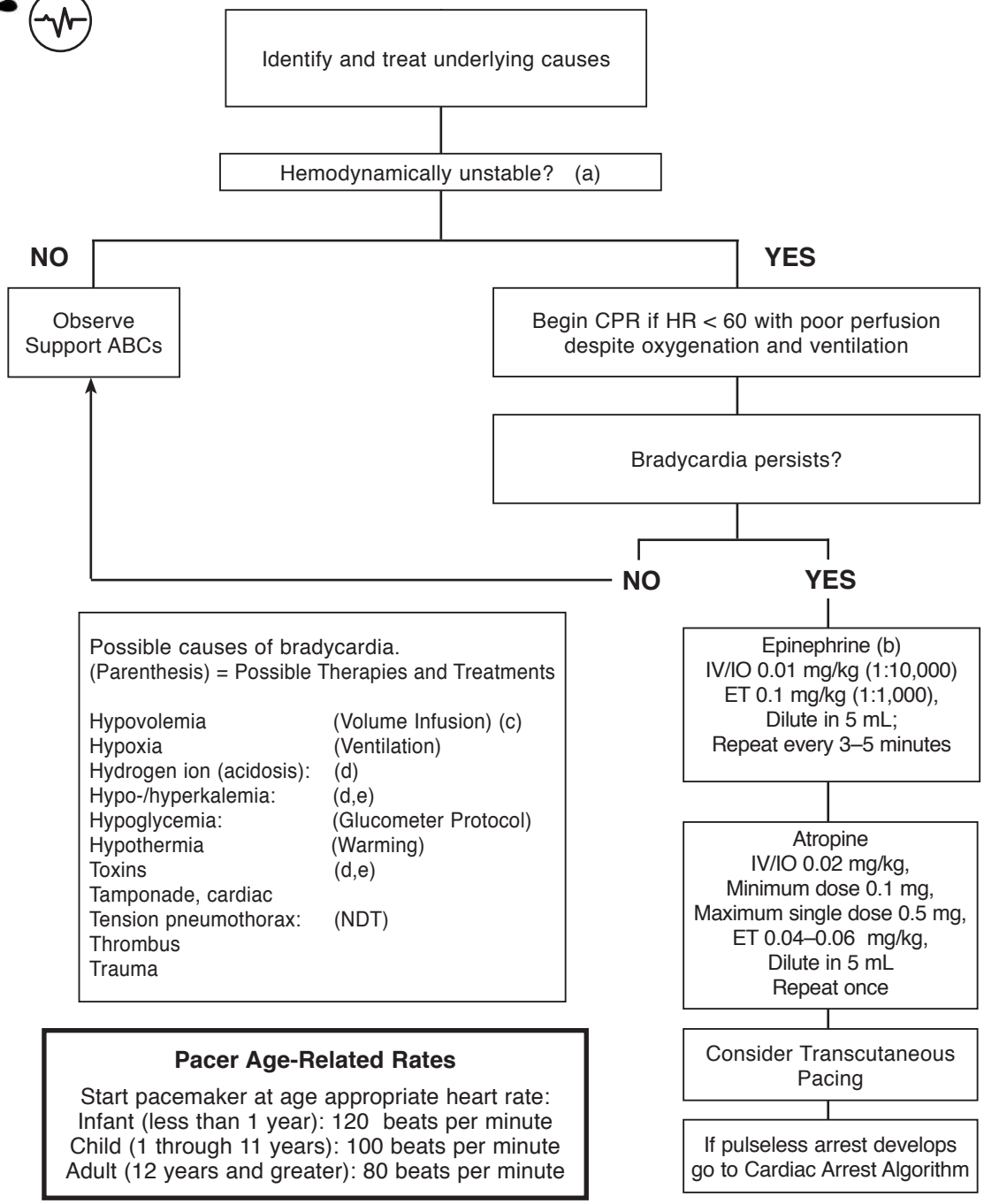
5.

PEDIATRIC BRADYCARDIA ALGORITHM



(a) - Hemodynamically unstable is defined as a systolic blood pressure less than 60 in neonates (patients less than 28 days old), less than 70 in infants (patients less than 1 year of age), and less than [70 + (2 x years) = systolic BP] for patients greater than 1 year of age.
(b) - Neonates (0–28 days), Epinephrine ET 0.03 mg/kg (1:10,000) dilute with 1 mL.
(c) - Volume infusion for neonates and volume sensitive children 10 mL/kg; for infant and child 20 mL/kg.
(d) - Sodium Bicarbonate, 1mEq/kg with medical consultation. See Sodium Bicarbonate.
(e) - Calcium chloride, 20 mg/kg (0.2 mL/kg) slow IVP/IO (50 mg/min). Max dose 1 gram.

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G1. CARDIAC EMERGENCIES: TACHYCARDIA

1. Initiate General Patient Care.

2. Presentation
   Patient may present with chest pain, shortness of breath, decreased level of consciousness, low blood pressure, hypoperfusion, pulmonary congestion, congestive heart failure, and/or acute myocardial infarction.

3. Treatment
   a) Place patient in position of comfort.

   b) Assess and treat for shock, if indicated.

   c) Constantly monitor airway and reassess vital signs every 5 minutes.

---

   d) Establish IV access with LR.

   e) Verify presence of pulse.

   f) If no pulse present, treat as pulseless VF/VT.

   g) If patient is hemodynamically unstable with a ventricular rate greater than 150, prepare for immediate cardioversion.

   h) If patient is hemodynamically stable, identify rhythm and proceed to appropriate algorithm.

   i) Place patient in position of comfort.

   j) Assess and treat for shock, if indicated.

   k) Constantly monitor airway and reassess vital signs every 5 minutes.

---

   l) Establish IV access with LR.

   m) Verify presence of pulse.

   n) If no pulse present, treat as pulseless VF/VT.

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o) If patient is hemodynamically unstable with a ventricular rate greater than 220 for an infant or 180 for a child, prepare for immediate cardioversion.

p) If patient is hemodynamically stable, identify rhythm and proceed to appropriate algorithm.

4. Continue General Patient Care.

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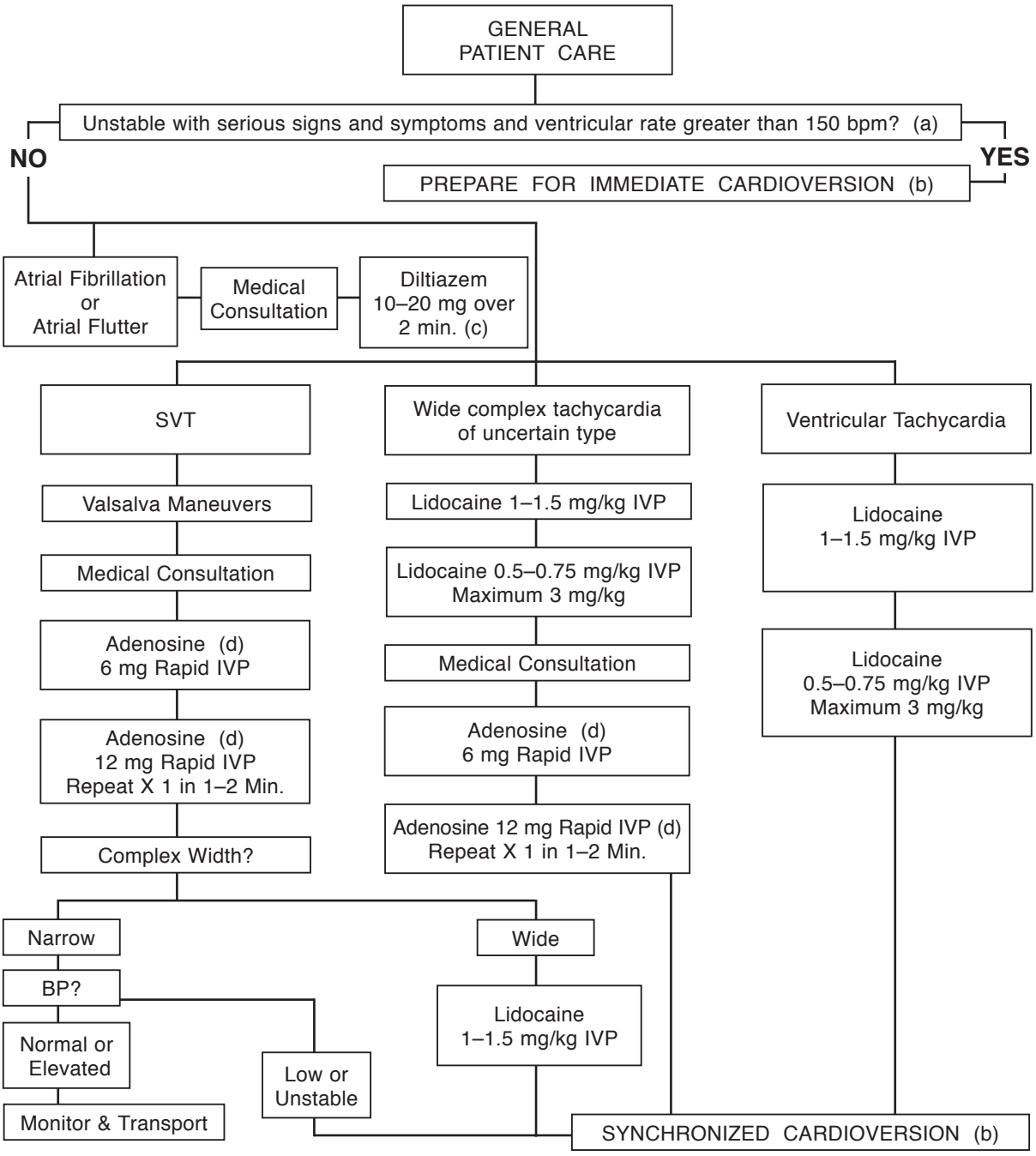
5. ADULT TACHYCARDIA ALGORITHM



(a) - Unstable condition must be related to the tachycardia. Signs and symptoms may include chest pain, shortness of breath, decreased level of consciousness, hypotension, hypoperfusion, pulmonary congestion, CHF, and/or AMI.

(b) - Consider sedation (midazolam with medical consultation). However, overall patient status, including BP, may affect ability to administer sedative.

(c) - Consider calcium chloride 250 mg IVP for hypotension induced by diltiazem. Medical consultation required. If rate does not slow in 15 minutes, administer a second dose of diltiazem (15–25 mg over 2 minutes). Medical consultation required.

(d) - Be prepared for up to 40 seconds of asystole. (Paramedic may administer without consult.)

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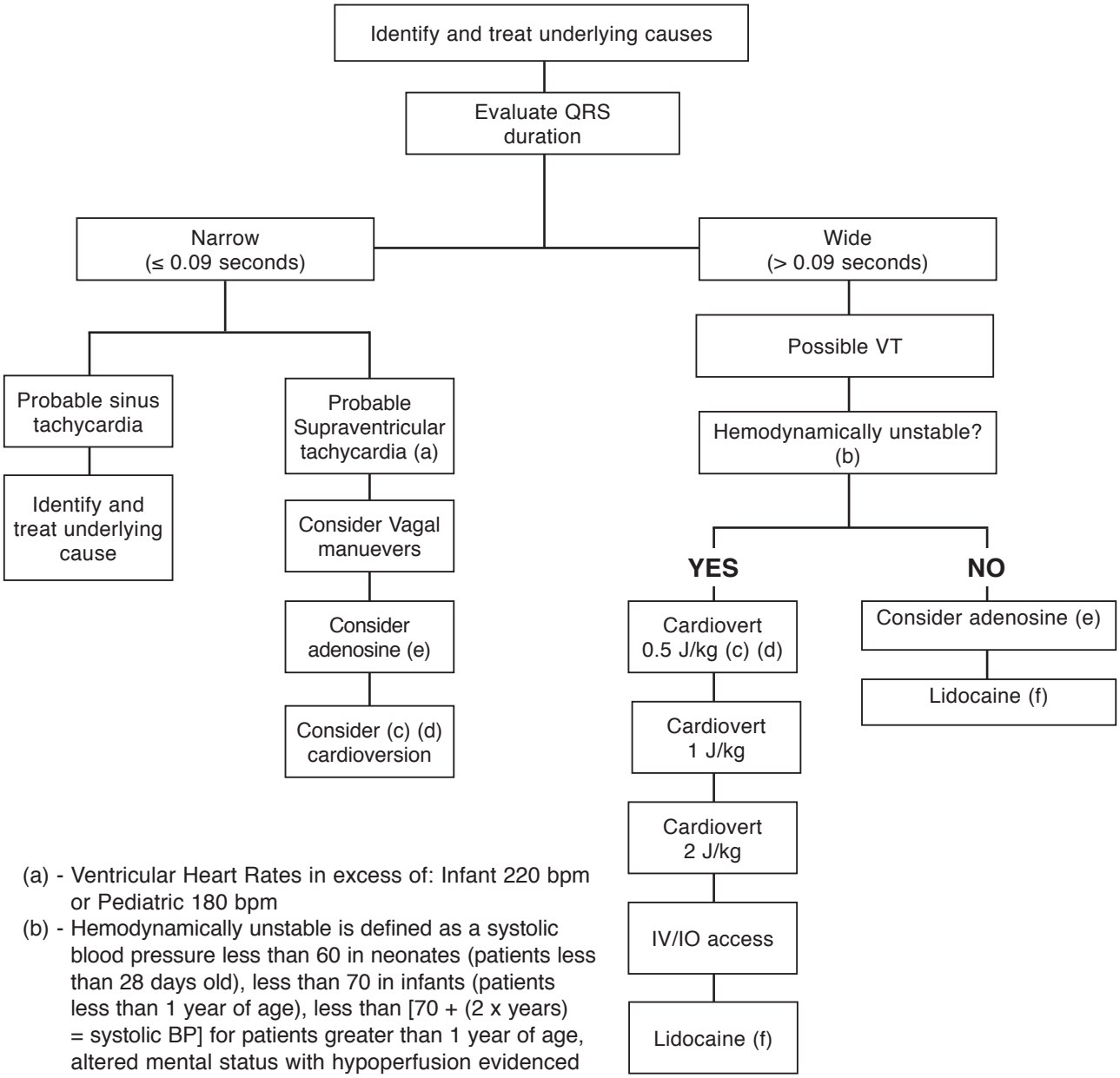
6.

PEDIATRIC TACHYCARDIA ALGORITHM



(a) - Ventricular Heart Rates in excess of: Infant 220 bpm or Pediatric 180 bpm

(b) - Hemodynamically unstable is defined as a systolic blood pressure less than 60 in neonates (patients less than 28 days old), less than 70 in infants (patients less than 1 year of age), less than [70 + (2 x years) = systolic BP] for patients greater than 1 year of age, altered mental status with hypoperfusion evidenced by delayed capillary refill, pallor, or peripheral cyanosis.

(c) - If calculated joules setting is lower than cardioversion device is able to deliver, use the lowest joules setting possible or obtain medical consultation.

(d) - Consider sedation (midazolam with medical consultation). However, overall patient status, including BP, may affect ability to administer sedative.

(e) - Adenosine: 0.1 mg/kg rapid IV/IO, maximum 6 mg. Second and third doses 0.2 mg/kg rapid IV/IO, maximum single dose 12 mg. Be prepared for up to 40 seconds of asystole. (Paramedic may administer without consult.) (Contraindicated in polymorphic or irregular wide complex tachycardia)

(f) - Lidocaine: With medical consult, 1 mg/kg IV/IO bolus, followed by 0.5 mg/kg at 8 minute intervals until a maximum dose of 3 mg/kg has been administered or rhythm conversion has occurred. A paper tracing must be obtained prior to each administration. ET dose is 2–2.5 times the above dose.

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H. CARDIAC EMERGENCIES: CARDIAC ARREST

1. Initiate General Patient Care.
2. Presentation
   Patient must be unconscious, apneic, and pulseless.
3. Treatment
   a) Perform CPR.

ALERT

HIGH-QUALITY CONTINUOUS CPR WITH FREQUENT PROVIDER ROTATION IS AN ESSENTIAL COMPONENT IN THE SUCCESSFUL RESUSCITATION OF THE ARRESTED PATIENT. THIS MAY BE ACCOMPLISHED THROUGH MANUAL OR MECHANICAL MEANS AS APPROPRIATE.

PERFORM CPR WHILE PREPARING FOR RHYTHM ANALYSIS AND DEFIBRILLATION.

   b) Utilize AED as appropriate.
   c) Transport
      (1) If no shock indicated, consider Termination of Resuscitation Protocol or transport immediately.
      (2) If shock indicated, defibrillate and resume CPR. Consider Termination of Resuscitation Protocol or transport ASAP.
      (3) If ROSC, transport to a Cardiac Interventional Center via medevac or ground.
      (4) If no ROSC, consider Termination of Resuscitation Protocol or transport to the closest appropriate facility.

---

   d) Identify rhythm and treat according to appropriate algorithm.
   e) If no ROSC, consider Termination of Resuscitation Protocol or transport to the closest appropriate facility.
   f) If ROSC, perform 12-Lead ECG **(NEW '14)** and, if necessary, initiate neuroprotective hypothermia. Transport the patient to the nearest Cardiac Interventional Center by ground as long as the transport time is not more than 30 minutes greater than transport to the nearest ED that can perform neuroprotective hypothermia. Consider helicopter transport for prolonged transports.
   g) When indicated and based on the EMS provider's report, the Base Station physician at the receiving Cardiac Interventional Center will activate its Cardiac Interventional Team.
   h) Perform CPR.
   i) Utilize AED as appropriate (see AED Procedure).
   j) If no shock indicated, continue CPR and transport ASAP.
   k) If shock indicated, defibrilate, continue CPR, and transport ASAP.

For patients who have not reached their 18th birthday:

   l) Identify rhythm and treat according to appropriate algorithm.
   m) If no ROSC, transport to the closest appropriate facility.
   n) If ROSC, perform 12-Lead ECG **(NEW '14)** and transport the patient to Children's National Medical Center or Johns Hopkins Children's Center by ground or medevac. If arrival time is greater than 30 minutes to either of these destinations, transport to the closest appropriate ED.

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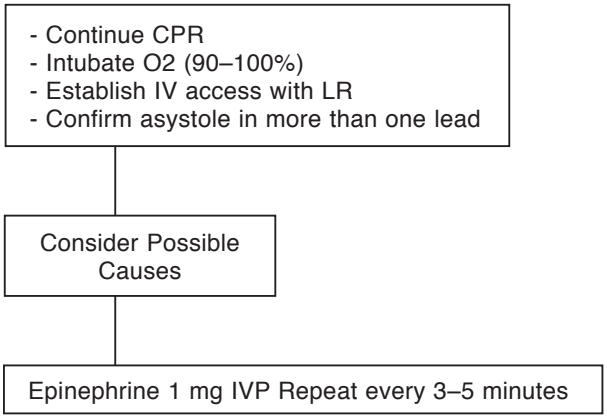
4.

ADULT ASYSTOLE ALGORITHM



Consider possible causes of asystole.
(Parenthesis) = Possible Therapies and Treatments

Hypovolemia	(Volume Infusion) (c)
Cardiac Tamponade	(Volume Infusion) (c)
Tension Pneumothorax	(Needle Decompression Thorocostomy–NDT)
Massive Pulmonary Embolism	
Massive AMI	
Drug Overdose	(a,b)
Hypoxia	(Ventilation)
Hypothermia	(Warming)
Acidosis	(a)
Hyperkalemia	(a,b)

(a) - Sodium bicarbonate 1 mEq/kg, with medical consultation. See sodium bicarbonate.

(b) - Calcium chloride, 0.5–1 gram IVP, with medical consultation. See calcium chloride.

(c) - Volume infusion is 20 mL/kg.

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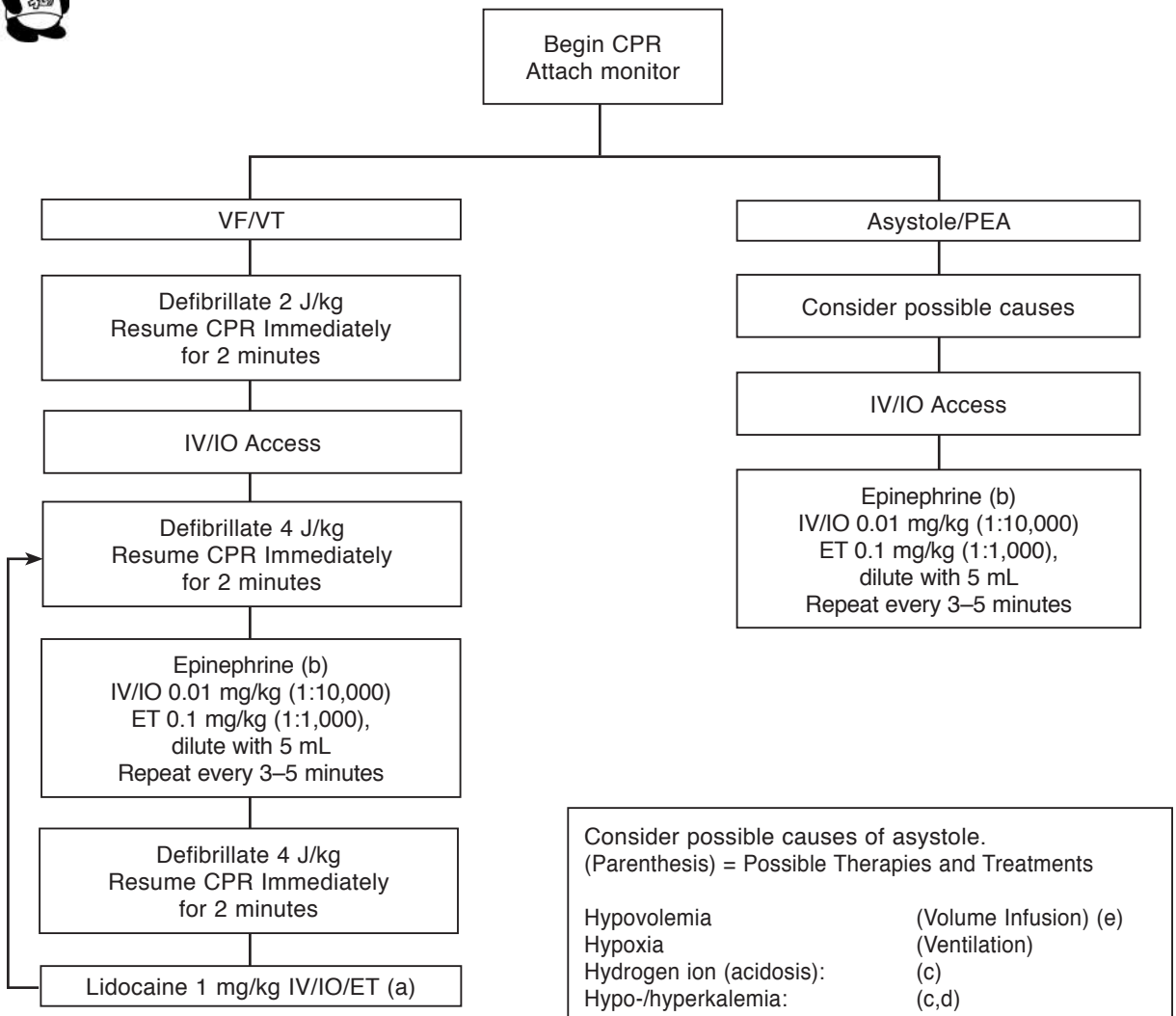
5. PEDIATRIC CARDIAC ARREST ALGORITHM



(a) - Continue cycle of epinephrine, defibrillation (at 4 J/kg), then lidocaine. Defibrillate at increasing dosage: 6 J/kg, 8 J/kg, 10 J/kg.

(b) - Neonates (0–28 days), epinephrine ET 0.03 mg/kg (1:10,000) dilute with 1 mL.

(c) - Sodium bicarbonate, 1 mEq/kg, with medical consultation. See sodium bicarbonate.

(d) - Calcium chloride, 20 mg/kg (0.2 mL/kg) slow IVP/IO (50 mg/min). Max dose 1 gram.

(e) - Volume infusion for neonates and volume sensitive children, 10 mL/kg; for infant and child 20 mL/kg.

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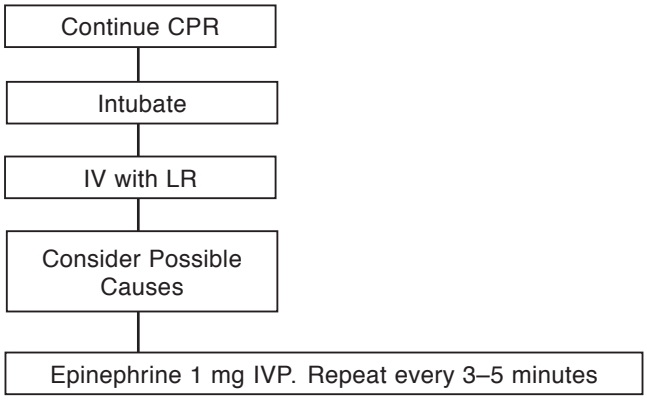
6.

PULSELESS ELECTRICAL ACTIVITY (PEA) ALGORITHM

Includes:

- EMD
- Pseudo EMD
- Brady-asystolic Rhythms
- Idioventricular Rhythms
- Ventricular Escape Rhythms
- Post-defibrillation Idioventricular Rhythms



Consider possible causes of PEA.
(Parenthesis) = Possible Therapies and Treatments

Hypovolemia	(Volume Infusion) (c)
Cardiac Tamponade	(Volume Infusion) (c)
Tension Pneumothorax	(Needle Decompression Thorocostomy–NDT)
Massive Pulmonary Embolism	
Massive AMI	
Drug Overdose	(a,b)
Hypoxia	(Ventilation)
Hypothermia	(Warming)
Acidosis	(a)
Hyperkalemia	(a,b)

(a) - Sodium bicarbonate 1 mEq/kg, with medical consultation. See sodium bicarbonate.

(b) - Calcium chloride, 0.5–1 gram IVP, with medical consultation. See calcium chloride.

(c) - Volume infusion is 20 mL/kg.

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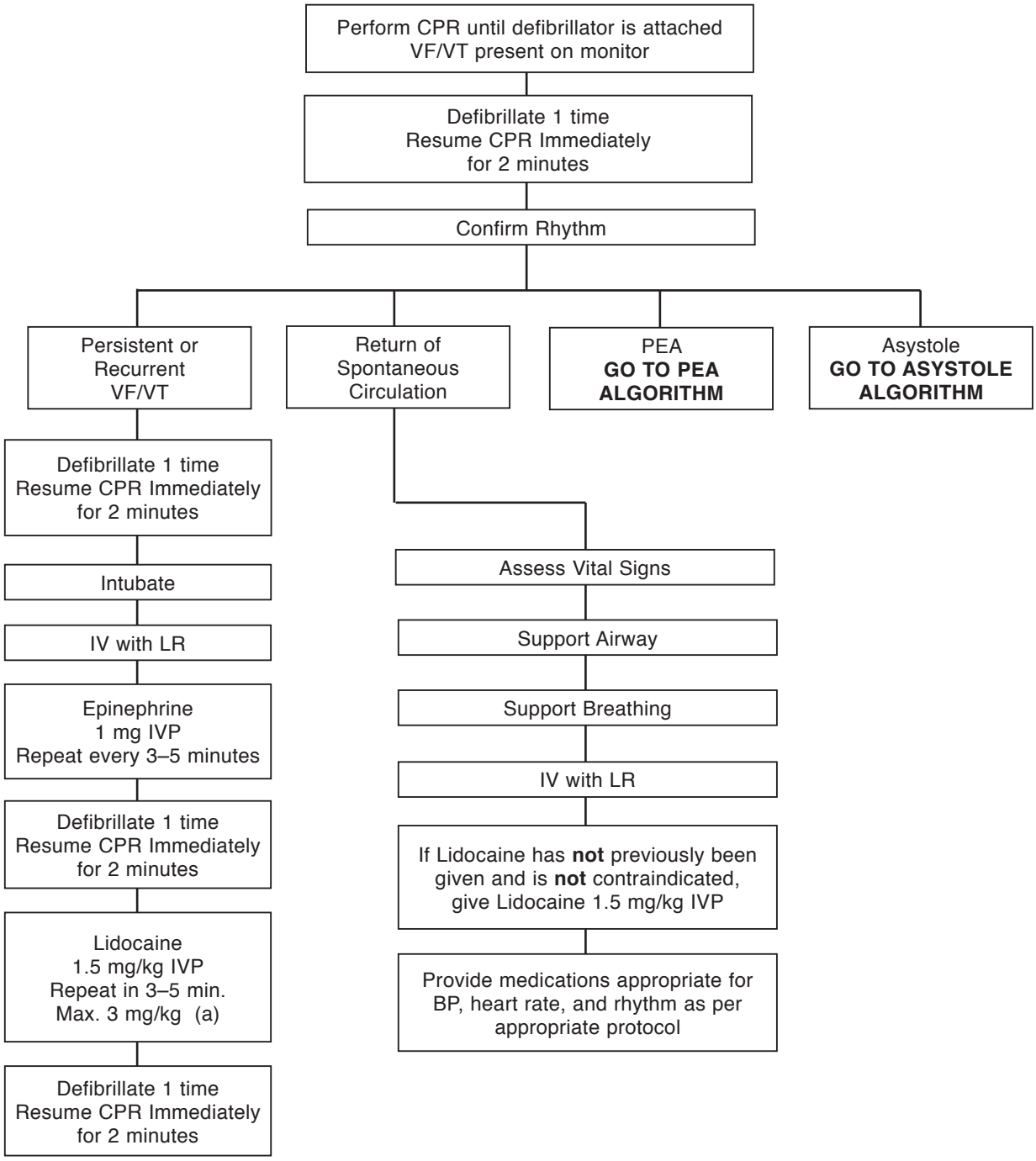
7.

VENTRICULAR FIBRILLATION
PULSELESS VENTRICULAR TACHYCARDIA



(a) - Sodium bicarbonate 1 mEq/kg, if medical consult directed. See sodium bicarbonate.

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H1. TERMINATION OF RESUSCITATION (Medical and Traumatic)

ALERT IF ANY DOUBT EXISTS, INITIATE RESUSCITATION AND TRANSPORT

1. PURPOSE

This protocol is designed to guide the provider in determining a futile resuscitation and managing the patient after this determination.

2. PROCEDURE

(a) Exclusions to this protocol.
  (1) If arrest is believed to be secondary to hypothermia or submersion, treat according to appropriate protocol and transport to the nearest appropriate facility.
  (2) If patient is pregnant, treat according to appropriate protocol and transport to the nearest appropriate facility.
  (3) If patient has not reached their 18th birthday, treat according to appropriate protocol and transport to the nearest appropriate facility.

b) Medical Arrest
  (1) EMS providers may terminate resuscitation without medical consult when all three criteria are met.
    a. The arrest was not witnessed by an EMS provider (and patient is unresponsive, pulseless, and apneic). **AND**
    b. There is no shockable rhythm identified by an AED or there is asystole or PEA on a manual cardiac monitor. **AND**
    c. There is no return of spontaneous circulation (ROSC) prior to decision to terminate resuscitation despite appropriate field EMS treatment that includes **15 minutes** of minimally-interrupted EMS CPR. **OR**
  (2) EMS providers may terminate resuscitation with medical consult when there is no ROSC prior to decision to terminate resuscitation despite appropriate field EMS treatment that includes 15 minutes of minimally-interrupted CPR in the presence of an arrest witnessed by an EMS provider or the presence of a shockable rhythm.

c) Trauma Arrest
  (1) EMS providers may terminate resuscitation without medical consult when both criteria are met. (If medical etiology is suspected, use “Medical Arrest” above.)
    a. There are no signs of life. **AND**
    b. The patient is in asystole. **OR**
  (2) EMS providers may terminate resuscitation with medical consult when both criteria are met in either blunt or penetrating trauma.
    a. Blunt
      i. There are no signs of life. **AND**
      ii. The patient is in a rhythm other than asystole and there is no ROSC despite 15 minutes of appropriate treatment which includes 15 minutes of minimally-interrupted CPR.

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H1. TERMINATION OF RESUSCITATION (Medical and Traumatic) (Continued)

b. Penetrating
   i. There are no signs of life. **AND**
   ii. The patient is in a rhythm other than asystole and there is no ROSC. If less than 15 minutes from a trauma center, transport the patient. If transport time exceeds 15 minutes, consult.

THERE ARE SOME CAUSES OF TRAUMATIC CARDIOPULMONARY ARREST (E.G., PENETRATING TRAUMA) THAT MAY BE REVERSED IF APPROPRIATELY AND EMERGENTLY MANAGED. THEREFORE, EMS PROVIDERS SHOULD FOLLOW APPROPRIATE PROTOCOLS FOR TRAUMATIC ARREST INCLUDING APPROPRIATE AIRWAY MANAGEMENT AND CONSIDERATION FOR BILATERAL NEEDLE DECOMPRESSION THORACOSTOMY. HOWEVER, EVEN WITH THE APPLICATION OF THESE MANEUVERS, ASYSTOLE AND PULSELESSNESS FOR GREATER THAN 10 MINUTES ARE INDEPENDENT PREDICTORS OF MORTALITY.

d) Pronouncement of Death in the Field protocol.

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H2. PRONOUNCEMENT OF DEATH IN THE FIELD

1. PURPOSE

This protocol is designed to guide the EMS provider in pronouncing death in the field.

Health General Article §5-202 provides that:

(a) An individual is dead if, based on ordinary standards of medical practice, the individual has sustained either:
  (1) Irreversible cessation of circulatory and respiratory functions; or
  (2) Irreversible cessation of all functions of the entire brain, including the brain stem.

2. INDICATIONS

EMS providers may pronounce the death of a patient when one or more of the following criteria has been met.

a) Decapitation
b) Rigor mortis
c) Decomposition
d) Dependent lividity
e) Pulseless, apneic patient in a multi-casualty incident where system resources are required for the stabilization of living patients
f) Pulseless, apneic patient with an injury not compatible with life (with the exception of an obviously pregnant female where resuscitation attempts should be initiated and the patient transported to the nearest appropriate facility)
g) The EMS provider has terminated resuscitation per the Termination of Resuscitation protocol.

3. PROCEDURE

a) Confirm that the patient is unresponsive, pulseless, and apneic.
b) The patient who meets criteria in 2.e may be “black” tagged during triage (by a BLS or ALS provider), but asystole must be confirmed by ALS provider before a formal pronouncement of death.
c) The patient who meets criteria in 2.f must be confirmed to be in asystole by ALS provider before a formal pronouncement of death. If the condition of the remains precludes obtaining a cardiac rhythm to confirm asystole (e.g., incineration, severe disruption of the torso, etc.), this must be documented on the patient care report.
d) Document the exact time and location of the pronouncement of death.
e) Notify law enforcement and follow local jurisdictional policies or, if death is pronounced during transport, deliver patient to emergency department and follow hospital policies.

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H3. EMS DNR/MOLST

THE FOLLOWING SECTION IS ABSTRACTED FROM THE ORIGINAL MARYLAND EMERGENCY MEDICAL SERVICES DO NOT RESUSCITATE PROGRAM 2ND REVISION (07/01/98). THE PAGE (pg.) AND THE CHAPTER (ch.) NUMBERS HAVE BEEN APPENDED TO THE FOLLOWING CHAPTER TITLES FOR EASY REFERENCE. BECAUSE THIS ABSTRACT IS CONDENSED FROM THE ORIGINAL DOCUMENT, SOME CHAPTER NUMBERS OR LETTERS WERE INTENTIONALLY LEFT OUT. PLEASE REFER TO THE ORIGINAL MARYLAND EMS/DNR DOCUMENT FOR FURTHER INFORMATION.

AS OF JANUARY 1, 2002, A COPY OF THE MARYLAND EMS DNR ORDER FORM CAN BE ACCEPTED IN LIEU OF THE ORIGINAL.

AS OF OCTOBER 1, 2011, THE MARYLAND MOLST FORM CAN BE ACCEPTED IN LIEU OF THE MARYLAND EMS/DNR FORM.

1. PREFACE EMS/DNR Order or MOLST forms, bracelets, and necklaces will recognize three patient options for care prior to arrest: (pg. 15 ch. A)
   a) **Option A** (ALS) (MOLST A1)—Maximal (Restorative) Care (with intubation) Before Arrest, then DNR
   b) **Option A** (DNI) (MOLST A2)—Comprehensive Efforts to Prevent Arrest But Do Not Intubate, then DNR
   c) **Option B** (BLS) (MOLST B)—Limited (Palliative) Care Only Before Arrest, then DNR

2. VALID EMS/DNR or MOLST BRACELET WITH INSERT or AUTHORIZED METAL EMBLEM HAS THE SAME EFFECT AS THE FORM. (pg. 17 ch. D)
   a) Typically only one EMS/DNR device is needed to initiate the EMS/DNR protocol.
   b) EMS providers should only request a second instrument (e.g., a bracelet when a form has already been presented) if there is reason to question the validity of the first produced notification device.

3. RECIPROCITY (pg. 19 ch. E)
   a) A standardized EMS/DNR Order from another state may be honored.
   b) Treat out-of-state EMS/DNR Orders as Option "B" EMS/DNR patients.
   c) See chart in "EMS/DNR Program" booklet for how other states will treat Maryland devices.

4. ORAL EMS/DNR ORDERS (pg. 19 ch. G)
   a) EMS providers may follow an oral EMS/DNR Order directly from a Maryland-licensed physician (MD or DO), physician assistant, **(NEW '14)** or nurse practitioner that is physically present "on-site." EMS shall not accept orders from private physician attendings or nurse practitioner by telephone.
   b) EMS providers may follow an oral EMS/DNR Order from a Maryland-licensed physician "on-line" via the EMS Communications System (e.g., radio or telephone consult that is routed through a public service access point (PSAP) for audio recording).

5. ACCEPTABLE AND UNACCEPTABLE EMS/DNR ORDERS (pg. 19 ch. H)
   a) The following are acceptable for implementing the EMS/DNR protocol:
      (1) Original Maryland EMS/DNR Order Form

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H3. EMS DNR/MOLST (Continued)

(2) Copy of the Maryland EMS/DNR Order Form
(3) Other State EMS/DNR Order Form
(4) Maryland EMS/DNR Bracelet Insert
(5) Medic Alert DNR Bracelet or Necklace
(6) Oral DNR Order from EMS System Medical Consultation
(7) Oral DNR Order from other on-site physician or nurse practitioner
(8) Maryland MOLST Form
(9) Maryland MOLST Bracelet

b) The following **are not** acceptable for implementing the EMS/DNR protocol:
(1) Advance directives without an EMS/DNR Order
(2) Facility-specific DNR orders
(3) Notes in medical records
(4) Prescription pad orders
(5) DNR stickers
(6) An oral request from someone other than a physician or nurse practitioner
(7) An oral order from an attending physician or nurse practitioner who is not on site
(8) Any other device or instrument not listed above as acceptable.

6. VALIDITY OF EARLIER VERSIONS OF EMS/DNR ORDERS (pg. 22 ch. K)
a) Older versions of EMS/DNR Orders — i.e., initial version (1995 and first revision, 4/1/96) — **continue to be valid and need not be updated** unless the patient or authorized decision maker wishes to take advantage of new features available in the newer forms.
b) EMS providers should treat older versions of EMS/DNR order (pre 7/1/98) as "Option B (BLS) - Limited (Palliative) Care Only Before Arrest, Then DNR."

7. REVOCATION OF AN EMS/DNR ORDER (pg. 24 ch. M)
a) An EMS/DNR Order may be revoked at any time by:
(1) Physical cancellation or destruction of all EMS/DNR Order devices; or
(2) An oral statement by the patient made directly to emergency medical services personnel requesting only palliative care or resuscitation. If the patient revokes an EMS/DNR order orally, the EMS/DNR Order notification devices do not need to be destroyed. EMS providers should thoroughly document the circumstances of the revocation. An oral revocation by a patient is only good for the single response or transport for which it was issued.
b) An authorized decision-maker, other than the patient, cannot revoke an EMS/DNR Order **orally**. Because of the difficulty in identifying authorized decision makers in emergent situations, it is incumbent upon an authorized decision maker who has authority to revoke an EMS/DNR Order to either destroy or withhold all EMS/DNR Order devices, if they wish resuscitation for the patient.

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H3. EMS DNR/MOLST (Continued)

c) Section 5-610 of the Health Care Decision Act (Health General Article, Annotated Code of Maryland) makes willful concealment, cancellation, defacement, obliteration, or damage of an advance directive (including EMS/DNR Orders), without the patient's or authorized decision maker's consent, a misdemeanor subject to a fine not exceeding $10,000, imprisonment not exceeding one year, or both.

8. ANTICIPATED LOCATIONS FOR EMS/DNR ORDER FORMS: (pg. 25 ch. N) EMS personnel shall be directed to look for an EMS/DNR Order in the following places:
   a) About a patient's wrist, hung from a necklace, or safety-pinned to a patient's clothing.
   b) At medical facilities, in the patient's chart.
   c) In residences and domicile facilities, by the bedside, behind the patient's bedroom door, or on the refrigerator door.
   d) In schools and educational institutions, in the nurse's office, health room, or with the student's attendant caregiver/aide.
   e) Family or caregivers will be expected to retrieve the original EMS/DNR Order prior to the ambulance's arrival.

9. IDENTIFICATION OF PATIENT (pg. 25 ch. O)
   a) If the patient is able, the patient can self-identify during the initial assessment.
   b) If the patient is unable to communicate, then family, caregivers, or bystanders can identify the patient for EMS providers.
   c) If an EMS/DNR vinyl bracelet with insert or metal emblem (bracelet or necklace) is attached to a patient (on wrist, pendant from neck, pinned to clothing, etc.) the patient's identity can be reasonably assumed by EMS providers.
   d) If an EMS/DNR vinyl bracelet insert or metal emblem (bracelet or necklace) is found detached from the patient, EMS personnel must treat it as an EMS/DNR Order form and identify the subject of the EMS/DNR Order as the patient. A valid bracelet insert alone, without the vinyl bracelet, is a valid EMS/DNR Order so long as EMS providers confirm the patient's identity (pg. 17 ch. D).
   e) If EMS personnel are unable to ascertain with reasonable certainty, when required to do so, that the subject of the EMS/DNR Order is the patient, they may resuscitate the patient.

10. HEALTH PROVIDER/EMS PERSONNEL IMMUNITY (pg. 26 ch. R)
    a) General immunity provisions, such as Good Samaritan immunity for volunteers and sovereign immunity for government employees, may apply under specific circumstances.

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H3. EMS DNR/MOLST (Continued)

b) In addition to other immunity that may be provided for in law, the Health Care Decisions Act provides the following specific immunity in cases involving the provision, withdrawal, or withholding of care which may be life-sustaining in nature:
   (1) EMS providers are not subject to criminal prosecution or civil liability or deemed to have engaged in unprofessional conduct as determined by the appropriate licensing, registering, or certifying authority as a result of **withholding or withdrawing** any health care **under authorization** obtained in accordance with the Health Care Decisions Act. See HG (5-609(a)(1)).
   (2) EMS providers **providing, withholding, or withdrawing** treatment under authorization obtained under the Health Care Decisions Act do not incur liability arising out of any claim to the extent the claim is based on **lack of consent or authorization** for the action. See HG (5-609(a)(2)).
   (3) EMS providers **providing** treatment because they reasonably believe that an EMS/DNR order, other than a bracelet, is not valid, do not incur liability arising out of any claim to the extent the claim is based on **lack of consent or authorization** for the action. See HG (5-608(d)).

11. EMS/DNR MEDICAL PROTOCOLS (pg. 29 ch. T)
   a) DISPATCH
      (1) Option B EMS/DNR patients (7/98 version) or patients with older version EMS/DNR orders (pg. 22 ch K) only require a BLS response. Once the on-scene BLS provider has determined the need for additional pain control, an ALS Rendezvous may be requested. Medevac requests are not appropriate for these patients.
      (2) Option A or A (DNI) EMS/DNR patients (7/98 version) who are not in arrest may require a range of responses from BLS through the highest echelon of response available. This will depend on the information available to dispatch and the service requested. The response complement in these cases will be dictated by local standard operating procedures (SOP).
      (3) If a dispatch center is unclear whether the DNR order is an EMS/DNR order or is unclear about the pre-arrest patient care option selected (A, A (DNI), or B), the dispatch center shall dispatch the appropriate resources based on the information available.
      (4) In the absence of knowledge to the contrary, information from medical professionals at a health care facility about the EMS/DNR status of a patient may be presumed to be reliable.

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H3. EMS DNR/MOLST (Continued)

b) PERFORM LIMITED PATIENT ASSESSMENT
Vital signs:
(1) Check for absence of a palpable pulse.
(2) Check for absence of spontaneous respirations in an unresponsive patient.
(3) Check for a valid EMS/DNR Order or MOLST form, vinyl bracelet insert worn either on the wrist, as a necklace, or pinned to clothing, or for a metal emblem (bracelet or necklace).

c) RESUSCITATE/DO NOT RESUSCITATE CRITERIA
(1) If an EMS /DNR Order is not present, revoked, or otherwise void, the EMS provider shall treat and, if necessary, transport the patient.
(2) If an EMS/DNR Order is not present, but the EMS provider believes that resuscitation or further resuscitation is futile, they may initiate the termination of resuscitation protocol. **(NEW '14)**
(3) If a valid EMS/DNR order is found and the patient is in cardiac or respiratory arrest, no resuscitative measures shall be initiated.
(4) If the patient is conscious and able to communicate that he/she revokes the EMS/DNR orally directly to EMS providers, EMS providers shall treat and, if necessary, transport the patient.
(5) If the EMS/DNR patient (Option A, A (DNI), or B) arrests, withhold or withdraw further resuscitation and provide support to the family and caregivers. Consider notifying appropriate personnel.

d) **OPTION A** (MOLST A1) – MAXIMAL (RESTORATIVE) CARE PROTOCOL
(1) When Option A - "Maximal (Restorative) Care (with intubation) Before Arrest, then DNR" is selected on an EMS/DNR Order or MOLST form, the patient shall receive the full scope of restorative interventions permissible under the Maryland EMS Medical Protocols (including Continuous Positive Airway Pressure (CPAP), cardiac monitoring, synchronized cardioversion for pulse-**present** ventricular or supraventricular tachycardia, cardiac pacing for pulse-**present** symptomatic bradycardia, insertion of IVs, and drug therapy), in an attempt to forestall cardiac or respiratory arrest.
(2) This option was requested primarily by long-term care facilities for their patients who are on DNR orders for potentially prolonged periods of time. Many of these patients are less concerned about palliation of pain and more concerned about the quality of life after a stroke or heart attack. The primary medical conditions seen in the field necessitating this option have been the desire to administer dextrose for diabetic emergencies and epinephrine for anaphylactic reactions in patients who, upon arrest, are not to be resuscitated.

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H3. EMS DNR/MOLST (Continued)

(3) If, despite these efforts, the patient becomes pulseless or stops breathing spontaneously, EMS providers shall then withhold or withdraw cardiopulmonary resuscitation including, but not limited to, no CPR, no cardiac pacing, no defibrillation, withdrawal of active ventilatory assistance upon cardiac arrest, and withholding or withdrawal of drug therapy (e.g., chemical resuscitation).

e) **OPTION A (DNI)** (MOLST A2) – COMPREHENSIVE EFFORTS TO PREVENT ARREST BUT DO NOT INTUBATE, THEN DNR
   (1) Option A (DNI) is exactly the same as Option A which may include limited ventilatory support by CPAP or BiPAP, but Do Not Intubate.
   (2) Therefore, inappropriate care for "Option A (DNI) – Comprehensive Efforts to Prevent Arrest but Do Not Intubate, then DNR" would be nasal or oral intubation.

IF MAXIMAL CARE IS SELECTED AND THE PATIENT'S CONDITION REQUIRES ALS, AN ALS UNIT SHOULD BE REQUESTED IF FEASIBLE GIVEN THE LOCATION OF THE INCIDENT RELATIVE TO THE NEAREST APPROPRIATE FACILITY AND THE AVAILABILITY OF AN ALS UNIT, AND ITS ABILITY TO ARRIVE OR RENDEZVOUS IN A MEDICALLY APPROPRIATE PERIOD OF TIME.

f) **OPTION B** (MOLST B)– PALLIATIVE CARE PROTOCOL
   (1) Supportive Care for Control of Signs and Symptoms
      (a) Respiratory distress
         (i) Open the airway using non-invasive means (e.g., chin lift, jaw thrust, finger sweep, nasopharyngeal airway, oropharyngeal airway, and Heimlich maneuver, **but** no laryngoscopy, no Magill forceps, no cricothyroidotomy, and no tracheostomy).
         (ii) Administer O_2 as follows:
            a. If the patient is not on a ventilator and would benefit from oxygen therapy, provide passive oxygen via nasal cannula or non-rebreather mask (but no positive pressure oxygen via ambu bag, demand valve, or ventilator).
            b. If the patient is found on an outpatient ventilator and is not in cardiac arrest, maintain ventilatory support during transport to the hospital.
            c. If the patient is found on an outpatient ventilator and is in cardiac arrest, contact on-line medical direction to consult about disconnecting the ventilator.
         (iii) Maintain an open airway by non-invasive means (e.g., chin lift, jaw thrust, finger sweep, nasopharyngeal airway, oropharyngeal airway, and Heimlich maneuver, but no laryngoscope, no Magill forceps, no cricothyroidotomy, and no tracheostomy).
         (iv) Suction as necessary.
         (v) Position for comfort.

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(b) External bleeding
  (i) Standard treatment (direct pressure with dressing, tourniquet).
  (ii) No IVs.
(c) Immobilize fractures using skills and devices that minimize pain.
(d) Uncontrolled pain or other symptoms (e.g., severe nausea)
  (i) Allow patient, family, or health care providers (other than the prehospital provider) to administer patient's prescribed medications. Such health care providers administering medication will not have to accompany the patient to the hospital.
  (ii) Patient controlled analgesia (PCA) systems for pain medication delivery and other patient-controlled medication (PCM) systems shall be left in place in DNR patients and monitored to the extent possible according to the provider's level of certification or licensure.
  (iii) For the patient with significant pain and/or pain with a prolonged transport, opioid may be administered.
(e) Existing IV lines may be in place and if so, shall be monitored to the extent possible according to the provider's level of certification and licensure.

(2) Inappropriate Care for a Palliative Care Patient
(a) Cardiac monitoring, including 12-lead EKG, pacing, cardioversion, and defibrillation
(b) Initiation of IV therapy (except when directed by online physician for morphine administration for pain control as in 1 (d) (iii))
(c) EMS-Initiated Medications (except oxygen and morphine administration for pain control as in 1 (d) (iii))
(d) CPR
(e) Intubation (alternative airway device, endotracheal, nasotracheal, or gastric tube)
(f) Active ventilatory assistance, unless on an outpatient ventilator (pg. 32 ch. 5)

g) TRANSPORT
(1) Upon request of the patient, family, or caregivers and in lieu of transport to a hospital-based emergency department, EMS providers may transport Option B EMS/DNR patients who require transportation for pain control or symptom management or respite care to a specified inpatient hospice facility.
(2) A current list of those facilities is available from the MIEMSS Program Development Office (410) 706-4367 (4DNR). The receiving status of a particular facility can be ascertained from EMRC (24 hours a day) by EMS radio, EMSTEL, or red phone, or by calling 1 (800) 492-3805.

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H3. EMS DNR/MOLST (Continued)

(3) The State EMS Board may authorize additional facilities under 6.2.2 or 6.2.4 (pp. 35-36), if recognized in the future by DHMH in accordance with 42 CFR 418.98 and 42 CFR 418.100. EMS jurisdictions and commercial ambulance services will be notified by MIEMSS of any facilities that become eligible and elect to receive patients by ambulance, become ineligible, or elect to discontinue their participation.

(4) Take a copy of EMS/DNR Order or MOLST form, vinyl bracelet with insert, or metal emblem (bracelet or necklace) to the hospital with the patient. If returning the patient from a previous transport, be sure to request a copy of the EMS/DNR Order form, vinyl bracelet with insert, or metal emblem (bracelet or necklace) from the staff (see pg. 20 ch H2 and the "EMS/DNR Order Retrieval Strategies" on pg. 58 of the EMS/DNR program booklet).

h) COMMUNICATIONS

(1) Consultation requirements for Option A EMS/DNR patients shall be dictated by the Maryland EMS Medical Protocols in accordance with the patient's medical needs. EMS providers shall notify the hospital of the patient's EMS/DNR status (i.e., Option A) and the identity of patient's physician or nurse practitioner.

(2) No consultation is required for the Option B EMS/DNR patients. The receiving hospital or inpatient hospice facility should be notified to expect the patient and prepare accordingly. Also make the hospital or inpatient facility aware of the patient's EMS/DNR status (i.e., Option B) and the identity of the patient's physician or nurse practitioner.

(3) If there is misunderstanding with family members or others present at the scene or if there are other concerns about following the EMS/DNR Order and the patient's condition permits, contact the physician or nurse practitioner signing the order, or the patient's hospice program, or on-line medical direction for assistance.

i) DOCUMENTATION

(1) If possible, make or retain a copy of the EMS/DNR Order or MOLST form and attach it to the official copy of the call runsheet that is kept by the EMS service. **Having a copy of the EMS/DNR Order or MOLST form can significantly reduce documentation requirements.** Encourage sending facilities to provide you with a copy of the EMS/DNR order or MOLST form, in addition to an original of the order, with the patient's transfer documents.

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H3. EMS DNR/MOLST (Continued)

(2) If the EMS/DNR protocol is initiated:
  (a) Document, in the narrative section:
    (i) Who gave you the EMS/DNR Order or MOLST form (as an applicable person physically providing the written order, name of on-site physician or nurse practitioner, physician assistant **(NEW '14)**, or name of on-line medical direction physician) or
    (ii) Where the EMS/DNR Order or MOLST form was found;
  (b) Document the EMS/DNR order number, the effective date of the order, the name of the patient, the patient's date of birth, and the name of the physician, nurse practitioner, or physician assistant **(NEW '14)**, signing the order;
  (c) Document the time the EMS/DNR protocol was initiated;
  (d) Document any care rendered;
  (e) If the patient arrests while under your care, document the time the patient lost spontaneous respirations or palpable pulse, if able to determine, and
  (f) If the patient arrests while under your care, document the chain of custody until the body is out of custody of EMS.

(3) If resuscitation protocols are initiated, document:
  (a) Care rendered as per normal practice;
  (b) The reason the EMS/DNR protocol was not initiated, if relevant (e.g., unable to find EMS/DNR Order, EMS/DNR is not or does not appear to be valid, patient request, etc.);
  (c) If resuscitation was started because there was reasonable doubt as to the validity of an EMS/DNR Order;
    (i) The EMS/DNR Order number, the effective date of the order, the name of the patient, the patient's date of birth, and the name of the physician, nurse practitioner, or physician assistant **(NEW '14)**, signing the order; and
    (ii) Who gave you the EMS/DNR or where the EMS/DNR Order or MOLST form was found.

(4) Transfer any EMS/DNR Order or MOLST form to the appropriate authorities (e.g., to hospital or in-patient hospice personnel of the facility where the patient was transferred or, if the patient is deceased, to the physician/police/medical examiner). If possible at the receiving facility, and if not already done, make a copy of the EMS/DNR Order or MOLST form.

DO NOT RETAIN an original EMS/DNR Order or MOLST form.

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(5) If a copy of the EMS/DNR Order or MOLST form is available to EMS providers, it shall be attached to the official copy of the call runsheet that is retained by the EMS service.
(6) A vinyl bracelet with insert or metal emblem (bracelet or necklace) shall be left where found on the patient. Bracelets or metal emblems shall not be removed without the permission of the patient or the patient's authorized decision maker and, when possible, shall be returned with the patient to the sending facility (see pg.16 ch. C of the EMS/DNR Program booklet).

j) PATIENT DISPOSITION IF NOT TRANSPORTED
If the EMS/DNR Protocol is implemented and the patient is not transported because the patient arrested at the response site, EMS personnel shall:
(1) Follow local operational procedures for handling deceased patients **(see "How to Best Tell the Worst News" on pp. 105–106 of the EMS/DNR program booklet);**
(2) Do **not** remove an EMS/DNR vinyl bracelet or metal emblem (bracelet or necklace) from the deceased patient;
(3) Law enforcement personnel or a representative of the medical examiner's office needs to be notified only in the case of sudden or unanticipated death which occurs:
(a) By violence
(b) By suicide
(c) As a result of an accident
(d) Suddenly, if the deceased was in apparent good health, or
(e) In any suspicious or unusual manner.

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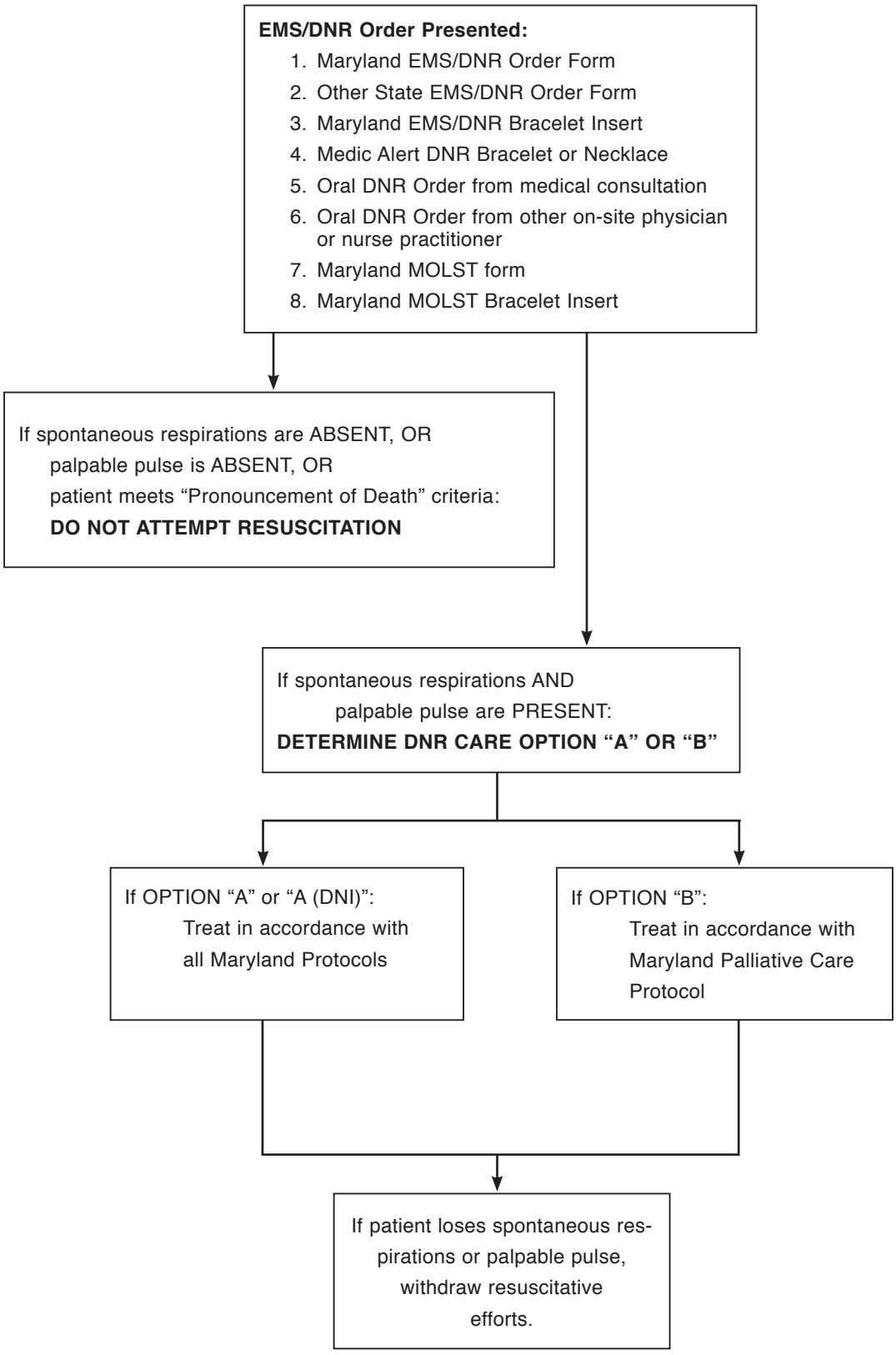
H4. EMS DNR Flowchart



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J1. CARDIAC EMERGENCIES: IMPLANTABLE CARDIOVERTER DEFIBRILLATOR (ICD) MALFUNCTION

1. Initiate General Patient Care.

2. Presentation

   An implantable cardioverter defibrillator (ICD) is a device that delivers an internal defibrillation (shock) whenever the patient's heart rhythm/rate exceeds defined limits. EMS providers may encounter ICD devices which are appropriately or inappropriately delivering shock therapy. Internal shocks cause patient discomfort but **DO NOT** pose a danger to EMS personnel even when in direct contact with patient receiving an internal shock.

3. Treatment
   a) Place patient in position of comfort.
   b) Assess and treat for shock if indicated.
   c) Constantly monitor airway and reassess vitals every 5 minutes.

IF PATIENT IS IN CARDIAC ARREST, PERFORM CPR AND USE AED AS APPROPRIATE DESPITE THE PATIENT'S ICD, WHICH MAY OR MAY NOT BE DELIVERING SHOCKS.

   d) Establish IV access with LR.
   e) Monitor cardiac rhythm and treat according to appropriate algorithm(s).
   f) ICD deactivation: Patient must meet the following criteria:
      (1) Three or more distinct shocks and
      (2) Obvious device malfunction with an EMS provider-witnessed inappropriate shock
      (e.g., alert patient in atrial fibrillation with rapid ventricular rate or SVT)
   g) Place an EMS donut magnet directly over device. Magnet placed directly over will deactivate device and shocks will not be delivered. After defibrillator is deactivated, tape magnet firmly in place and treat according to the appropriate algorithm(s).

IF THE PATIENT HAS A COMBINATION ICD AND PACEMAKER, DEACTIVATING THE ICD MAY OR MAY NOT DEACTIVATE THE PACEMAKER.

   h) Regardless of the decision to deactivate the ICD device, be prepared to manage the underlying rhythm (e.g., treat wide complex tachycardia with cardioversion or lidocaine per protocol as appropriate).

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CARDIAC EMERGENCIES: IMPLANTABLE CARDIOVERTER DEFIBRILLATOR (ICD) MALFUNCTION (Continued)

IF PATIENT BECOMES UNSTABLE OR IN THE EVENT OF A RHYTHM CHANGE WHERE A SHOCK IS DESIRED, REMOVE THE MAGNET TO REACTIVATE THE ICD. IF REACTIVATION DOES NOT OCCUR, USE MANUAL DEFIBRILLATOR IN ACCORDANCE WITH TACHYCARDIA PROTOCOL.

CONTINUE CHEST COMPRESSIONS FOR PEDIATRIC PATIENTS WHO REMAIN POORLY PERFUSED DESPITE PACEMAKER CAPTURE.

i) If ICD deactivation indications are questionable or deactivation is unsuccessful (or a donut magnet is not available) and undesired shocks continue, medications may be administered for patient comfort.
   (1) Administer opioid per Pain Management protocol.
   OR
   (2) Midazolam 0.1 mg/kg slow IVP/IM/IO. Maximum single dose is 5 mg. **(NEW '14)**
   (Paramedic may perform without consult.)
   IM administration requires all providers to obtain consultation.
j) Transport to the closest appropriate facility.
k) Continue general patient care.

Consult a pediatric base station for children (who have not reached their 18th birthday) with an ICD device delivering shock therapy or malfunctioning.

l) If ICD deactivation indications are questionable or deactivation is unsuccessful (or a donut magnet is not available) and undesired shocks continue, medications may be administered for patient comfort.
   (1) Administer opioid per Pain Management protocol.
   OR
   (2) Midazolam 0.1 mg/kg slow IV/IO over 1–2 minutes. Maximum single IV/IO dose 2 mg. Maximum total dose 5 mg. **(NEW '14)** If IV cannot be established, administer 0.2 mg/kg IM. Max single IM dose is 5 mg. (IM requires all providers to obtain medical consultation.) Maximum total dose 5 mg. **(NEW '14)**
m) Transport to the closest appropriate facility.
n) Continue general patient care.

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Q. ENVIRONMENTAL EMERGENCIES: COLD EMERGENCIES (FROSTBITE)

1. Initiate General Patient Care.

2. Presentation
   Exposure to cold environment (not necessarily outdoors). Frostbite usually affects the feet first followed by the hands, face, and/or ears. The skin initially appears reddened, then turns mottled, bluish, white and/or gray with continued freezing of the flesh. Pain persists during initial stages followed by numbness.

3. Treatment

   a) Remove patient from cold environment.

   b) Handle potential frostbitten areas gently.

   c) Cover lightly with gauze.

   d) Protect from further heat loss.

DO NOT RUB THE AFFECTED AREAS, AS THIS WILL CAUSE MORE DAMAGE TO THE FROZEN TISSUE.

   e) Establish IV access with LR.

   f) Administer opioid per Pain Management Protocol.

PEDIATRIC SECTION ON NEXT PAGE

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HYPERBARIC THERAPY PROTOCOL (Continued)

c) Establish IV access with LR.

(1) If hypoperfusion exists, initiate IV LR fluid therapy 20 mL/kg bolus in unburned area, if possible.
Titrate to a systolic pressure of 100 mmHg.

(2) Obtain medical consultation to initiate an IV in an area of burn, if unable to obtain an IV in unburned area.

(3) Consider additional fluid administration.
(Max 2,000 mL without medical consultation)

d) Establish IV/IO access with LR.

(1) If age-related vital signs and patient's condition indicates hypoperfusion, administer initial fluid bolus of 20 mL/kg LR IV/IO in unburned area, if possible. If patient's condition does not improve, administer the second bolus of fluid at 20 mL/kg LR IV/IO.

(2) Obtain medical consultation to initiate an IV in an area of burn, if unable to obtain an IV in unburned area.

6. Transportation
   a) Priority 1 Patients (immediate threat to life)
      (1) Consider air transportation if the patient will **ARRIVE** at the appropriate receiving facility more quickly than could be accomplished by ground transportation.

      (2) The provider should consider all of the following:
         (a) Time for helicopter response
         (b) Patient turnover (loading time)
         (c) Flight time to appropriate facility
         (d) Weather conditions

   b) Priority 2 Patients (no immediate threat to life)
      Consider air transport if drive time is greater than 30 minutes.

7. Continue General Patient Care.

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X1. NAUSEA AND VOMITING

1. Initiate General Patient Care.

2. Presentation
   Patients presenting with nausea and/or vomiting due to underlying injury, medical condition, active motion sickness, or medication side effect/complication.

Under certain injury or medical conditions, vomiting or intense nausea can complicate the existing injury or medical condition. Preventative administration of an anti-nausea/anti-emetic should be considered and approved with medical consultation (e.g., penetrating eye injury, high risk for aspiration, side effects of opioid administration).

3. Treatment
   a) Place patient either in position of comfort or in left lateral position if not prevented by spinal immobilization or packaging.
   b) Perform acupressure on P6 point either digitally or with commercial wrist band **(NEW '14)**

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   c) Establish IV access with LR, if appropriate
   d) Administer fluid bolus, if appropriate
      20 mL/kg of LR IV
      Titrate to a systolic pressure of 100 mmHg
   e) Administer ondansetron
      Adult: 4 mg slow IV over 2–5 minutes or 4 mg IM;

      May repeat once with medical consultation.
      Preventative administration of an anti-nausea/anti-emetic

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   f) Establish IV access with LR, if appropriate.
   g) If age-related vital signs and patient's condition indicate hypoperfusion, administer initial fluid bolus of 20 mL/kg LR IV/IO.

   h) Administer ondansetron:
      For patients who weigh less than 40 kg: 0.1 mg/kg slow IV over 2–5 minutes,
      For patients who weigh 40 kg or greater: 4 mg slow IV over 2–5 minutes
      OR
      If no IV: 0.1 mg/kg IM (with max single dose of 4 mg);
      May repeat once with medical consultation.
      Preventative administration of an anti-nausea/anti-emetic

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BB. OBSTETRICAL/GYNECOLOGICAL EMERGENCIES: VAGINAL BLEEDING

1. Initiate General Patient Care.

2. Presentation
   Unusually heavy vaginal bleeding as a result of possible pregnancy, miscarriage, postpartum bleeding, or sexual assault. Patient may exhibit the signs and symptoms of hypoperfusion.

3. Treatment
   a) Place absorbent pads underneath patient.

   b) Treat for hypoperfusion.

   c) If post-partum bleeding, consider uterine massage from pubis toward umbilicus only.

   d) Reconsider ALS.

ALERT

PRODUCTS OF CONCEPTION SHOULD BE BROUGHT TO THE HOSPITAL!

DO NOT PULL CONCEPTUAL PRODUCTS FROM VAGINAL OPENING WITHOUT MEDICAL CONSULTATION!

   e) Establish IV access with LR, if appropriate

   f) Administer fluid bolus, if appropriate
      20 mL/kg of LR IV
      Titrate to a systolic pressure of 100 mmHg

   g) Consider additional fluid administration.
      Maximum dose 2,000 mL without medical consultation.

4. Continue General Patient Care.

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CC. OVERDOSE/POISONING: ABSORPTION

1. Initiate General Patient Care.

2. Presentation
   Patient may exhibit any of the following: nausea, vomiting, diarrhea, altered mental status, abdominal pain, rapid heart rate, dyspnea, seizures, arrhythmias, sweating, tearing, defecation, constricted/dilated pupils, rash, or burns to the skin.

3. Treatment
   a) Remove patient from the toxic environment by appropriately trained personnel using proper level PPE.

   b) Identify agent and mechanism of exposure.

   c) Decontaminate as appropriate.

   d) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, (NEW '14)**
   Administer naloxone
   2 mg intranasal atomizer (Divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).

   Consider additional doses of naloxone.

   e) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, (NEW '14)**
   Administer naloxone
   0.4–2 mg SLOW IVP/IO/IM/Intranasal (If delivery device is available - divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril)
   Titrate to adequate respiratory effort.

   f) Consider repeating naloxone.

   g) Establish IV access with LR in a clean area, if appropriate.

   h) If **organophosphate poisoning**, consider atropine
   2–4 mg IV or IM every 5–10 minutes.

   i) Consider antidote to specific agent if available.

   j) Consider antibiotic specific to agent in mass casualty incident, if available.

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OVERDOSE/POISONING: ABSORPTION (Continued)

k) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, (NEW '14)**
Administer naloxone

28 days to 8 years: Administer naloxone 0.8–1 mg intranasal atomizer (Divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).

8 years to adult: Administer naloxone 2 mg intranasal atomizer (Divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril)

Consider additional doses of naloxone.

l) Remove patient from the toxic environment by appropriately trained personnel using proper level PPE.

m) Identify agent and mechanism of exposure.

n) Decontaminate as appropriate.

---

o) Establish IV access with LR in a clean area, if appropriate.

p) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, (NEW '14)**
Administer naloxone
0.1 mg/kg slow IVP/IO/IN (Divide administration of the IN dose equally between nostrils to a maximum of 1 mL per nostril).
Maximum single dose 2 mg.
ET dose 0.2–0.25 mg/kg

q) If **organophosphate poisoning**, consider atropine 0.02 mg/kg IV/IO or IM every 5–10 minutes.

r) Consider antidote to specific agent if available.

s) Consider antibiotic specific to agent in mass casualty incident, if available.

4. Continue General Patient Care.

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DD. OVERDOSE/POISONING: INGESTION

1. Initiate General Patient Care.

2. Presentation
   Patient may exhibit any of the following: nausea, vomiting, diarrhea, altered mental status, abdominal pain, rapid or slow heart rate, dyspnea, seizures, arrhythmias, chemical burns around or inside the mouth, or abnormal breath odors.

3. Treatment

DO NOT GIVE ANYTHING BY MOUTH WITHOUT MEDICAL CONSULTATION!

POISON INFORMATION CENTER RECOMMENDATIONS SHOULD BE SOLICITED IN CONJUNCTION WITH MEDICAL CONSULTATION, BUT MEDICATION ORDERS CAN ONLY BE ACCEPTED FROM AN APPROVED BASE STATION.

a) Identify substance and amount ingested.

b) Consider activated charcoal **without** Sorbitol 1 gram/kg PO.

c) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, (NEW '14)**
Administer naloxone
2 mg intranasal atomizer (Divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).

Consider additional doses of naloxone.

d) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, (NEW '14)**
Administer naloxone
0.4–2 mg SLOW IVP/IO/IM/Intranasal (If delivery device is available - divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril)
Titrate to adequate respiratory effort.

e) Establish IV access with LR in a clean area, if appropriate.

f) If **dystonic, extrapyramidal, or mild allergic reaction**, consider diphenhydramine
25 mg IV or IM

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OVERDOSE/POISONING: INGESTION (Continued)

g) If **beta-blocker** overdose, consider glucagon
1 mg every 5 minutes IVP

h) If **calcium channel blocker** overdose, consider calcium chloride
0.5–1 gram slow IVP (50 mg/min)

ALERT CALCIUM CHLORIDE IS CONTRAINDICATED IN A CALCIUM CHANNEL BLOCKER OVERDOSE PATIENT TAKING DIGOXIN.

i) If **organophosphate poisoning**, consider atropine
2–4 mg IVP or IM every 5–10 minutes

j) If **tricyclic** overdose, consider sodium bicarbonate
1 mEq/kg IVP bolus initially with 0.5 mEq/kg at 10 minute intervals

k) Consider antidote to specific agent if available.

l) Consider antibiotic specific to agent in mass casualty incident, if available.

m) Identify substance and amount ingested.

n) Consider activated charcoal **without** Sorbitol 1 gram/kg PO.

o) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, (NEW '14)**
Administer naloxone.

28 days to 8 years: Administer naloxone 0.8–1 mg intranasal atomizer (Divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).

8 years to adult: Administer naloxone 2 mg intranasal atomizer (Divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).

Consider additional doses of naloxone.

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p) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, (NEW '14)**
Administer naloxone
0.1 mg/kg slow IVP/IO/IN (Divide administration of the IN dose equally between nostrils to a maximum of 1 mL per nostril).
Maximum single dose 2 mg.
ET dose 0.2–0.25 mg/kg

q) Establish IV/IO access with LR in a clean area, if appropriate.

r) If **dystonic, extrapyramidal, or mild allergic reaction**, consider diphenhydramine 1 mg/kg IVP/IO or IM
Maximum single dose 25 mg

s) If **beta-blocker** overdose, consider glucagon
1 mg IVP (25–40 kg)
0.5 mg IVP (less than 25 kg)
every 5 minutes as necessary

t) If **calcium channel blocker** overdose, consider calcium chloride
20 mg/kg (0.2 mL/kg) slow IVP/IO (50 mg/mL)
Maximum dose 1 gram or 10 mL

ALERT CALCIUM CHLORIDE IS CONTRAINDICATED IN A CALCIUM CHANNEL BLOCKER OVERDOSE PATIENT TAKING DIGOXIN.

u) If **organophosphate** poisoning, consider atropine;
0.02 mg/kg IVP/IO or IM
Maximum single dose 2 mg
May be repeated every 5–10 minutes

v) If **tricyclic** overdose, consider sodium bicarbonate
1 mEq/kg diluted 1:1 slow IVP/IO

w) Consider antidote to specific agent if available.

x) Consider antibiotic specific to agent in mass casualty incident, if available.

4. Continue General Patient Care.

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EE. OVERDOSE/POISONING: INHALATION

1. Initiate General Patient Care.

2. Presentation

   Presentation may vary depending on the concentration and duration of exposure. Symptoms may include, but are not limited to, the following: nausea, vomiting, diarrhea, altered mental status, abnormal skin color, dyspnea, seizures, burns to the respiratory tract, stridor, sooty sputum, known exposure to toxic or irritating gas, sweating, tearing, constricted/dilated pupils, and/or dizziness.

PULSE OXIMETRY MAY NOT BE ACCURATE FOR TOXIC INHALATION VICTIMS!

PATIENTS PRESENTING WITH ALTERED MENTAL STATUS OR NAUSEA WITH VOMITING, SEIZURES, LOSS OF CONSCIOUSNESS, OR MARKED DYSPNEA IN THE FACE OF SUSPECTED CARBON MONOXIDE OR TOXIC INHALATION WITH OR WITHOUT MINOR BURNS SHOULD BE CONSIDERED FOR TRANSPORT TO THE HYPERBARIC SPECIALTY CENTER. PATIENTS IN CLOSED SPACE INCIDENTS ARE MORE LIKELY TO MANIFEST THESE SYMPTOMS.

3. Treatment
   a) Remove patient from the toxic environment by appropriately trained personnel using proper level PPE.

   b) Identify agent and mechanism of exposure.

   c) Decontaminate as appropriate.

   d) Consider obtaining blood sample using closed system, if indicated.

   e) Establish IV access with LR in a clean area, if appropriate.

   f) If **organophosphate poisoning**, consider Atropine 2–4 mg IVP or IM every 5–10 minutes.

   g) Consider antidote to specific agent if available.

   h) Consider antibiotic specific to agent in mass casualty incident, if available.

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OVERDOSE/POISONING: INHALATION (Continued)

i) Remove patient from the toxic environment by appropriately trained personnel using proper level PPE.

j) Identify agent and mechanism of exposure.

k) Decontaminate as appropriate.

l) Establish IV/IO access with LR in a clean area, if appropriate.

m) If **organophosphate poisoning**, consider atropine 0.02 mg/kg IV/IO or IM every 5–10 minutes.

n) Consider antidote to specific agent if available.

o) Consider antibiotic specific to agent in mass casualty incident, if available.

4. Continue General Patient Care.

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FF. OVERDOSE/POISONING: INJECTION

1. Initiate General Patient Care.
2. Presentation
   Patient may exhibit any of the following: local pain, puncture wounds, reddening skin, local edema, numbness, tingling, nausea, vomiting, diarrhea, altered mental status, seizures, muscle twitching, hypoperfusion, metallic or rubbery taste.
3. Treatment

   a) Identify markings (insects, bites, needlestick, etc.).
   b) Do not apply distal and/or proximal constricting bands for a poisonous snakebite to an extremity. Do remove any jewelry on the affected extremity.
   c) Assist patient experiencing moderate to severe allergic reaction symptoms or mild symptoms with a history of life-threatening allergic reaction with the patient's prescribed or EMS service's Epinephrine auto-injector or patient's prescribed fast-acting bronchodilator.

IF THE SNAKE IS **DEAD**, AND IF IT IS PRACTICAL, DELIVER IT WITH ITS HEAD INTACT. DEAD SNAKES STILL BITE!

   d) Immobilize extremity.
   e) Apply cool packs for relief of pain only.
   f) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, (NEW '14)**
      Administer naloxone
      2 mg intranasal atomizer (Divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).

      Consider additional doses of naloxone.

   g) Establish IV access with LR; administer 20 mL/kg bolus in uninjured extremity.
      Titrate to a systolic pressure of 100 mmHg.
   h) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, (NEW '14)**
      Administer naloxone
      0.4–2 mg SLOW IVP/IO/IM/Intranasal (If delivery device is available - divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril)
      Titrate to adequate respiratory effort.

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OVERDOSE/POISONING: INJECTION (Continued)

i) If opioid overdose is suspected, administer naloxone 0.4–2 mg slow IVP

j) If **organophosphate poisoning**, consider atropine 2–4 mg IVP or IM every 5–10 minutes.

k) Consider antidote to specific agent if available.

l) Consider antibiotic specific to agent in mass casualty incident, if available.

m) Identify markings (insects, bites, needlestick, etc.).

n) Do not apply distal and/or proximal constricting bands for a poisonous snakebite to an extremity. Do remove any jewelry on the affected extremity.

o) Assist patient experiencing moderate to severe allergic reaction symptoms or mild symptoms with a history of life-threatening allergic reaction with the patient's prescribed or EMS service's Epinephrine auto-injector or patient's prescribed fast-acting bronchodilator.

p) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, (NEW '14)**
Administer naloxone

28 days to 8 years: Administer naloxone 0.8–1 mg intranasal atomizer (Divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).

8 years to adult: Administer naloxone 2 mg intranasal atomizer (Divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril)

Consider additional doses of naloxone.

---

q) Establish IV access with LR; administer 20 mL/kg bolus in uninjured extremity. Titrate to a systolic pressure of 100 mmHg

r) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose,**
Administer naloxone
0.1 mg/kg slow IVP/IO/IN (Divide administration of the IN dose equally between nostrils to a maximum of 1 mL per nostril).
Maximum single dose 2 mg.
ET dose 0.2–0.25 mg/kg

s) If opioid overdose is suspected, administer naloxone 0.1 mg/kg slow IVP/IO. Maximum dose 0.4–2 mg.
ET dose 0.2–0.25 mg/kg.

t) If **organophosphate poisoning**, consider atropine 0.02 mg/kg IV/IO or IM every 5–10 minutes.

u) Consider antidote to specific agent if available.

v) Consider antibiotic specific to agent in mass casualty incident, if available.

4. Continue General Patient Care.

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RESPIRATORY DISTRESS: ASTHMA/COPD (Continued)

l) For moderate to severe exacerbations, consider the administration of dexamethasone 10 mg IV/PO.

m) Consider additional doses of epinephrine, albuterol, or terbutaline.

n) Assist patient(s) experiencing moderate to severe symptoms or mild symptoms with a history of life-threatening allergic reaction with the patient's prescribed or EMS service's Epinephrine auto-injector or patient's prescribed fast-acting bronchodilator.

ALERT MEDICAL CONSULTATION IS REQUIRED IF THE PATIENTS HAS CONGENITAL HEART OR CHRONIC LUNG DISEASE.

o) Fast-acting bronchodilator (2 puffs) may be repeated once within 30 minutes.

p) Consider additional doses of patient's prescribed fast-acting bronchodilator or Epinephrine auto-injector.

---

q) Patients with moderate to severe respiratory distress may require high flow oxygen via non-rebreather mask, CPAP, or BVM while receiving medication via nebulizer.

r) Administer a combination of albuterol/Atrovent via nebulizer:
- **For an infant less than 1 year of age**, administer albuterol 1.25 mg via nebulizer; Atrovent is contraindicated.
- **For a child 1 year of age or greater, but less than 2 years of age**, administer albuterol 1.25 mg and atrovent 250 **mcg**.
- **For a patient 2 years of age or greater**, administer albuterol 2.5 mg and Atrovent 500 **mcg**.

s) If further treatments are indicated, an additional albuterol-only nebulizer may be given.
AND/OR

ALERT MEDICAL CONSULTATION IS REQUIRED IF THE PATIENT HAS CONGENITAL HEART OR CHRONIC LUNG DISEASE.

t) Administer epinephrine 1:1,000
0.01 mg/kg IM
Maximum single dose 0.5 mg
May repeat every 5 minutes for a total of 3 doses for severe reactions.

u) For moderate to severe exacerbations, consider the administration of dexamethasone 0.5 mg/kg PO/IV up to a maximum dose of 10 mg.

v) Consider additional doses of albuterol or epinephrine.

w) Establish IV/IO access with LR in a clean area, if appropriate.

4. Continue General Patient Care.

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JJ. RESPIRATORY DISTRESS: CROUP

1. Initiate General Patient Care.

2. Presentation
   Forms of Croup:
   Mild - Barky cough exhibited without stridor at rest (Priority 2)
   Moderate - Barky cough with stridor at rest without agitation, may exhibit mild respiratory distress (Priority 2)
   Severe - Stridor at rest, signs of severe respiratory distress that is associated with agitation or decresed level of consciousness (Priority 1)

IF EPIGLOTTITIS IS SUSPECTED, I.E., DROOLING WITH ABOVE SIGNS AND SYMPTOMS, DO NOT INITIATE THIS PROTOCOL WITHOUT APPROPRIATE MEDICAL DIRECTION.

3. Treatment
   a) Ensure that the patient has a patent airway and adequate respiratory effort. Assess respiratory status looking specifically for signs and/or symptoms of respiratory distress (nasal flaring, retractions, increased/decreased respirations, skin color, change in level of consciousness).

   b) Place patient on cardiac monitor and record vital signs. (This may be done concurrently with medication administration if patient is unstable.)

   c) MILD: For children exhibiting symptoms of a mild croup presentation, administer dexamethasone 0.5 mg/kg PO up to a maximum dose of 10 mg. **(NEW '14)**

   d) MODERATE: For children who exhibit symptoms of a moderate croup presentation, administer dexamethasone 0.5 mg/kg PO up to a maximum dose of 10 mg. **(NEW '14)** If no change in patient's condition, then administer 2.5 mL of epinephrine 1:1,000 via nebulizer.

   e) SEVERE: If respiratory distress is so severe that respiratory arrest is imminent:
      i) First, administer 0.01 mg/kg of epinephrine 1:1,000 IM (max single dose of 0.5 mg).
      ii) Then, administer dexamethasone 0.5 mg/kg IV up to a maximum dose of 10 mg **(NEW '14)** AND 2.5 mL of epinephrine 1:1,000 via nebulizer. If IV not established, give IM dexamethasone.

   f) Establish communications with the appropriate facility and obtain medical direction if patient is less than 1 year of age, if additional nebulized epinephrine is needed due to level of distress, or if other interventions or directions are needed.

ALL PATIENTS WHO RECEIVE NEBULIZED EPINEPHRINE **MUST** BE TRANSPORTED BY AN ADVANCED LIFE SUPPORT UNIT TO THE APPROPRIATE MEDICAL FACILITY.

4. Continue General Patient Care.

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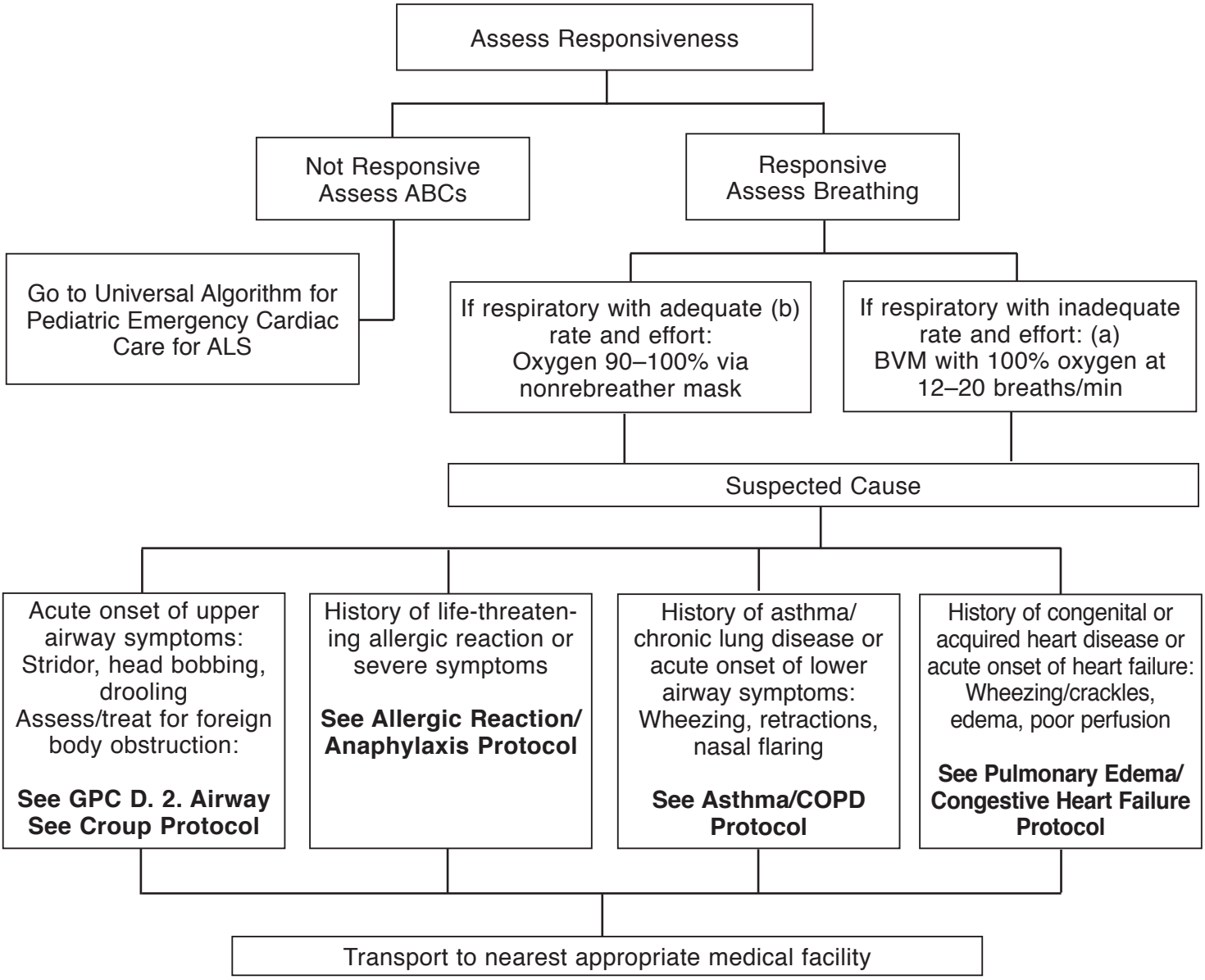
7. **UNIVERSAL ALGORITHM FOR PEDIATRIC RESPIRATORY DISTRESS FOR ALS**



(a) Inadequate RR: Infant less than 20, Child less than 16, Adolescent less than 12.
Inadequate effort: Poor chest rise, shallow respirations/poor air movement, cyanosis, severe retractions, paradoxical breathing.

(b) For children with chronic lung disease or congenital heart disease: Maintain or increase home oxygen to maintain patient's target saturations.

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LL. STROKE: NEUROLOGICAL EMERGENCIES

1. Initiate General Patient Care.

2. Presentation

   Patient may present with numbness or weakness (often on one side only), difficulty speaking, blurred vision, dizziness, or a severe, unexplained headache. May be accompanied by seizures or altered mental status.

The Cincinnati Prehospital Stroke Scale

(Kothari R, et al. Acad Emerg Med 1997; 4:9866-990.)

Facial Droop (have patient show teeth or smile):
- Normal – both sides of face move equally
- Abnormal – one side of face does not move as well as the other side

Arm Drift (patient closes eyes and holds both arms straight out for 10 seconds):
- Normal – both arms move the same or both arms do not move at all (other findings, such as strength of grip, may be helpful)
- Abnormal – one arm does not move or one arm drifts down compared with the other

Abnormal Speech (have the patient say "you can't teach an old dog new tricks"):
- Normal – patient uses correct words with no slurring
- Abnormal – patient slurs words, uses the wrong words, or is unable to speak

3. Treatment
   a) Position patient with head elevated at 30 degrees.
   b) Complete the Fibrinolytic Therapy Checklist for Ischemic Stroke.
   c) If the patient is a candidate for fibrinolytic therapy AND can be delivered to the hospital **within 3.5 hours* (NEW '14)** of when patient was last known well. Transport the patient to the closest Designated Stroke Center. If there is not one within 30 minutes, then go to the nearest hospital.

ALERT

IF PATIENT MEETS ABOVE STROKE CRITERIA, THIS PATIENT IS A PRIORITY 1 PATIENT AND REQUIRES NOTIFICATION OF THE NEAREST DESIGNATED STROKE CENTER AS SOON AS POSSIBLE TO ALLOW HOSPITAL PREPARATION. DURING THE CONSULTATION WITH THE RECEIVING FACILITY, THE PROVIDER SHALL USE THE VERBIAGE, "STROKE ALERT" AS THE UNIVERSAL METHOD OF NOTIFYING THE FACILITY THAT THE PATIENT MEETS THE STROKE INCLUSION CRITERIA. **(NEW '14)**

***STROKE TREATMENTS ARE TIME SENSITIVE. REDUCTION IN TIME OF SYMPTOM ONSET TO TREATMENT IMPROVES OUTCOMES (**NEW '14)**

WHILE STROKES DURING PREGNANCY OR SHORTLY AFTER GIVING BIRTH ARE RARE, THERE HAS BEEN A SIGNIFICANT RISE REPORTED IN THE LITERATURE. MOTHERS-TO-BE AND POSTPARTUM MOTHERS HAVE AN INCREASED RISK.

   d) Use Glucometer and treat if glucose less than 70 mg/dl.
   e) Establish IV access with LR.
   f) If the patient is hypotensive, obtain medical consultation.
   g) Consider obtaining blood sample using closed system.
   h) Do not treat hypertension in the field.

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STROKE: NEUROLOGICAL EMERGENCIES (Continued)

THE CAUSES OF STROKES IN CHILDREN ARE DIFFERENT FROM ADULTS. WHILE STROKES ARE UNCOMMON IN CHILDREN, THEY DO OCCUR AND ARE MOST OFTEN CAUSED BY ONE OF THE FOLLOWING CONDITIONS: CONGENITAL HEART DEFECTS, INFECTIONS (INCLUDING CHICKEN POX, MENINGITIS, OR ENCEPHALITIS), BRAIN INJURY, OR BLOOD DISORDERS (SUCH AS SICKLE CELL DISEASE). STROKES IN CHILDREN ARE MOST OFTEN SEEN IN INFANTS BUT DO OCCUR IN CHILDREN OF ANY AGE.

CHILDREN WITH STROKE SYMPTOMS THAT HAVE NOT REACHED THEIR 18TH BIRTHDAY SHALL BE TREATED UNDER THE PEDIATRIC PROTOCOL. CONSULT WITH A LOCAL BASE STATION AND A PEDIATRIC BASE STATION TO ARRANGE TRANSPORT TO A MARYLAND PEDIATRIC TRAUMA CENTER.

i) Administer oxygen at 2–6 liters via nasal cannula (unless hypoxic or in respiratory distress).
j) Position patient with head elevated at 30 degrees.

k) If a child presents with a SUSPECTED stroke (e.g., sickle cell patient), consult with the nearest pediatric base station and local base station.

l) Use Glucometer and treat accordingly.
(See Section IV, Glucometer Protocol.)
m) Establish IV access with LR.
n) If the patient is hypotensive, obtain medical consultation.
o) Consider obtaining blood sample using closed system.
p) Do not treat hypertension in the field.

4. Continue General Patient Care.

Fibrinolytic Therapy Checklist for Ischemic Stroke

All of the **"YES"** boxes and all of the **"NO"** boxes must be checked before a patient should be transported to a "Designated Stroke Center".

INCLUSION CRITERIA
(**All** of the **"YES"** boxes must be checked)

YES
- ❑ 18 years of age or older
- ❑ Signs and symptoms of stroke with neurologic deficit (abnormal Cincinnati Stroke Scale)
- ❑ Patient can be delivered to a Stroke Center within 3.5 **(NEW '14)** hours of sign/symptom onset

EXCLUSION CRITERIA
(**All** of the **"NO"** boxes must be checked)

NO
- ❑ Active internal bleeding (e.g., GI or urinary bleeding within the last 21 days)
- ❑ Known bleeding disorder
- ❑ Within 3 months of intracranial surgery, serious head trauma, or previous stroke
- ❑ Within 14 days of major surgery or serious trauma
- ❑ History of intracranial hemorrhage
- ❑ Witnessed seizure at stroke onset
- ❑ History of cancer of the brain

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MM. TRAUMA PROTOCOL: BURNS

1. Initiate General Patient Care.
2. Presentation
   a) The primary objectives in burn care by EMS providers are to stop the burning process, establish IV access, avoid hypothermia, and transport patients quickly and safely to a burn center. While patients with large burns (> 20%), facial burns, and/or significant smoke inhalation often require endotracheal intubation and mechanical ventilation during their resuscitation and care, airway compromise in the first few hours following a burn is uncommon.
      (1) In adults, prehospital tracheal intubation following acute burns is generally unnecessary unless signs of respiratory failure are present (symptomatic airway obstruction, shock, altered mental status, hypoxemia while receiving supplemental oxygen, or dyspnea, etc.).
      (2) Pediatric airways are smaller than adult airways and require frequent and thorough assessment for signs of respiratory distress. Intubate if necessary.
   b) Burns are the body's response to injuries to the skin, muscles, bone, nerves, and blood vessels caused by thermal, chemical, electrical, radiation, or light source. Patients may exhibit any of the following: reddening of the skin, deep and intense pain, blisters, mottled appearance, and/or charred black or brown areas with severe or no pain.
   c) Indications for Referral to a Burn Center
      (1) All third degree burns (full thickness)
      (2) Second degree burns (partial thickness) greater than 10% total body surface area
      (3) Burns of the face, hands, feet, major joints, genitalia, or perineum
      (4) Electrical burns, including lightning or contact with high voltage (greater than 120 volts)
      (5) Suspected inhalation injury of toxic smoke. (Monitor the patients with suspected inhalation injury for delayed airway obstruction, respiratory distress, or oxygen desaturation as the patient may need emergent airway management.)
      (6) Circumferential burns involving the extremities or torso
      (7) Chemical burns should be transported to the closest appropriate hospital for decontamination prior to referral to a burn center

PATIENTS WITH BURNS AND TRAUMA SHOULD BE REFERRED TO THE NEAREST APPROPRIATE TRAUMA CENTER, FOR INITIAL CARE.

CHILDREN WHO MEET BURN INCLUSIVE CRITERIA WHO HAVE NOT REACHED THEIR 15TH BIRTHDAY SHOULD BE TRANSPORTED TO A PEDIATRIC BURN CENTER.

PATIENTS PRESENTING WITH ALTERED MENTAL STATUS OR NAUSEA WITH VOMITING, SEIZURES, LOSS OF CONSCIOUSNESS, OR MARKED DYSPNEA IN THE FACE OF SUSPECTED CARBON MONOXIDE OR TOXIC INHALATION WITH OR WITHOUT MINOR BURNS SHOULD BE CONSIDERED FOR TRANSPORT TO THE HYPERBARIC SPECIALTY CENTER. PATIENTS IN CLOSED SPACE INCIDENTS ARE MORE LIKELY TO MANIFEST THESE SYMPTOMS.

3. Treatment
   a) Extract the patient from burning vehicles or buildings if safe to do so and move patient to a place of relative safety.

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TRAUMA PROTOCOL: SPINAL CORD INJURY (Continued)

h) Spinal Injury Indications for Referral to a Pediatric Trauma Center:
   (1) Signs and symptoms of new paraplegia or quadriplegia in the presence of trauma **and**
   (2) Patent airway **and**
   (3) Hemodynamically stable **and**
   (4) Children who have **not** reached their 15th birthday should be transported to a Pediatric Trauma Center.

   (5) Consult with nearest Trauma Center and, when possible, the Pediatric Trauma Center.

i) **Protect Airway!**

j) Maintain appropriate spine stabilization.

---

k) Establish IV/IO access with LR.

l) If age-related vital signs and patient's condition indicate hypoperfusion, administer initial fluid bolus of 20 mL/kg LR IV/IO. If patient's condition does not improve, administer the second bolus of fluid at 20 mL/kg LR IV/IO.

m) Third and subsequent fluid bolus at 20 mL/kg LR IV/IO.

4. Continue General Patient Care.

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SS. TRAUMA PROTOCOL: TRAUMA ARREST

1. Initiate General Patient Care.

2. Presentation
   Early cardiac arrest secondary to trauma is usually due to severe hypoxia, neurologic injury, or massive hemorrhage. The patient is unresponsive, pulseless, and apneic.

3. Treatment

   a) Rapid assessment and extrication

   b) Determine if patient meets the criteria for termination of resuscitation for a patient in traumatic arrest. If patient meets criteria, discontinue resuscitation. If criteria are not met, continue resuscitation. **(NEW '14)**

   c) Protect cervical spine for blunt trauma patients only. Patients with isolated penetrating trauma should not have spinal immobilization performed. If mechanism includes both blunt and penetrating trauma, perform spinal immobilization.

   d) CPR

   e) Consider AED if arrest is believed to be medical in nature and the patient meets the criteria.

IF TRAUMATIC ARREST IS SECONDARY TO PENETRATING TRAUMA, PATIENT IS IN A RHYTHM OTHER THAN ASYSTOLE, AND THE TRAUMA CENTER IS WITHIN 15 MINUTES, TRANSPORT THE PATIENT. IF TRANSPORT TIME EXCEEDS 15 MINUTES, CONSULT. **(NEW '14)**

   f) Establish IV access with LR, if appropriate

   g) Administer fluid bolus, if appropriate
      20 mL/kg of LR IV
      Titrate to a systolic pressure of 100 mmHg

   h) Identify rhythm and refer to appropriate algorithm.

   i) If traumatic arrest is suspected due to multi-system blunt trauma, or due to penetrating neck, chest, or abdominal trauma, bilateral needle decompressions should be performed. Once catheters are placed **do not remove.**

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IV. APPENDICES

A. GLOSSARY

AED: Automated External Defibrillation or Automated External Defibrillator

Alternative Airway Device: An airway adjunct other than an endotracheal tube that may include dual lumen airways (e.g., EasyTube®) or the laryngeal tube airway device (e.g., King LTS-D™)

AMI: Acute Myocardial Infarction

APGAR score: An acronym and method of scoring to determine the condition of a newborn (see APGAR chart on page 149)

Apnea: An absence of spontaneous respirations

Aspiration: The act of taking fluid (e.g., vomitus, mucus, or blood) from the body via a suction device or the act of taking foreign material or vomit into the lungs

Asymptomatic: The lack of any evidence or indication of illness, disease, or physical disturbance of patient's condition

AVPU: A method of determining and recording a patient's mental status or level of consciousness where "A" stands for Alert; "V" stands for responsive to Verbal stimuli; "P" stands for responsive to Painful stimuli; and "U" stands for Unresponsive

Barotrauma: Injury sustained as a result of exposure to excessive environmental pressure changes (e.g., blast injury or underwater pressure injury)

BSI: Body Substance Isolation

BVM: Bag-Valve-Mask

Carte blanche: Full discretionary power

Children with Special Healthcare Needs (CSHN): Children with chronic illness or conditions requiring specialized assessment, treatment, technology, or transport destination

CISM: Critical Incident Stress Management

Commercial ambulance: Ambulance licensed by the State Office of Commercial Ambulance Licensing and Regulation

Continuous CPR: Chest compressions asynchronous with ventilation and infrequent, minimal interruptions (less than 10 seconds each)

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COPD: Chronic Obstructive Pulmonary Disease (e.g., asthma, emphysema, bronchitis).

Cricothyroidotomy (needle or surgical): A syringe with a needle attached or a scalpel is used to make a puncture hole or surgical incision through the cricothyroid membrane that overlies the trachea. A needle catheter or ET tube is passed into the trachea and then attached to a jet insufflation device or bag-valve device to ventilate the patient.

Critical: Approaching death or having the nature of a crisis (e.g., time-critical, critical injury)

CRT-(I): Cardiac Rescue Technician-Intermediate

Cyanotic: Bluish color of the skin or mucus membranes caused by lack of oxygen to the tissue

DCAP BTLS: Acronym for signs of injuries to assess during a physical examination of patients: D = Deformity, C = Contusions, A = Abrasions, P = Punctures/penetrations, B = Burns, T = Tenderness, L = Lacerations, S = Swelling

Defibrillation: Administration of electrical current(s) to the heart in an effort to normalize rhythm

Defibrillation set (stacked shocks): Includes a set of three successive shocks either biphasic or monophasic standard 200 J, 300 J, 360 J, or peds 2–4 J/kg

DNR: Do Not Resuscitate

Dystonic: Any impairment of muscle tone, which may be manifested by prolonged muscle contractions that may cause twisting and repetitive movements or abnormal posture. These movements may be in the form of rhythmic jerks. Symptoms that "appear" to be of a focal seizure-like nature with an awake and alert person and no history of seizures but who probably has a recent history of anticholenergic medication use (e.g., anti-psychotic, anti-vomiting).

EJ: External Jugular vein of the neck; peripheral IV access site

Emergency Information Form: A two-page form, designed by the American Academy of Pediatrics and American College of Emergency Physicians (AAP and ACEP), that provides a brief summary of special health care needs including: diagnosis, usual pattern of disease, emergency action plan, primary and specialty doctors and hospitals. Can be downloaded and data entered at http://www.aap.org/advocacy/eif.doc.

Emetic: Referring to a substance that causes vomiting

eMEDS®: electronic Maryland EMS Data System (a patient care reporting system)

EMR: Emergency Medical Responder

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EMS: Emergency Medical Services

EMT: Emergency Medical Technician

EOC: Emergency Operations Center

Erythema: Redness or inflammation of the skin or mucous membranes that is the result of dilatation and congestion of superficial capillaries

ETA: Estimated Time of Arrival

$EtCO_2$: Non-invasive measurement (numeric and/or waveform) of carbon dioxide levels in exhaled breaths

Extrapyramidal: Pertaining to tissues and structures outside of the cerebrospinal pyramidal tracts of the brain that are associated with movement of the body, excluding stimulation from the motor neurons, the motor cortex, and the corticospinal and corticobulbar tracts. Symptoms that "appear" to be of a focal seizure-like nature with an awake and alert person and no history of seizures but who probably has a recent history of anticholenergic medication use (e.g., anti-psychotic, anti-vomiting).

Fluid Bolus: The administration of a fluid dose as rapidly as possible, usually over five to twenty minutes, to a patient with clinical signs of shock

GCS: Glasgow Coma Scale (a tool to evaluate injury and illness severity)

Hemodynamically Stable: When a patient's vital signs (including pulse oximeter or ECG if available) are all within normal for the patient's age range, the patient does not have active bleeding, and there are no signs of distress (skin conditions or capillary refill are normal) as observed over time

Hemodynamically Unstable: When a patient exhibits any of the following: abnormal vitals signs for age range (including pulse oximeter or ECG if available), active bleeding, or there are signs of distress (skin conditions or capillary refill are abnormal)

Hemostatic Dressing: A bandage or gauze with impregnated hemostatic agent that hastens the hemostasis/clotting process **(NEW '14)**

HTN: Hypertension.

Hypoxia: Too little oxygen in the cells.

IM: Intramuscular injection.

IN: Intranasal administration. **(NEW '14)**

IV: Intravenous line or administration of medication through IV.

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IVP: Intravenous Push

IWMI: Inferior Wall Myocardial Infarction. **(NEW '14)**

J: Joules or watts-seconds of electrical energy for defibrillation or cardioversion

JVD: Jugular Vein (external) Distention

kg: Kilogram, metric measure of weight equal to 1,000 grams (1 kg = 2.2 pounds)

KVO: Keep Vein Open. A slow IV flow rate.

Laryngectomy: The removal of the larynx and separation of the airway from the mouth, nose, and esophagus. Patients with a laryngectomy breathe through an opening in the neck called a stoma. Patients with a laryngectomy are not able to breathe or be intubated through the mouth or nose.

Lividity: Venous pooling in dependent body parts

LOC: Level of Consciousness

LR: Lactated Ringer's (a type of isotonic IV solution)

MAIS: Maryland Ambulance Information System for recording confidential patient care data (a patient care report).

MCI: Mass Casualty Incident. Occurs when the number of victims exceeds the number of medical personnel or resources immediately available and is declared by the local jurisdiction.

Meconium: The first feces of an infant

Medical Consultation: With an atmosphere of courtesy and respect, direct voice/data communication between a provider and an EMS base-station physician, or a jurisdictionally affiliated physician, or with an "on-scene physician." This communication is bi-directional and provides the provider with medical direction while providing the physician or the receiving hospital with valuable information on the patient.

Medical Protocol: A guideline for the provision of patient care.

mL: Milliliter (the symbol for a metric measure of volume)

MOI: Mechanism of Injury

MOLST: Medical Orders for Life-Sustaining Treatment

NDT: Needle Decompression Thoracostomy

Near Drowning: A short duration of submersion under water with possible short-term loss of consciousness

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Neonatal (also neonate): A term that describes an infant from birth through the first 28 days of life

Newly Born (also called newborn): A term that describes an infant during the first few hours after birth

NOI: Nature of Illness

Notification: An "information only call" directly to the receiving hospital through the jurisdictional EOC or EMS communication system not requiring medical consultation and may follow local standing operational procedures

NRB: Non-Rebreather Mask

NTG: Nitroglycerin

Nurse Practitioner: An individual who has been licensed as a Registered Nurse and certified as a Nurse Practitioner by the Maryland Board of Nursing. This does not include individuals who are only Registered Nurses or Licensed Practical Nurses.

OIC: Officer in Charge

On-Line Medical Direction: The direct voice/data communication between a provider and an EMS base station physician or a jurisdictionally affiliated physician, or with an "on-scene physician." This communication is bi-directional and provides the provider with medical direction while providing the physician or receiving hospital with valuable information on the patient. This exchange can take place on-scene, over a telecommunications device, or in the hospital setting

On-Scene Physician: On-Scene physician may be the patient's identified private physician or a bystander physician who is physically on location. Care rendered or orders given by the on-scene physician should be documented, including the identification of the physician. All on-scene medical direction shall be consistent with *The Maryland Medical Protocols for EMS Providers*. Any medical procedure that is not consistent with the protocols shall only be rendered by the on-scene physician who shall accompany the patient to the hospital. Any extraordinary care by EMS providers pursuant to the protocols may be approved only by the EMS base station physician or a system medical director (based on COMAR 30.02.03.02A.).

OPQRST: Used to recall pertinent questions (**O**nset, **P**rovocation, **Q**uality, **R**adiation, **S**everity, **T**ime) to ask when obtaining a patient history for medical emergencies

Optional Supplemental Program (OSP): A voluntary jurisdictional program which requires MIEMSS approval

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Pallor: An unnatural paleness or absence of color in the skin

PCM: Patient Controlled Medications (a medication delivery system under a patient's control)

PCR: Patient Care Report (equivalent to MAIS) document used to record pertinent patient information regarding assessment, treatment, and transport (this is a confidential medical record)

Pilot Program (PP): A program designed to test a new project or procedure in order to determine its effect on EMS (requires MIEMSS approval and reporting all uses to MIEMSS)

Plethora: A term applied to the beefy red coloration of a newborn

PMD: Program Medical Director

PO: By mouth

PPE: Personal Protective Equipment

Provider: Includes EMR, EMT, CRT-(I), and Paramedic

Pulse Oximetry: A non-invasive measurement of arterial oxygen saturation using infrared absorption frequencies

PVC: Premature Ventricular Contraction

Recovery Position: The position (patient flat on left lateral side) or placement of patients to reduce risk of aspiration

RMD: Regional Medical Director

RVMI: Right Ventricular Myocardial Infarction. **(NEW '14)**

SAFER: **S**tabilize, **A**ssess and acknowledge, **F**acilitate, **E**ncourage, and **R**ecovery OR **R**eferral

SAMPLE: Used to aid in obtaining pertinent patient history (S = Symptoms and signs patient is exhibiting, A = patient Allergies, M = patient Medications (prescription and non-prescription), P = Past medical history, L = what and when was the patient's Last oral intake, E = Events prior to arrival, or simply, the history of the current emergency)

SC: Subcutaneously

Sign: Any objective evidence or indication of illness, disease, or physical disturbance of patient's condition

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SL: Sublingual (under the tongue)

SMOI: Significant Mechanism Of Injury

SOP: Standard Operational Procedure (defined by local jurisdiction or region)

Standing Orders: Orders, rules, regulations, or procedures prepared as guidelines in the preparation and carrying out of medical and surgical procedures

Sublingually: Under the tongue

Symptom: Any subjective evidence of disease or of a patient's condition (such as evidence perceived by the patient)

Symptomatic: The subjective evidence or indication of illness, disease, or physical disturbance of patient's condition

Syncope: A fainting spell. It usually follows a feeling of lightheadedness and may often be prevented by lying down. Syncope may also result from any number of heart, neurologic, or lung disorders.

System Medical Director: Means any of the following: Executive Director of MIEMSS, State EMS Medical Director, Associate State Medical Director for Pediatrics, Regional Medical Directors, Associate Regional Pediatric Medical Directors, EMS Operational Program Medical Directors, and Assistant EMS Operational Program Medical Directors

TOI: Type Of Incident to which EMS providers may be called upon to respond (for example: ill and/or injured patients, hazardous materials incidents, fires, mass casualty incidents, etc.)

Tracheostomy: An incision into the trachea (windpipe) that forms a temporary or permanent opening called a stoma. A tube is inserted through the opening to allow passage of air and removal of secretions.

Vagal: Pertaining to the vagus nerve (the tenth cranial nerve which is essential for speech, swallowing, and slowing of the heart rate)

VF: Ventricular Fibrillation

Volume Sensitive Children: Children that need smaller fluid bolus volumes due to special needs including: neonates (birth to 28 days), congenital heart diseases, chronic lung disease, or chronic renal failure

VT: Ventricular Tachycardia

Vulnerable Adult: An adult who lacks the physical or mental capacity to provide for his or her daily needs (Digest of Criminal Law)

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B. PROCEDURES, MEDICAL DEVICES, AND MEDICATIONS FOR EMS AND COMMERCIAL SERVICES

PROCEDURE	EMR	EMT	CRT-(I)	PM
ADMINISTRATION OF MEDICATIONS				
Buccal, Oral, Sublingual, IM (auto-injector), Intranasal **(NEW '14)**	**OSP**	**SO**	**SO**	**SO**
SC, IM, IV, Rectal, Nebulizer	–	–	**SO**	**SO**
Intraosseous	–	–	**SO**	**SO**
Intradermal PPD (Public Safety Personnel only)	–	–	–	**OSP**
AIRWAY MANAGEMENT				
Alternative Airway Device (e.g., EasyTube®)	–	–	**SO**	**SO**
BiPAP	–	–	–	**OSP**
Carbon Dioxide Detector (ALS required)	–	**SO**	**SO**	**SO**
Capnograph (ALS required by 2015)	–	–	**SO**	**SO**
CPAP	–	–	**SO**	**SO**
Cricothyroidotomy	–	–	–	**PP**
Direct Laryngoscopy	–	–	**SO**	**SO**
Gastric Tube (BLS "Burp," ALS insert)	–	–	**SO**	**SO**
Impedance Threshold Device (ITD)	–	**OSP**	**OSP**	**OSP**
Laryngeal Tube Airway (King LTS-D™)	–	–	**OSP**	**OSP**
Nasotracheal Intubation	–	–	–	**SO**
Oropharyngeal/Nasopharyngeal Airway	**SO**	**SO**	**SO**	**SO**
Orotracheal Intubation	–	–	**SO**	**SO**
Needle Decompression Thoracostomy (NDT)	–	–	**SO/MC**	**SO/MC**
Pulse Oximeter	–	**SO**	**SO**	**SO**
Suction	**SO**	**SO**	**SO**	**SO**
Ventilator	–	–	–	**OSP**
CHEMICAL RESTRAINT	–	–	**SO/MC**	**SO**
ELECTROCARDIOGRAM				
Standard Limb Leads	–	–	**SO**	**SO**
12-Lead	–	**PP**	**SO**	**SO**
ELECTRICAL THERAPY				
Automated External Defibrillator	**SO**	**SO**	**SO**	**SO**
Cardioversion	–	–	**SO**	**SO**
Defibrillation	–	–	**SO**	**SO**
Transcutaneous Cardiac Pacing	–	–	**SO**	**SO**
GLUCOMETER	–	**OSP**	**SO**	**SO**
INTRAVENOUS THERAPY				
External Jugular Access & Maintenance	–	–	**SO**	**SO**
Intraosseous Infusion & Maintenance	–	–	**SO**	**SO**
Peripheral IV Access/Saline Lock/Blood Drawn	–	**OSP**	**SO**	**SO**
Peripheral IV Maintenance	–	**SO**	**SO**	**SO**
PRONOUNCEMENT OF DEATH (NEW '14)	–	**SO**	**SO**	**SO**
SKELETAL STABILIZATION/IMMOBILIZATION	**SO**	**SO**	**SO**	**SO**
BLEEDING MANAGEMENT: TOURNIQUET / HEMOSTATIC DRESSING (NEW '14)	**SO**	**SO**	**SO**	**SO**
VALSALVA MANEUVER	–	–	**SO**	**SO**

SO Standing Order
OSP Optional Supplemental Program
MC Medical Consultation Required
PP Pilot Program

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B. PROCEDURES, MEDICAL DEVICES, AND MEDICATIONS FOR EMS AND COMMERCIAL SERVICES (Continued)

PROCEDURE	EMR	EMT	CRT-(I)	PM
Apnea Monitors	–	SO	SO	SO
Arterial Lines and Cardiac Sheaths	–	–	–	–
Chemotherapy Administration/Drip	–	–	–	–
Chest tubes with Chest Drainage System	–	–	–	–
Chest tubes with Heimlich Valve	–	–	SO	SO
Colostomy bag	–	SO	SO	SO
External Orthopedic Fixators	–	SO	SO	SO
Foley catheter	–	SO	SO	SO
Foley catheter with irrigation	–	SO	SO	SO
Gastrostomy and jejunal feeding tubes (Non-infusing)	–	SO	SO	SO
HALO Cervical Immobilization	–	SO	SO	SO
IABP InterAortic Balloon Pump	–	–	–	–
Ileostomy tube (Non-infusing)	–	SO	SO	SO
PICC–peripherally inserted central catheter or **CVA**–central venous access line, capped only.	–	SO	SO	SO
PICC–peripherally inserted central catheter or **CVA**–central venous access line, subclavian/femoral or internal jugular may be monitored if fluid/medication being administered meets protocol. The ALS provider may access the line in a life-threatening emergency.	–	–	SO	SO
Intraventricular/Intracranial Monitor	–	–	–	–
Left Ventricular Assist Device (LVAD) Scene (BLS & ALS)	–	SO	SO	SO
Left Ventricular Assist Device (LVAD) Interfacility	–	–	–	–
Nasogastric and Orogastric tubes (Existing, Non-infusing, or Capped)	–	SO	SO	SO
Nephrostomy Tubes	–	SO	SO	SO
Peak Expiratory Flow Meter	–	–	SO	SO
Pelvic Binder Device	–	PP	PP	PP
Portable Outpatient Fixed Medication Pump/PCA Pump	–	SO	SO	SO
Peritoneal Dialysis (Non-active, Capped)	–	SO	SO	SO
Physical Restraint	–	SO	SO	SO
Sengstaken-Blakemore tube	–	–	–	–
Suprapubic catheter	–	SO	SO	SO
Surgical drains	–	SO	SO	SO
Swan-Ganz	–	–	–	–
Tracheostomy (Existing)	–	SO	SO	SO
Transtracheal O_2 (Outpatient/Existing)	–	SO	SO	SO
Transvenous Pacemaker (Temporary Transvenous)	–	–	–	–
Ventilators (Acute, Chronic, Scene)	–	–	–	OSP
Ventricular Peritoneal Shunt	–	SO	SO	SO
Wound vacuum device	–	SO	SO	SO

SO Standing Order
OSP Optional Supplemental Program
MC Medical Consultation Required
PP Pilot Program

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B. PROCEDURES, MEDICAL DEVICES, AND MEDICATIONS FOR EMS AND COMMERCIAL SERVICES (Continued)

MEDICATIONS	EMR	EMT	CRT-(I)	PM
Acetaminophen	–	SO	SO	SO
Activated Charcoal (Without Sorbitol)	–	MC	MC	MC
Adenosine	–	–	MC	SO
Albuterol/Fast-acting bronchodilator MDI (Patient's Prescribed)	–	SO/MC	SO/MC	SO/MC
Albuterol Sulfate Nebulizer	–	–	SO/MC	SO/MC
Aspirin	–	SO	SO	SO
Atropine Sulfate	–	–	SO/MC	SO/MC
Atrovent	–	–	SO	SO
Calcium Chloride (10% Solution)	–	–	MC	MC
Dexamethasone	–	–	SO	SO
Dextrose 50%	–	–	SO	SO
Diazepam	–	–	MC	SO/MC
Diltiazem	–	–	MC	MC
Diphenhydramine Hydrochloride	–	–	SO/MC	SO/MC
Dopamine Hydrochloride	–	–	MC	MC
Epinephrine Auto-Injector	OSP	SO/MC	SO	SO
Epinephrine Nebulizer	–	–	MC	MC
Epinephrine 1:10,000/1:1,000	–	–	SO	SO
Etomidate (Amidate)	–	–	–	PP
Fentanyl	–	–	OSP	OSP
Glucagon	–	–	SO/MC	SO/MC
Glycoprotein IIb/IIIa	–	–	–	OSP
Haldol	–	–	SO	SO
Hemophilia Blood Factor (VIII or IX)	–	–	SO	SO
Heparin (Interfacility transport only)	–	–	–	OSP
Hydroxocobalamin **(NEW '14)**	–	–	OSP	OSP
Lidocaine	–	–	SO	SO
MARK I/DuoDote (Atropine & 2 PAM)	OSP	OSP	OSP	OSP
Midazolam (Versed)	–	–	MC	SO/MC
Morphine Sulfate	–	–	MC	SO/MC
Morphine Sulfate (Infusion)	–	–	–	MC
Naloxone (IN) **(NEW '14)**	OSP	SO	SO	SO
Naloxone (IV, IM, ET)	–	–	SO	SO
Nitroglycerin Paste	–	–	SO	SO
Nitroglycerin (tablet /spray) (Patient's Prescribed)	–	SO	SO	SO
Nitroglycerin (tablet/spray)	–	–	SO	SO
Ondansetron	–	–	SO/MC	SO/MC
Oral Glucose	–	SO	SO	SO
Oxygen	SO	SO	SO	SO
Purified Protein Derivative (Public Safety Personnel only)	–	–	–	OSP

SO Standing Order
OSP Optional Supplemental Program
MC Medical Consultation Required
PP Pilot Program

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D. NORMAL VITAL SIGNS AND APGAR CHART

Normal Vital Signs

AGE	ESTIMATED WEIGHT	HEART RATE	RESPIRATORY RATE	SYSTOLIC B/P
Premature	Less than 3 kg	160	Greater than 40	60
newborn	3.5 kg	130	40	70
3 mo.	6 kg	130	30	90
6 mo.	8 kg	130	30	90
1 yr.	10 kg	120	26	90
2 yrs.	12 kg	115	26	90
3 yrs.	15 kg	110	24	90
4 yrs.	17 kg	100	24	90
6 yrs.	20 kg	100	20	95
8 yrs.	25 kg	90	20	95
10 yrs.	35 kg	85	20	100
12 yrs.	40 kg	85	20	100
14 yrs.	50 kg	80	18	110
ADULT	Greater than 50 kg	80	18	120

APGAR Chart

SIGN	0	1	2
MUSCLE TONE (ACTIVITY)	LIMP	SOME FLEXION	ACTIVE, GOOD FLEXION
PULSE	ABSENT	LESS THAN 100/MIN	GREATER THAN 100/MIN
REFLEX IRRITABILITY* (GRIMACE)	NO RESPONSE	SOME GRIMACE OR AVOIDANCE	COUGH, CRY OR SNEEZE
COLOR (APPEARANCE)	BLUE, PALE	PINK BODY, BLUE HANDS/FEET	PINK
RESPIRATIONS	ABSENT	SLOW/IRREGULAR, INEFFECTIVE	CRYING, RHYTHMIC EFFECTIVE

**Nasal or Oral Suction Catheter Stimulus*

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10. AIRWAY MANAGEMENT: TRACHEOSTOMY SUCTIONING

a) PURPOSE

Tracheostomy suctioning may be required to maintain a patent airway in patients who present with respiratory distress secondary to tracheostomy tube occlusion or obstruction.

b) INDICATIONS

(1) Increased secretions from tracheostomy site or a mucous plug
(2) Hypoxia, cyanosis, or decreased oxygen saturation levels
(3) Increased work of breathing
(4) Altered mental status secondary to hypoxia

c) CONTRAINDICATIONS

None

d) POTENTIAL ADVERSE EFFECTS/COMPLICATIONS

(1) Bleeding at tracheal stoma site
(2) Dislodgment of tracheostomy tube
(3) Exaggerated cough reflex with introduction of saline
(5) Increased hypoxia/respiratory distress
(6) Infection

e) PROCEDURE

(1) Two providers or provider and trained family member
(2) Use latex-safe sterile gloves and equipment.
(3) Position patient with the head and neck hyperextended to expose the tracheostomy site.
(4) Pre-oxygenate patient at the tracheostomy site:
    (a) NRB mask if patient has adequate effective spontaneous respirations
    (b) BVM if ventilator-dependent or there are ineffective spontaneous respirations
(5) Select appropriately sized suction catheter (2 x internal diameter of tracheostomy tube)
(6) Insert suction catheter:
    (a) Measure from the tracheostomy site to the sternal notch
    OR
    (b) Insert until there is a cough reflex.
(7) Apply suction ONLY as the catheter is withdrawn, rotating the catheter in a twisting motion between thumb and finger.
(8) Suction for maximum of 10 seconds.
(9) Re-oxygenate and re-evaluate patient.
(10) Repeat suction procedure as needed (for thick secretions instill 3–5 cc sterile saline/water prior to repeat suctioning).

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10A. AIRWAY MANAGEMENT: VENTILATORY DIFFICULTY SECONDARY TO BUCKING OR COMBATIVENESS IN INTUBATED PATIENTS

a) INDICATION

Patients successfully intubated with an endotracheal tube, an approved alternative airway device, or cricothyroidotomy, for whom the ability to provide manual or mechanical ventilation is impaired secondary to bucking or combativeness.

b) CONTRAINDICATION

Unsecured airway.

c) PROCEDURE

(1) Midazolam up to 0.05 mg/kg IVP over 1–2 minutes, titrated to abate bucking and relax ventilation while maintaining systolic BP greater than 90 mmHg. Maximum single dose 5 mg. **(NEW ’14)**

(2) If ventilatory difficulty is thought to be the result of pain response, opioid may be used per Pain Management protocol in addition to, or instead of midazolam: Titrate to abate bucking and relax ventilation while maintaining systolic BP greater than 90 mmHg.

(3) Continue to monitor oxygen saturation and ventilate to desired end tidal carbon dioxide level.

(4) Obtain on-line medical direction if further problems present.

(5) Midazolam up to 0.05 mg/kg IVP over 1–2 minutes, titrated to abate bucking and relax ventilation while maintaining systolic BP: greater than 60 in neonates, 70 in infants, and [70 + (2 x years) = systolic BP] for patients greater than 1 year of age. Maximum total dose is 5 mg. **(NEW ’14)**

(6) If ventilatory difficulty is thought to be the result of pain response, opioid may be used per Pain Management protocol in addition to, or instead of, midazolam: Titrate to abate bucking and relax ventilation while maintaining systolic BP: greater than 60 in neonates, 70 in infants, and [70 + (2 x years) = systolic BP] for patients greater than 1 year of age.

(7) Continue to monitor oxygen saturation and ventilate to desired end tidal carbon dioxide level.

(8) Obtain on-line medical direction if further problems present.

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11. ELECTRICAL THERAPY: AUTOMATED EXTERNAL DEFIBRILLATION (AED)

a) INDICATIONS

Sudden cardiac arrest (patients with no pulse and not breathing).

Birth - less than 1 of age	Manual defibrillator preferred. (If unavailable, an AED with pediatric capability is preferred over an adult AED.)
1 year of age - 8 years of age	AED with pediatric capability using the pediatric pad is preferred over an adult AED **(NEW '14)**
Child 8 years of age or greater	Adult AED

b) CONTRAINDICATIONS

Patient exhibiting signs of life.

ALERT USE OF THE AED IN THE MANUAL MODE IS RESERVED FOR ALS.

c) POTENTIAL ADVERSE EFFECTS/COMPLICATIONS

(1) Burns to skin
(2) Deactivation of patient's implanted pacemaker
(3) Injury to patient, self, and/or bystanders

d) PRECAUTIONS

(1) Make sure the patient and the environment are dry.
(2) Avoid placing pads over cardiac pacemakers/defibrillators or nitroglycerin patches.
(3) DO NOT touch the patient while the AED is analyzing the patient or discharging energy.
(4) ENSURE that no one is touching the patient when the shock button is pushed.
(5) Never defibrillate while moving the patient or when in a moving ambulance.

e) PROCEDURE

(1) Initiate analysis of rhythm.
(2) If shock is indicated:
  (a) Ensure all individuals are clear of the patient.
  (b) Initiate shock to the patient.
  (c) Immediately perform 5 cycles of CPR between shocks, then initiate analysis of rhythm.
  (d) If patient remains pulseless, continue this cycle of CPR and shocks until the patient regains a pulse, the AED prompt states "no shock advised," or ALS arrives.

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Medevac Data Request Form

Maryland Helicopter Dispatch Request

1	Identify Call Origin & Operator ID
2	Identify Request Type: **Medevac, Search & Rescue, Airborne Law Enforcement**
3	Jurisdictional Incident Number & 911 Dispatch Time

Medevac Dispatch

1	Incident Type
2	Incident Location: Community & Site
3	Landing Zone
4	ADC Map Page/Grid OR Lat/Lon
5	Primary Condition
6	Severity, Category & Priority
7	Adult or Pediatric or Estimated Age?
8	Multiple Patients?
9	ALS Unit & LZ Contact Info
10	Additional Relevant Information

Search & Rescue Dispatch

1	Incident Type
2	Incident Location: Community & Site
3	ADC Map Grid OR Lat/Lon Info for LZ
4	Primary Target Description
5	Time Last Observed
6	Ground Contact Unit
7	Additional Relevant Information

Airborne Law Enforcement Dispatch

1	Incident Type:
2	Incident Location: Community & Site
3	ADC Map Grid OR Lat/Lon Info for LZ
4	Primary Target
5	Time Last Observed
6	Ground Contact Unit
7	Additional Relevant Information

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HELICOPTER SAFETY

OPTIMAL LANDING ZONE (LZ) SETUP

- ☑ **150 x 150 foot area close to the incident scene and free from obstructions is the minimum required with a 175 x 175 foot area preferred.** (In mass casualty incident, identify a large enough area to land multiple large helicopters.)
- ☑ The landing zone should be a flat surface that is firm, free of overhead obstructions, and free of any debris that can blow up into the rotor system. The maximum allowable slope is 5 degrees.
- ☑ Obstacles such as wires, poles, signs, etc. can be difficult to see from the aircraft. If wires are present at or near the scene, this information must be relayed to the flight crew prior to landing.
- ☑ Advise the flight crew on overhead radio contact if there are any obstructions in the area, obstructions at the edge of the LZ, or any obstructions in-line with the departure or approach path.
- ☑ The landing zone will not be located near fixed objects that may be susceptible to wind damage or unsecured objects (e.g., patio furniture, small boats) that may become airborne as the AW-139 aircraft produces a significant amount of main and tail rotor wash.
- ☑ If the roadway is too narrow, or numerous trees or other obstacles are present, another area must be selected as an alternate LZ and checked for obstacles and other unsafe conditions. After the LZ Officer has evaluated all areas, the best unobstructed landing site must be secured, and the flight crew advised of any unsafe conditions they may encounter during the landing.
    - **NOTE:** In determining landing zones, be aware that helicopter take-offs and landings can be done in a vertical manner; however, these landings limit the pilot's visibility of the LZ. Increased power requirements on the helicopter may eliminate land-back areas should an engine malfunction occur, making the approach slower, causing extended periods of rotor wash.

ADDITIONAL LANDING ZONE TIPS

- ☑ The LZ Officer should walk the area on both sides of the LZ and check for hazards. During night operations, walk the LZ with a flashlight that is directed up and down to detect wires in and around the LZ.
- ☑ 45-Degree Test—The LZ Officer should stand in the middle of the LZ with one arm extended at a 45-degree angle in front of him/her. Any objects at or above this line are obstacles and need to be reported to the incoming aircraft. This test is done for the full 360 degrees.
- ☑ Do not recommend landing zones that contain loose material such as gravel. The rotor wash will cause stones or gravel to become airborne, striking personnel and/or damaging vehicles.

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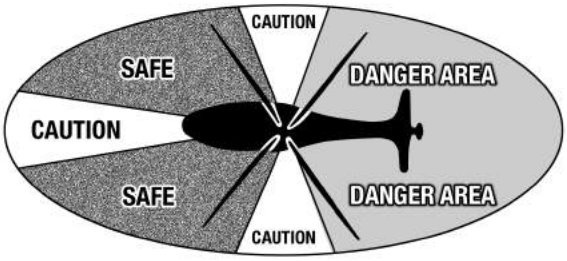
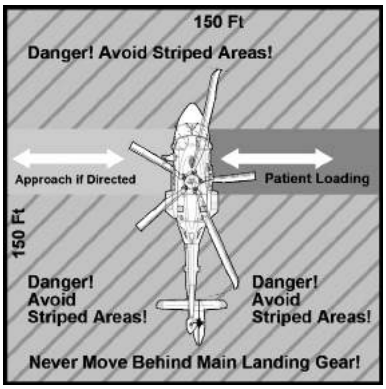
- ☑ When a roadway is to be used as an LZ, all traffic must be stopped in both directions of the roadway, even on multi-lane highways or interstates.
- ☑ The LZ Officer will ensure that enough personnel is available to prevent any breach of LZ security by pedestrians while the helicopter is approaching, on the ground or while departing. Failure to do so may cause injuries and/or delay patient transport.
- ☑ Do not allow traffic to use the roadway until after the aircraft has departed. Traffic will be stopped at least 200 feet in both directions from the landing zone.
- ☑ Do not use flares or cones to mark the landing zone: they will become airborne during the landing. (Weighted cones/lights that are designed for aircraft operations are generally acceptable.)
- ☑ The flightcrew is the final authority when selecting an LZ. On some occasions, the flightcrew may not choose to utilize the ground personnel's suggested LZ and choose an alternate LZ. This decision is usually based on information that is unknown to the ground personnel (e.g., wind, aircraft performance limitations, etc.).

APPROACHING THE AIRCRAFT



Dauphin



AW-139

Personnel should only approach MSP aircraft under the following conditions:

- ☑ Hearing and eye protection shall be utilized at all times when approaching the aircraft.
- ☑ Only when accompanied by an MSP flight crew member to the aircraft.
  - Response personnel are usually limited to four when loading patients. The Trooper/Flight Paramedic will provide additional guidance prior to these personnel approaching the aircraft.
- ☑ In an emergency situation when it becomes necessary to render assistance or rescue occupants of the helicopter. In such cases:

DO NOT APPROACH THE AIRCRAFT UNLESS THE MAIN ROTOR HAS STOPPED!

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☑ Only approach the aircraft from the Safe Zone (see diagrams).
- Never approach the aircraft from the rear areas due to the hazards existing from the tail rotor.

REMAIN CLEAR OF THE REAR AND TAIL ROTOR AT ALL TIMES!

- If it becomes necessary to go from one side of the aircraft to the other, this will be done by walking around the front of the aircraft; however, do not walk under the rotor blades.
- Personnel shall not wear hats and loose clothing when approaching the aircraft. Do not lift anything above shoulder height (e.g., IV bags).

☑ If the aircraft has landed on a slope or hill, care must be taken when approaching the aircraft from the downhill side. Uphill side approaches should be avoided, as the main rotor blade is spinning and is lower to the ground on one side of the aircraft. The Trooper/Flight Paramedic will provide additional guidance in this situation.

☑ Never bring the patient to the aircraft prior to advising the Trooper/Flight Paramedic of the patient's information. Very high noise levels found in the general proximity of the aircraft make communication and patient turnover impossible.

☑ If debris gets in the eyes and it impairs the vision, do not continue to approach or egress from the aircraft. Personnel will immediately "take a knee," and the Trooper/Flight Paramedic will provide assistance.

MISCELLANEOUS SAFETY TIPS

Aircraft Doors

☑ Personnel should not attempt to open or close any aircraft doors. If a person is in the aircraft, he/she should remain inside until the flight crew member opens the door, thus preventing damage to the door and greatly reducing the risk of an aircraft door opening inadvertently in flight.

Vehicles

☑ No vehicles or personnel shall be permitted within 200 feet of the aircraft.

☑ Do not direct spotlights onto the landing area or at the aircraft, but keep vehicle's emergency lights displayed until the aircraft is overhead. Once the LZ has been confirmed and verified by the flight crew, vehicle lighting can be reduced to running lights or parking lights for night vision purposes.

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25. 12-LEAD ELECTROCARDIOGRAM

a) PURPOSE

Coronary heart disease is the single largest cause of death in U.S men and women. Early identification and treatment of patients with acute myocardial infarction (AMI) has proven to reduce myocardial damage and decrease morbidity and mortality. Providers should be aware of both typical and atypical presentations.

b) INDICATIONS

(1) Chest pain that may radiate to the arm, shoulders, jaw, or back. Generally described as a crushing pain or toothache. May be accompanied by shortness or breath, sweating, nausea, or vomiting.
(2) Chest discomfort. Some heart attacks involve discomfort in the center of the chest that lasts for more than a few minutes or that goes away and comes back. This discomfort can feel like uncomfortable pressure, squeezing, or fullness.
(3) Discomfort in other areas of the upper body. Symptoms can include discomfort in one or both arms or in the back, neck, jaw, or stomach.
(4) Shortness of breath. This symptom often accompanies chest discomfort. However, it can also occur prior to the chest discomfort.
(5) Other signs. These may include breaking out in a cold sweat, nausea, light-headedness, syncopal episode, or a sense of impending doom.
(6) Post cardiac arrest with ROSC.

c) PROCEDURE

(1) Position patient.
(2) Place chest and limb leads.
(3) Set patient age and a patient identifier (minimum of patient's initials).
(4) Acquire 12-lead (15-lead, if trained).
(5) Continue patient care.

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26. ACUPRESSURE FOR NAUSEA (NEW '14)

a) PURPOSE

Acupressure on the P6 point can be used to reduce the intensity of nausea for patients where ondansetron is not preferable or available. It may be helpful as adjunct therapy for patients who have received ondansetron.

b) INDICATION

(1) Patients with active nausea and vomiting
(2) As adjunct therapy to patients receiving ondansetron
(3) To prevent or reduce motion sickness

c) CONTRAINDICATION

None

d) ADVERSE EFFECTS

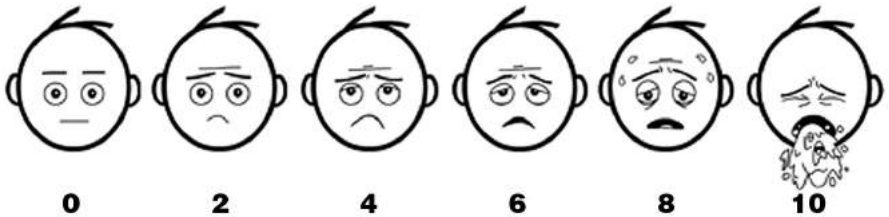
Redness, swelling, discomfort at site if commercial wrist bands are used

e) PRECAUTIONS

Patients experiencing nausea should receive a complete assessment, especially if cardiac risk factors are present

f) PROCEDURE

(1) Identify P6 point
  (i) Place three of the patient's fingers on the patient's opposite forearm at the wrist crease
  (ii) Mark the space between the two tendons on the forearm as the P6 point
(2) Apply pressure at this point for several seconds and encourage the patient to take over care, or apply a commercial device per manufacturer's instructions. Have patient or parent maintain firm pressure. Onset of relief is between 30 seconds and 5 minutes.
(3) Reassess patient, re-score on BARF Scale at 5 minutes, and document response to therapy.



BARF Nausea Scale

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27. MULTIPLE CASUALTY INCIDENT/UNUSUAL EVENT (NEW '14)

A Multi-Casualty Incident (MCI) or Unusual Event is any event where the number of injured persons exceeds the normal capabilities of the EMS Operational Program in whose jurisdiction the event takes place. Due to the size of the incident, the responding EMS Operational Program may require additional resources and/or must distribute patients to multiple hospitals.

Local EMS Operational programs should have a plan or operational procedures that address response to multiple patient incidents or unusual events. This protocol does not supersede those plans. There are some general practices and procedures that must be followed to ensure the EMS system can be prepared to respond appropriately to support a local response.

ALERT: THIS PROTOCOL IS SIMPLY A LIST OF REQUIRED TASKS IN THE EVENT OF AN UNUSUAL EVENT. IT IS NOT ALL-INCLUSIVE. ALL PROVIDERS ARE ENCOURAGED TO REVIEW LOCAL EMERGENCY RESPONSE PLANS, THE MARYLAND TRIAGE SYSTEM TRAINING PROGRAM, START/JUMPSTART AND NIMS PRACTICES AND PROCEDURES ON AT LEAST AN ANNUAL BASIS.

Procedure

1. Assess scene and recognize that the incident is an MCI or Unusual Event. The definition of MCI or Unusual Event for the purposes of this protocol is an incident that causes more than 5 patient encounters or which involves unusual circumstances that suggest it could place an extraordinary strain on EMS or healthcare resources. The following events are **examples** of an MCI or Unusual Event.
   a. More than five patients from one or related incidents
   b. Multi-patient events that require specialized rescue
   c. Three or more immediate (Priority 1) patients
   d. Multiple pediatric patients requiring specialty resources
   e. More than one burn patient meeting burn center referral criteria
   f. Use of more than two medevac helicopters
   g. Use of Medical Ambulance Bus (MAB)
   h. Multiple patients with unusual signs and symptoms
   i. Unresolved WMD related activity which could result in multiple patients (Active Shooter, Bomb Threat, Intentional WMD Agent Release, etc.)
   j. Decontamination of more than 5 patients resulting in at least one transport
   k. Unresolved hazardous material incident that has the potential to affect multiple patients
   l. Evacuation of a licensed healthcare facility or housing complex for individuals requiring special assistance

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2. Notify EMRC or the Regional EMRC as soon as the incident is recognized to be an MCI or Unusual event. Use the specific terms “MCI” or ”Unusual Event” when communicating with EMRC to be clear this protocol is being enacted. This should be done as early in the incident as possible when there is a strong suspicion that such an event has occurred so that EMRC may begin to notify hospitals and response partners of the incident. Responding units can request their dispatchers notify EMRC before the scene is fully assessed if there is reasonable information to suggest that the incident meets the criteria above. As soon as available, the following information should be relayed to EMRC.
   a. Type and general description of the incident
   b. General location or address of the incident
   c. Age range of patients
   d. Estimated number of patients by priority
   e. Approximate number of patients involved
   f. Any hazardous agents involved

3. Initiate the incident command structure according to local SOPs and/or the National Incident Management System. Update EMRC with more details about the incident as they become available.

4. Consider utilization of the MCI Communications protocol (Section II.G.6)

5. Triage patients using the START/JumpSTART methods (Section II.D.7.e).
   a. Identify the patient’s triage category by utilizing the appropriately colored triage ribbon and securely attach a MIEMSS-approved Triage Tag.

6. Do not delay transport of patients for extensive patient care procedures. Provide only the care required to sustain life and limb during transport to the hospital.

7. Track the care, movement, and disposition of EVERY patient utilizing the locally approved triage/treatment/transport logs and or the State electronic patient tracking system (PTS). Patient information should be written on the triage tag and be entered directly into PTS as it becomes available.

8. Consider the need for and request specialty resources through the local dispatch center and/or emergency management as per local procedures. These may include,
   a. Mass Casualty Support Units (MCSUs) – (Medical Supply Caches)
   b. Medical Ambulance Buses
   c. CHEMPACK (Organophosphate antidotes - contact EMRC)
   d. Ambulance Strike Teams or EMS Taskforces
   e. Shock Trauma Go-Team

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9. The Transportation Group Supervisor and Medical Communications Coordinator responsibilities should be assigned as early as possible. They are the critical link to EMRC, hospitals, and the healthcare system. Their duties include
    a. Establish a final checkpoint through which all transport units MUST pass to ensure accountability of all patients.
    b. EMRC will have notified hospitals and acquired their bed availability based on the information originally received and will transmit that information to the scene when requested.
    c. Coordinate through EMRC the patient destination, and communicate the number of patients, general illnesses, ages, and triage category on each transport unit as they leave the scene to the receiving facilities.
    d. If a central point of contact cannot be established, individual transport units MUST communicate the above information individually through EMRC to the receiving hospitals during transport. Those units must announce that they are associated with the MCI or Unusual Event

10. Coordinate with law enforcement and, if requested, assist the Coroner or Medical Examiner with identification and disposition of deceased casualties.

11. After the last patient has been transported, notify 911 dispatch center and EMRC that last patient has been transported. Demobilize scene, stand down or release resources dedicated to incident, and complete appropriate documentation. Cooperate with local officials, EMRC, Hospitals, and Emergency Management to complete a final accounting of the disposition of all the patients.

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4. EPINEPHRINE AUTO-INJECTOR

a) Indications

(1) Moderate to severe allergic reaction with respiratory distress or mild allergic reaction with history of life-threatening allergic reaction.
(2) Pediatric patients with severe asthma.

b) Adverse Effects

(1) Tachycardia/Palpitations
(2) Angina
(3) Headache
(4) Nausea/Vomiting
(5) Dizziness
(6) Hypertension
(7) Nervousness/Anxiety
(8) Tremors

c) Precautions

Unless in severe allergic reaction or severe asthma, medical consultation must be obtained before administering to pregnant, cardiac, or adult asthma patients.

d) Contraindications

None in the presence of anaphylaxis.

e) Preparations

Epinephrine Auto-injector (single or multi-dose) only
(Patient prescribed or EMS)
(1) Adult: 0.3 mg
(2) Pediatric: 0.15 mg

ALERT MEDICAL CONSULTATION REQUIRED FOR THE ADMINISTRATION OF EPINEPHRINE AUTO-INJECTOR TO ADULT ASTHMA PATIENTS.

f) Dosage

(1) **Patients 3 years of age or greater:**
Adult Auto-injector: 0.3 mg IM
(2) **Patients less than 3 years of age:**
Pediatric Auto-injector: 0.15 mg IM

(3) Additional doses may be administered with medical consultation.

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4A. NALOXONE (NARCAN) (NEW '14)

1. Pharmacology
Reverses all effects due to opioid (morphine-like) agents. This drug will reverse the respiratory depression and all central and peripheral nervous system effects.

2. Pharmacokinetics
a) Onset of action is within a few minutes with intranasal (IN) administration.
b) Patients responding to naloxone may require additional doses and transportation to the hospital since most opioids/narcotics last longer than naloxone.
c) Has no effect in the absence of opioid/narcotic.

3. Indications
To reverse respiratory depression induced by opioid/narcotic agent.

4. Contraindications
Patients under 28 days of age.

5. Adverse Effects
Opioid withdrawal

6. Precautions
a) Naloxone may induce opiate withdrawal in patients who are physically dependent on opioids.
b) Certain drugs may require much higher doses of naloxone for reversal than are currently used.
c) Should be administered and titrated so respiratory efforts return, but not intended to restore full consciousness.
d) Intranasal naloxone must be administered via nasal atomizer.
e) Naloxone has a duration of action of 40 minutes; the effect of the opioid/narcotic may last longer than naloxone and patients should be encouraged to be transported.

ALERT PROVIDERS MUST CONTACT A BASE STATION PHYSICIAN FOR PATIENTS WISHING TO REFUSE TRANSPORT AFTER BLS ADMINISTRATION OF NALOXONE.

7. Dosage
a) Adult: Administer 2 mg IN. Divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril.
b) Pediatric:
(1) **Child 8 years of age to adult:**
Administer 2 mg IN. Divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril.
(2) **Child 28 days to less than 8 years of age:**
Administer 0.8–1 mg IN; Divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril.

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(3) **Child less than 28 days:**
Not indicated

Repeat as necessary to maintain respiratory activity.

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5. NITROGLYCERIN

(Patient Prescribed, Patient Assisted)

a) Indications

(1) Patient must have own prescribed sublingual nitroglycerin.
(2) Chest pain

b) Adverse Effects

(1) Hypotension
(2) Headache
(3) Dizziness
(4) Tachycardia

c) Precautions

(1) Reassess blood pressure before and after administration.

(2) If systolic blood pressure drops more than 20 mmHg, obtain medical consultation before further administration.

d) Contraindications

(1) Blood pressure below 90 mmHg systolic
(2) Heart rate less than 60
(3) Medication not prescribed for the patient
(4) Pediatric patient under age 12
(5) Any patient having taken medication for Pulmonary Artery Hypertension (e.g., Adcirca™ or Revatio™) or erectile dysfunction (e.g., Viagra™, Levitra™, or Cialis™) within the past 48 hours. Medical consultation is required to override this contraindication.

e) Preparations

Spray or tablet

f) Dosage

(1) Adult: One tablet or one spray sublingually
  (a) Repeat in 3 to 5 minutes if chest pain persists
  (b) Maximum of three doses (a combination of patient-administered and EMT-administered) of nitroglycerin
(2) Pediatric: Not indicated (nitroglycerin contraindicated for children under age 12)

(3) Additional doses may be administered with medical consultation.

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9. DEXAMETHASONE

a) Indications

(1) Moderate to severe asthma exacerbation
(2) Croup

b) Adverse Effects

(1) Headache
(2) Edema
(3) Vertigo
(4) Fluid retention
(5) Adrenal insufficiency and immunosuppression with long-term use
(6) HTN
(7) CHF
(8) Nausea and vomiting
(9) Dyspepsia
(10) Anaphylaxis

c) Precautions

(1) Caution with DM
(2) Known TB
(3) Osteoporosis
(4) Hepatic impairment
(5) CHF
(6) Seizure disorder

d) Contraindications

(1) Hypersensitivity to drug
(2) Known systemic fungal infection
(3) Premature infants

e) Dosage (IV solution used for PO administration)

(1) Adult: 10 mg IV (preferred, if established) or PO
(2) Pediatric:
  (a) Asthma: 0.5 mg/kg PO (preferred) or IV to a maximum of 10 mg **(NEW '14)**
  (b) Croup: 0.5 mg/kg PO/IM/IV to a maximum of 10 mg **(NEW '14)**

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21. MIDAZOLAM (VERSED)

a) Pharmacology

(1) Sedative
(2) Hypnotic
(3) Anticonvulsant

b) Pharmacokinetics

(1) A short-acting benzodiazepine with strong hypnotic, anticonvulsant activity, and amnestic properties
(2) Onset of action is extremely rapid following IV administration; approximately 1 1/2 minutes, and for IM approximately 15 minutes.
(3) Duration of effect 1–4 hours with half life of 1 1/2 to 3 hours in healthy adult.

c) Indications

(1) Sustained and/or recurrent seizures
(2) Precardioversion to reduce anxiety
(3) Awake patient requiring transcutaneous pacing (TCP)
(4) Nasal Tracheal Intubation
(5) Implanted Cardioverter Defibrillator (ICD) Malfunction
(6) Nerve/organophosphate exposure
(7) Bucking Endotracheal Intubated patient
(8) Chemical Restraint
(9) Moderate to severe stimulant toxicity

d) Contraindications

(1) Hypotension (See below for ET bucking)
(2) Known hypersensitivity to midazolam

e) Adverse Effects

(1) Respiratory depression or apnea
(2) Hypotension

f) Precautions

(1) The effects of midazolam can be accentuated and significantly potentiated by CNS depressants, such as opioids or alcohol.
(2) Midazolam is five times as potent per milligram as diazepam and there is an increased risk of respiratory depression.

g) Dosage (Paramedic may perform without consult for patients with active seizures.)

All Indications in c) above, except for Bucking Endotracheal Intubated patient and Chemical Restraint

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(1) Adult: (Reduce the below IV/IO/IM by 50% for patients 69 years or older.)

0.1 mg/kg in 2 mg increments slow IV push over one to two minutes per increment with maximum single dose 5 mg **(NEW '14)**
If IV unavailable, 5 mg IM may be administered

Additional doses up to a maximum total dose 10 mg require medical consultation for all providers.
For seizures lasting greater than 10 minutes (status), consider IO administration of midazolam.

If suspected severe nerve agent exposure, providers may administer midazolam 5 mg IM without medical consultation.

(2) Pediatric:
0.1 mg/kg in 2 mg increments. Slow IV push over one to two minutes per increment to a maximum total dose of 5 mg **(NEW '14)**
If IV unavailable, 0.2 mg/kg IM
Maximum total dose 5 mg

Additional doses up to a maximum total dose 5 mg require medical consultation for all providers.
For life threatening conditions, consider IO administration of midazolam.

If suspected severe nerve agent exposure, providers may administer midazolam as above without medical consultation.

Chemical Restraint

(1) Patient 15–69 years: midazolam 5 mg IM/IV
Patient greater than 69 years: midazolam 2.5 mg IM/IV
Repeat doses may be given with medical direction

(2) Pediatric: Not indicated

Bucking Endotracheal Intubated patient

(1) Adult: Administer 0.05 mg/kg slow IVP over 1–2 minutes, while maintaining systolic BP greater than 90 mmHg. STOP ONCE BUCKING HAS RESOLVED AND VENTILATION IS RELAXED. Maximum single dose is 5 mg. **(NEW '14)**
Additional doses require medical consultation.

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(2) Pediatric: Administer 0.05 mg/kg slow IVP over 1–2 minutes, while maintaining systolic BP greater than 60 in neonates, 70 in infants, [70 + (2 x years) = systolic BP] for patients greater than 1 year of age. Maximum total dose 5 mg. **(NEW '14)**

ADMINISTER UP TO 0.05 MG/KG IV WHEN TREATING ENDOTRACHEAL TUBE BUCKING, STOPPING ONCE BUCKING HAS RESOLVED AND VENTILATION IS RELAXED.

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22. MORPHINE SULFATE

(Required unless Fentanyl OSP approved)

a) Pharmacology

(1) Decreases pain perception and anxiety
(2) Relaxes respiratory effort
(3) Causes peripheral dilation, which decreases preload
(4) Decreases left ventricular afterload

b) Pharmacokinetics

(1) Binds with opiate receptors in the CNS, altering both perception and emotional response to pain
(2) Onset of action is in less than 5 minutes after IV dose and effects last 4–5 hours.
(3) Causes peripheral arterial and venous vasodilation

c) Indications

(1) The patient reports moderate to severe pain
(2) In the provider's judgment the patient will benefit from treatment with an opioid analgesic, including patients that are MOLST and/or EMS/DNR patients

d) Contraindications

(1) Hypersensitivity or known allergy to morphine
(2) Uncorrected respiratory distress or hypoxemia refractory to supplemental oxygen
(3) Uncorrected hypotension, defined as a persistent systolic pressure < 90 mmHg.

e) Adverse Effects

(1) Respiratory depression/arrest
(2) Altered mental status (decreased level of consciousness)
(3) Increased vagal tone due to suppression of sympathetic pathways (slowed heart rate)
(4) Nausea and vomiting
(5) Constricted pupils (pinpoint)
(6) Increased cerebral blood flow

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M. ADULT RAPID SEQUENCE INTUBATION PROTOCOL PACKAGE

1. Rapid Sequence Intubation (RSI) Pilot Program

a) Indications

(1) Inability to tolerate laryngoscopy, and:
  (a) GCS less than or equal to 8 with respiratory rate less than or equal to 8 or greater than or equal to 35 or
  (b) GCS less than or equal to 8 with oxygen saturation less than or equal to 90% on non-rebreather face mask

(2) On-line medical direction for RSI may be requested in the following situations:
  (a) GCS less than or equal to 8 with clenched jaw, inability to adequately suction airway, and without above respiratory parameters
  (b) Respiratory extremis with contraindications to nasotracheal intubation (respiratory rate greater than or equal to 35 with air hunger, use of accessory muscles, and oxygen saturation less than or equal to 90% on non-rebreather face mask)

b) Contraindications

(1) Conditions that may cause hyperkalemia:
  (a) Burns greater than 24 hours old
  (b) Spinal cord injury greater than 24 hours old
  (c) Known neuromuscular disease (Guillain-Barré Syndrome, myasthenia gravis, amyotrophic lateral sclerosis, muscular dystrophy)
  (d) Chronic renal failure on hemodialysis/Presence of hemodialysis access
(2) Age less than 12
(3) History of malignant hyperthermia

c) Preparation

(1) Pre-oxygenate with 90–100% oxygen.
(2) Monitor oxygen saturation with pulse oximetry and ECG.
(3) Ensure functioning IV and fluid therapy as per protocol.
(4) Evaluate for difficult airway.
(5) Perform focused RSI neurologic exam.
(6) Prepare equipment
  (a) Intubation kit
  (b) Bag-Valve-Mask (BVM)
  (c) Suction
  (d) RSI kit
    (i) Prepare medications
    (ii) Alternative airway device, Cricothyroidotomy equipment
  (e) Capnograph

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d) RSI Procedure

(1) Sedation

Adequate sedation must be provided to prevent awareness during paralysis from neuromuscular blockade.

Etomidate, if available, will be the preferred agent for patients who are aware of their surroundings and do not have hypotension or possible hypovolemia.

Dose: Administer 0.3 mg/kg IVP over 30–60 seconds May repeat 0.15 mg/kg IVP in 2–3 minutes if inadequate sedation

OR

Ketamine may be used if etomidate is unavailable, and may be preferred for patients who have hypotension or possible hypovolemia.

Dose: Administer 2 mg/kg IVP over 60 seconds.

OR

Midazolam should be considered for patients with isolated head injury and elevated blood pressure, especially with possible seizure activity. Midazolam should not be used for patients with hypotension, and should be avoided with possible hypovolemia.

Dose: Administer 0.05 mg/kg IVP over 1–2 minutes.
Maximum single dose is 5 mg. **(NEW '14)**

Only one sedative agent should be administered prior to succinylcholine unless otherwise directed by medical consultation.

(2) For patients with head injury or suspected increased intracranial pressure, administer Lidocaine 1 mg/kg (40–100 mg) IVP over 1–2 minutes.
(3) In-line cervical spine stabilization by second caregiver (in trauma setting)
(4) Apply cricoid pressure (by third caregiver).
(5) Succinylcholine: Administer 1.5 mg/kg rapid IVP. Maximum single dose is 200 mg. **(NEW '14)**
(6) Intubate trachea and verify ET placement.
(7) If inadequate relaxation after 2–3 minutes, administer Atropine 1 mg to avoid bradycardic response and repeat succinylcholine 1 mg/kg IVP. Maximum single dose is 200 mg. **(NEW '14)**

e) Successful Endotracheal Tube Placement

(1) Release cricoid pressure and secure ET.
(2) Ventilate to end tidal carbon dioxide of 30–32 mmHg.
(3) If significant resistance to ventilation occurs as succinylcholine wears off (4–5 minutes), refer to Ventilatory Difficulty Secondary to Bucking Protocol.

f) Unsuccessful Endotracheal Tube Placement

(1) Maintain cricoid pressure and resume BVM ventilation for 30 seconds.
(2) If unable to ventilate, see "Unable to Ventilate" below.
(3) Re-attempt oral ET intubation.
(4) If unsuccessful, resume BVM ventilation for 30 seconds.
(5) Insert an approved alternative airway device (refer to Alternative Airway Device protocol).

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(6) Attach capnograph and ventilate to desired end tidal carbon dioxide level.
(7) If significant resistance to ventilation occurs as succinylcholine wears off (4–5 minutes), or if patient exhibits difficulty in tolerating an approved alternative airway device as succinylcholine wears off, refer to Ventilatory Difficulty Secondary to Bucking Protocol.

g) If Unable to Ventilate

Insert an approved alternative airway device (refer to Alternative Airway Device protocol).

h) If still unable to ventilate using an approved alternative airway device, remove and perform cricothyroidotomy (refer to Cricothyroidotomy Protocol).

2. Ventilatory Difficulty Secondary to Bucking or Combativeness in Intubated Patients

a) Indication

Patients successfully intubated with an endotracheal tube, an approved alternative airway device, or Cricothyroidotomy, for whom the ability to provide manual or mechanical ventilation is impaired secondary to bucking or combativeness

b) Contraindication

Unsecured airway

c) Procedure

(1) **Etomidate**, if available, will be the preferred agent for patients who are aware of their surroundings and do not have hypotension or possible hypovolemia.

Dose: Administer 0.3 mg/kg IVP over 30–60 seconds.
May repeat 0.15 mg/kg IVP every 15 minutes to a total of three doses.

OR

Ketamine may be used if etomidate is unavailable, and may be preferred for patients who have hypotension or possible hypovolemia, or if ventilatory difficulty is thought to be the result of pain response.

Dose: Ketamine: 2 mg/kg IVP over 60 seconds. May repeat 1 mg/kg for IVP every 10–15 minutes to a total of three doses as necessary. Additional doses require medical consultation.

OR

Midazolam should be considered for patients with isolated head injury and elevated blood pressure, especially with possible seizure activity. Midazolam should not be used for patients with hypotension, and should be avoided with possible hypovolemia.

Dose: Administer 0.05 mg/kg IVP over 1–2 minutes,
titrated to abate bucking and relax ventilation while maintaining systolic BP greater than 90 mmHg. Maximum single dose is 5 mg.
(NEW '14)

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(2) If ventilatory difficulty is thought to be the result of pain response,
Ketamine: Dose 2 mg/kg IVP over 60 seconds. May repeat 1 mg/kg IVP every 10–15 minutes as necessary to a total of three doses as necessary. Additional doses require medical consultation.
OR
Opioid may be used per Pain Management protocol in addition to, or instead of, midazolam, ketamine, or etomidate. Titrate to abate bucking and relax ventilation while maintaining systolic BP greater than 90 mmHg.

(3) If significant resistance to ventilation continues, the Paramedic may administer
(a) Vecuronium 0.05 mg/kg IVP. Maximum single dose is 10 mg.
(NEW '14)

PRE-SEDATION MUST BE PROVIDED WHEN VECURONIUM IS ADMINISTERED TO A PATIENT WHO IS EITHER RESPONSIVE TO STIMULUS, OR WHO MAY BECOME RESPONSIVE TO STIMULUS DURING NEUROMUSCULAR BLOCKADE. USE OF VECURONIUM REQUIRES FUNCTIONING END TIDAL CO_2 MONITORING. VECURONIUM MAY ONLY BE USED IF CONTINUOUS, BREATH TO BREATH, $ETCO_2$ MONITORING CAN BE PROVIDED.

(b) Dose may be repeated in 4–6 minutes if necessary.
(c) **Maintenance of Amnesia**
Follow above dosing of either **etomidate** or **ketamine** with required repeat dosing every 10–15 minutes.

(4) Continue to monitor oxygen saturation and ventilate to desired end tidal carbon dioxide.

(5) Obtain on-line medical direction if further problems present.

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c) Preparation

(1) Pre-oxygenate with 90–100% oxygen.
(2) Monitor oxygen saturation with pulse oximetry and ECG.
(3) Ensure functioning IV and fluid therapy as per protocol.
(4) Evaluate for difficult airway.
(5) Perform focused RSI neurologic exam.
(6) Prepare equipment
  (a) Intubation kit: Recommended to carry both cuffed and uncuffed ET tubes for patients less than 8 years of age or 25 kg.
  (b) Bag-Valve-Mask (BVM) with manometer. (Manometer may be part of the BVM or separate.)
  (c) Suction
  (d) RSI kit
    (i) Prepare medications
    (ii) Alternative airway device, Cricothyroidotomy equipment
  (e) Capnograph

d) RSI Procedure

(1) Adequate sedation must be provided to prevent awareness during paralysis from neuromuscular blockade.

Etomidate, if available, will be the preferred agent for patients who are aware of their surroundings and do not have hypotension or possible hypovolemia.

Dose: Administer 0.3 mg/kg IVP over 30–60 seconds. May repeat 0.15 mg/kg IVP in 2–3 minutes if inadequate sedation.

Ketamine may be used if etomidate is unavailable, and may be preferred for patients who have hypotension or possible hypovolemia.

Dose: Administer 2 mg/kg IVP over 60 seconds.

Midazolam should be considered for patients with isolated head injury and elevated blood pressure, especially with possible seizure activity. Midazolam should not be used for patients with hypotension, and should be avoided with possible hypovolemia

Dose: Administer 0.05 mg/kg IVP over 1–2 minutes. Maximum single dose is 5 mg. **(NEW ’14)**

(a) Hold for BP less than 60 in neonates (patients less than 28 days old), less than 70 in infants (patients less than 1 year of age), less than [70 + (2 x years) = systolic BP] for patients greater than 1 year of age.

(2) For patients with head injury or suspected increased intracranial pressure, administer Lidocaine 1 mg/kg IVP over 1–2 minutes.
(3) If patient is less than 8 years of age (or if age unknown and using ET tube smaller than 6.0), pretreat patient with Atropine 0.02 mg/kg IVP (minimum dose of 0.1 mg).
(4) In-line cervical spine stabilization by second caregiver (in trauma setting)

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(5) Apply cricoid pressure (by third caregiver).
(6) Succinylcholine: Administer 1.5 mg/kg rapid IVP.
(7) Intubate trachea and verify ET placement.
(8) If inadequate relaxation after 2–3 minutes, repeat succinylcholine 0.5 mg/kg IVP.

e) Successful Endotracheal Tube Placement

(1) Release cricoid pressure and secure ET.
(2) Ventilate to end tidal carbon dioxide of 30–32 mmHg.
(3) If significant resistance to ventilation occurs as succinylcholine wears off (4–5 minutes), refer to Ventilatory Difficulty Secondary to Bucking Protocol.

f) Unsuccessful Endotracheal Tube Placement

(1) Maintain cricoid pressure and resume BVM ventilation for 30 seconds.
(2) If unable to ventilate, see "If Unable to Ventilate" below.
(3) Re-attempt oral ET intubation.
(4) If unsuccessful, resume BVM ventilation.

g) If Unable to Ventilate

If unable to ventilate, verify appropriate oropharyngeal airway placement and reposition BVM for optimal mask seal. If still unable to ventilate, refer to Needle Cricothyroidotomy protocol.

2. Ventilatory Difficulty Secondary to Bucking or Combativeness in Intubated Patients

a) Indication

Patients successfully intubated with an endotracheal tube, or needle cricothyroidotomy, for whom the ability to provide manual or mechanical ventilation is impaired secondary to bucking or combativeness

b) Contraindication

Unsecured airway

c) Procedure

(1) **Etomidate**, if available, will be the preferred agent for patients who are aware of their surroundings and do not have hypotension or possible hypovolemia.

Dose: Administer 0.3 mg/kg IVP over 30–60 seconds. May repeat 0.15 mg/kg IVP every 15 minutes to a total of three doses.

OR

Ketamine may be used if etomidate is unavailable, and may be preferred for patients who have hypotension or possible hypovolemia, or if ventilatory difficulty is thought to be the result of pain response.

Dose: Ketamine: 2 mg/kg IVP over 60 seconds. May repeat 1 mg/kg for IVP every 10–15 minutes to a total of three doses as necessary. Additional doses require medical consultation.

OR

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Midazolam should be considered for patients with isolated head injury and elevated blood pressure, especially with possible seizure activity. Midazolam should not be used for patients with hypotension, and should be avoided with possible hypovolemia.

Dose: Administer 0.05 mg/kg IVP over 1–2 minutes, titrated to abate bucking and relax ventilation while maintaining systolic BP: greater than 60 in neonates, 70 in infants, [70 + (2 x years) = systolic BP] for patients greater than 1 year of age. Maximum single dose is 5 mg. **(NEW '14)**

(2) If ventilatory difficulty is thought to be the result of pain response, **Ketamine**: Dose: 2 mg/kg IVP over 60 seconds. May repeat 1 mg/kg IVP every 10–15 minutes as necessary to a total of three doses as necessary. Additional doses require medical consultation.
OR
Opioid may be used per Pain Management protocol in addition to, or instead of, midazolam, ketamine, or etomidate. Titrate to abate bucking and relax ventilation while maintaining systolic BP greater than 60 in neonates, 70 in infants, [70 + (2 x years) = systolic BP] for patients greater than 1 year of age.

(3) If significant resistance to ventilation continues, the Paramedic may administer
   (a) Vecuronium 0.05 mg/kg IVP (May not be used for patients with needle cricothyroidotomy because of inability to monitor breath to breath $ETCO_2$). Maximum single dose is 10 mg. **(NEW '14)**

PRE-SEDATION MUST BE PROVIDED WHEN VECURONIUM IS ADMINISTERED TO A PATIENT WHO IS EITHER RESPONSIVE TO STIMULUS OR MAY BECOME RESPONSIVE TO STIMULUS DURING NEUROMUSCULAR BLOCKADE. VECURONIUM MAY ONLY BE USED IF CONTINUOUS, BREATH TO BREATH, $ETCO_2$ MONITORING CAN BE PROVIDED.

   (b) Dose may be repeated in 4–6 minutes if necessary.
   (c) **Maintenance of Amnesia**
      Follow above dosing of either **etomidate** or **ketamine** with required repeat dosing every 10–15 minutes.

(4) Continue to monitor oxygen saturation and ventilate to desired end tidal carbon dioxide.

(5) Obtain on-line medical direction (preferably from a pediatric Base Station), if further problems present.

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3. Protocol for Cricothyroidotomy Surgical (for 8 years old or greater) and Needle

a) Indications

(1) Inability to ventilate despite having tried BVM with oropharyngeal/ nasopharyngeal airway, ET placement, and alternative airway device (if not contraindicated)
(2) Inability to place ET in the setting of life-threatening upper airway hemorrhage
(3) Completely obstructing upper airway foreign body that cannot be removed via BLS maneuvers or Magill forceps with direct visualization

b) Preparation

(1) Prepare suction and cricothyroidotomy kit.
(2) Begin at sternal notch and locate cricoid cartilage.
(3) Palpate cricothyroid membrane anteriorly between cricoid cartilage and thyroid cartilage.
(4) Prepare skin with betadine or alcohol swabs.

c) Surgical Cricothyroidotomy <u>for 8 years old or greater</u>

(1) Stabilize thyroid cartilage and make vertical incision (1–1 1/2 inches) over cricothyroid membrane. Alternatively, a needle puncture dilator device may be utilized.
(2) Palpate cricothyroid membrane with gloved finger and carefully make transverse incision through membrane. Insert scalpel handle and rotate 90 degrees.
(3) Insert a 5 to 6.0 mm cuffed ET tube, using the natural curve of tube.
(4) Insert ET tube to just beyond cuff.
(5) Inflate cuff and ventilate patient.
(6) Monitor oxygen saturation and end tidal carbon dioxide level.
(7) Secure ET tube. (Do not cut or trim ET tube.)
(8) If significant resistance to ventilation develops, or if patient develops difficulty in tolerating successful cricothyroidotomy, refer to Ventilatory Difficulty Secondary to Bucking or Combativeness Protocol.

ONLY NEEDLE CRICOTHYROIDOTOMY SHOULD BE PERFORMED FOR PATIENTS LESS THAN AGE 8 WHO MAY REQUIRE CRICOTHYROIDOTOMY.

d) Needle Cricothyroidotomy

(1) Insert 12- or 14-gauge over-the-needle catheter through the cricothyroid membrane at a 45-degree angle toward the feet. Aspiration of air with a syringe indicates tracheal entry.
(2) Hold needle in place and advance catheter, then remove needle.
(3) Attach catheter hub to intermittent jet oxygen insufflator valve.
(4) Manually secure catheter at hub at all times to prevent kinking or displacement.

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2. KETAMINE (KENTANEST, KETASET, KETALAR)

a) Pharmacology
Hypnotic Analgesic

b) Pharmacokinetics
A rapid-acting nonbarbiturate hypnotic analgesic agent characterized by normal pharyngeal-laryngeal reflexes, normal or enhanced skeletal muscle tone, and possible cardiovascular and respiratory stimulation.

c) Indications
(1) Pre-sedation of responsive patients prior to administration of neuromuscular blocking agents
(2) Sedation of intubated patients with ventilatory difficulty secondary to bucking or combativeness

d) Contraindications
Known hypersensitivity to ketamine

e) Adverse Effects
(1) Although respiration is frequently stimulated, respiratory depression may occur with rapid IV administration. Laryngospasm has been known to occur.
(2) Although hypotension may occur, blood pressure and heart rate are frequently stimulated.
(3) Involuntary myoclonus that may mimic seizure activity
(4) Possible enhanced secretions
(5) Possible unpleasant dreams and delirium upon emergence from sedation

f) Precautions
(1) The likelihood of respiratory depression and undesired pressor effects is increased by too rapid IV administration.
(2) Myoclonic movements are possible and should not be confused for fasciculations due to a depolarizing neuromuscular blocking agent, seizure activity, or emergence from sedation.

g) Dosage
(1) Adult:
Administer 2 mg/kg IVP over 60 seconds.
May repeat 2 mg/kg IVP after succinylcholine effects resolve if patient is bucking or combative.
May repeat 1 mg/kg for IVP every 10–15 minutes to a total of three doses as necessary. Additional doses require medical consultation.

(2) Pediatric:
Administer 2 mg/kg IVP over 60 seconds.
May repeat 2 mg/kg IVP after succinylcholine effects resolve if patient is bucking or combative.
May repeat 1 mg/kg for IVP every 10–15 minutes to a total of three doses as necessary. Additional doses require medical consultation.

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3. MIDAZOLAM (VERSED)

a) Pharmacology
(1) Sedative
(2) Hypnotic

b) Pharmacokinetics
A short-acting benzodiazepine with strong hypnotic and amnestic properties

c) Indications
(1) Pre-sedation of responsive patients prior to administration of neuro-muscular blocking agents
(2) Sedation of intubated patients with ventilatory difficulty secondary to bucking or combativeness

d) Contraindications
(1) Hypotension
(2) Acute narrow-angle glaucoma
(3) Known hypersensitivity to midazolam

e) Adverse Effects
(1) Respiratory depression or apnea
(2) Hypotension
(3) Amnesia

f) Precautions
The effects of midazolam can be accentuated by CNS depressants such as opioids and alcohol

g) Dosage
(1) Adult:
Administer 0.05 mg/kg, slow IVP over 1–2 minutes, while maintaining systolic BP greater than 90 mmHg. Maximum single dose is 5 mg. **(NEW ’14)**
(2) Pediatric:
Administer 0.05 mg/kg slow IVP over 1–2 minutes, while maintaining systolic BP greater than 60 in neonates, 70 in infants,
[70 + (2 x years) = systolic BP] for patients greater than 1 year of age.
Maximum single dose is 5 mg. **(NEW ’14)**

ADMINISTER UP TO 0.05 MG/KG IV WHEN TREATING ENDOTRACHEAL TUBE BUCKING, STOPPING ONCE BUCKING HAS RESOLVED AND VENTILATION IS RELAXED.

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4. SUCCINYLCHOLINE (ANECTINE)

a) Pharmacology
Neuromuscular blocking agent (depolarizing)

b) Pharmacokinetics
Paralyzes skeletal muscles, including respiratory muscles, and removes gag reflex

c) Indications
To achieve paralysis to facilitate endotracheal intubation in patients as per Rapid Sequence Intubation Protocol

d) Contraindications
(1) Conditions that may cause hyperkalemia:
  (a) Burns greater than 24 hours old
  (b) Spinal cord injury greater than 24 hours old
  (c) Known neuromuscular disease (Guillain-Barré Syndrome, myasthenia gravis, amyotrophic lateral sclerosis, muscular dystrophy)
  (d) Chronic renal failure on hemodialysis or presence of hemodialysis access
(2) History of malignant hyperthermia
(3) Patients with known hypersensitivity to the drug

e) Adverse Effects
(1) Bradycardia
(2) Prolonged paralysis

f) Precautions
Paralysis occurs in 1–2 minutes and generally lasts 4–6 minutes.

g) Dosage/Route
(1) Adult:
Administer 1.5 mg/kg rapid IVP to a maximum single dose of 200 mg.
If relaxation is inadequate after 2–3 minutes, a repeat dose of 1 mg/kg rapid IVP may be given to a maximum single dose of 200 mg.
(NEW ’14)

(2) Pediatric:
Administer 1 mg/kg rapid IVP to a maximum dose of 200 mg.
(NEW ’14)
If relaxation is inadequate after 2–3 minutes, a repeat dose of 1 mg/kg rapid IVP may be given to a maximum dose of 200 mg.
(NEW ’14)

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5. VECURONIUM (NORCURON)

a) Pharmacology
Neuromuscular blocking agent (non-depolarizing)

b) Pharmacokinetics
(1) Skeletal muscle relaxant
(2) Paralyzes skeletal muscles, including respiratory muscles

c) Indications
For treatment of ventilatory difficulty secondary to bucking or combativeness in intubated patients

d) Contraindications
(1) Non-intubated patients
(2) Patients with known hypersensitivity to the drug

e) Adverse Effects
(1) Bradycardia
(2) Prolonged paralysis

f) Precautions
(1) Pre-sedation must be provided when vecuronium is administered to a patient who is either responsive to stimulus or who may become responsive to stimulus during neuromuscular blockade.
(2) Paralysis occurs within 2–4 minutes and generally lasts 25–40 minutes.

g) Dosage/Route
(1) Adult:
Administer 0.05 mg/kg IVP. Maximum single dose is 10 mg. **(NEW ’14)**
(2) Pediatric:
Administer 0.05 mg/kg IVP
(3) If bucking or combativeness persists 4–6 minutes after initial vecuronium administration, a second dose of 0.05 mg/kg IV may be administered for an adult or pediatric patient. Maximum single dose is 10 mg. **(NEW ’14)**

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VIDEO LARYNGOSCOPY PROCEDURE FORM

PATIENT PROFILE

Age:_____ Gender:_____ Height:_____ Weight:_____

INDICATION

__ Apnea or agonal respirations
__ Airway reflex compromised
__ Ventilatory effort compromised
__ Injury or illness involving the airway
__ Potential for airway or ventilatory compromise

ASSESSMENT

Mouth Opening: ___ Thyromental Distance: ___ Adam's Apple to Sternal Notch ___

PROCEDURE

Number of attempts: _____

Successful: ___ Yes ___ No

RSI procedure used? ___Yes ___ No

Confirmation of correct placement:

___ EtCO2 waveform
___ Breath sounds present
___ Chest rise
___ Other _____
___ Condensation in tube
___ Absence of epigastric sound
___ Sp02

For failed attempts: what prevented success?

___ Unable to visualize airway
___ Technical issue
___ Bleeding/Secretions
___ Other _____
___ Unable to place tube despite visualization
___ Dental injury
___ Esophageal intubation

Which device/procedure was used to rescue the failed airway?

___ EasyTube®
___ BVM Ventilation OPA/NPA
___ King LTS-D™
___Cricothyroidotomy

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N6. TRANSPORT TO QUEENSTOWN FREESTANDING MEDICAL FACILITY (NEW '14)

1. PURPOSE

The purpose of this protocol is to define the type of patient an EMS service may transport to a MIEMSS-designated freestanding medical facility.

2. INDICATIONS

A jurisdiction may allow transport of a patient meeting one or more of the following indications to a freestanding medical facility.

a) A stable priority 2, 3, or 4 patient as outlined in *The Maryland Medical Protocols for EMS Providers* who does not need a time-critical intervention.
b) A priority 1 patient with an unsecured airway or *in extremis* that requires stabilization beyond the capability of the EMS crew (e.g., cardiac or respiratory arrest).

3. CONTRAINDICATIONS

Except as provided in #2, the following patients shall not be transported to a freestanding medical facility.

a) Any patient meeting the criteria for transport to a trauma center or specialty referral center as defined in *The Maryland Medical Protocols for EMS Providers.*
b) A pregnant patient complaining of abdominal pain or a patient who is in active labor.
c) Any patient in need of time-critical intervention that can be provided only at a hospital-based Emergency Department.

4. PROCEDURE

The EMS provider shall consult with the Queenstown freestanding medical facility (also designated as a Base Station) prior to arrival on all priority 1 and 2 transports as provided in #2 and, otherwise, when unclear of appropriate destination. The freestanding medical facility shall direct the provider to the appropriate destination.

5. SPECIAL CONSIDERATIONS

None

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July 2014: Naloxone is required for Public Safety EMT and remains Optional Supplemental Program for EMR and BLS Commercial Services (initially implemented September '13).

P1. INTRANASAL NALOXONE FOR BLS PROVIDERS **(NEW '14)** (EMR AND COMMERCIAL EMT)

1. PURPOSE

When encountered with a patient exhibiting respiratory depression with a confirmed or suspected opioid/narcotic overdose, an EMT and EMR may administer intranasal naloxone provided the following criteria have been met.

2. INDICATIONS

A patient suffering respiratory depression caused by a known or suspected opioid/narcotic overdose.

3. CONTRAINDICATIONS

a) None clinically significant in the adult patient.
b) Patients < 28 days old.

4. PROCEDURE

a) Ensure that naloxone is indicated and the medication is not expired.
b) Inject volume of air into vial that is equal to desired volume of medication to be removed using a needle (blunt tip preferred) and 2 mL or 3 mL syringe.
c) Pull back on syringe plunger to remove desired volume of medication.
d) Use gradations on syringe to measure volume of medication to nearest 0.10 mL.
e) Safely remove needle from syringe and dispose of in sharps container.
f) Attach mucosal atomization device to luer-lock of syringe.
g) Place tip of mucosal atomization device in the nostril and briskly push the plunger forward, administering half of the total volume of medication (up to a MAXIMUM of 1 mL per nostril).
h) Repeat previous step in the other nostril, delivering the remaining half of the medication.
i) Monitor patient for response and continue supportive care.

ALERT

IF EMS OPERATIONAL PROGRAM USES A DIFFERENT FORMULARY/CONCENTRATION OR MEDICATION PACKAGING (E.G., PRE-FILLED SYRINGE OR AMPULE), PROVIDERS MUST RECEIVE PROPER TRAINING REGARDING SAFETY, PREPARATION, AND CONVERSION TO INTRANASAL ATOMIZATION OF THE MEDICATION.

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ALTERED MENTAL STATUS: UNRESPONSIVE PERSON

1. Initiate General Patient Care

2. Presentation
   Patients may exhibit confusion, focal motor sensory deficit, unusual behavior, unresponsiveness to verbal or painful stimulus.

ALCOHOL CAN CAUSE ALTERED MENTAL STATUS BUT IS NOT COMMONLY A CAUSE OF TOTAL UNRESPONSIVENESS TO PAIN.

3. Treatment
   a) Obtain pulse oximetry, if available.
   b) Administer glucose paste (10–15 grams) between the gum and cheek. Consider single additional dose of glucose paste if not improved after 10 minutes.
   c) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, administer naloxone.**
      2 mg intranasal atomizer (divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).

Consider additional doses of naloxone.

   d) Obtain pulse oximetry, if available.
   e) Administer glucose paste (10–15 grams) between the gum and cheek. Consider single additional dose of glucose paste if not improved after 10 minutes.
   f) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, administer naloxone.**
      28 days to 8 years: Administer naloxone 0.8–1 mg intranasal atomizer (divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).
      8 years to adult: Administer naloxone 2 mg intranasal atomizer (divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).

Consider additional doses of naloxone.

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OVERDOSE/POISONING: ABSORPTION

1. Initiate General Patient Care.

2. Presentation
   Patient may exhibit any of the following: nausea, vomiting, diarrhea, altered mental status, abdominal pain, rapid heart rate, dyspnea, seizures, arrhythmias, sweating, tearing, defecation, constricted/dilated pupils, rash, or burns to skin.

3. Treatment
   a) Remove patient from the toxic environment by appropriately trained personnel using proper level PPE.
   b) Identify agent and mechanism of exposure.
   c) Decontaminate as appropriate.
   d) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, administer naloxone.**
   2 mg intranasal atomizer (divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).

Consider additional doses of naloxone.

   e) Remove patient from the toxic environment by appropriately trained personnel using proper level PPE.
   f) Identify agent and mechanism of exposure.
   g) Decontaminate as appropriate.
   h) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, administer naloxone.**

   28 days to 8 years: Administer naloxone 0.8–1 mg intranasal atomizer (divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).

   8 years to adult: Administer naloxone 2 mg intranasal atomizer (divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).

Consider additional doses of naloxone.

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OVERDOSE/POISONING: INGESTION

1. Initiate General Patient Care.

2. Presentation
   Patient may exhibit any of the following: nausea, vomiting, diarrhea, altered mental status, abdominal pain, rapid heart rate, dyspnea, seizures, arrhythmias, chemical burns around or inside the mouth, or abnormal breath odors.

3. Treatment
   a) Identify substance and amount ingested.
   b) Consider activated charcoal **without** Sorbitol 1 gram/kg PO.
   c) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, administer naloxone.**
   2 mg intranasal atomizer (divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).

   Consider additional doses of naloxone.

ALERT

DO NOT GIVE ANYTHING BY MOUTH WITHOUT MEDICAL CONSULTATION! POISON INFORMATION CENTER RECOMMENDATIONS SHOULD BE SOLICITED IN CONJUNCTION WITH MEDICAL CONSULTATION, BUT MEDICATION ORDERS CAN ONLY BE ACCEPTED FROM AN APPROVED BASE STATION.

   d) Identify substance and amount ingested.
   e) Consider activated charcoal **without** Sorbitol 1 gram/kg PO.
   f) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, administer naloxone.**

   28 days to 8 years: Administer naloxone 0.8–1 mg intranasal atomizer (divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).

   8 years to adult: Administer naloxone 2 mg intranasal atomizer (divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).

   Consider additional doses of naloxone.

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OVERDOSE/POISONING: INJECTION

1. Initiate General Patient Care.
2. Presentation
   Patient may exhibit any of the following: local pain, puncture wounds, reddening skin, local edema, numbness, tingling, nausea, vomiting, diarrhea, altered mental status, seizures, muscle twitching, hypoperfusion, metallic or rubber taste.

3. Treatment
   a) Identify markings (insects, bites, needlestick, etc.).
   b) Do not apply distal and/or proximal constricting bands for a poisonous snakebite to an extremity. Do remove any jewelry on the affected extremity.
   c) Immobilize extremity.
   d) Apply cool packs for relief of pain only.

IF THE SNAKE IS **DEAD**, AND IF IT IS PRACTICAL, DELIVER IT WITH ITS HEAD INTACT. DEAD SNAKES STILL BITE!

   e) Assist patient experiencing moderate to severe allergic reaction symptoms or mild symptoms with a history of life-threatening allergic reaction with the patient's prescribed or EMS service's Epinephrine auto-injector or patient's prescribed fast-acting bronchodilator.
   f) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, administer naloxone.**
   2 mg intranasal atomizer (divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).

   Consider additional doses of naloxone.
   g) Identify markings (insects, bites, needlestick, etc.).
   h) Do not apply distal and/or proximal constricting bands for a poisonous snakebite to an extremity. Do remove any jewelry on the affected extremity.

   i) Assist patient experiencing moderate to severe allergic reaction symptoms or mild symptoms with a history of life-threatening allergic reaction with the patient's prescribed or EMS service's Epinephrine auto-injector or patient's prescribed fast-acting bronchodilator.
   j) **If patient has respiratory depression with decreased LOC, constricted pupils, and provider strongly suspects an opioid/narcotic overdose, administer naloxone.**

   28 days to 8 years: Administer naloxone 0.8–1 mg intranasal atomizer (divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).

   8 years to adult: Administer naloxone 2 mg intranasal atomizer (divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril).

   Consider additional doses of naloxone.

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July 2014: Naloxone is required for Public Safety EMT and remains Optional Supplemental Program for EMR and BLS Commercial Services (initially implemented September '13).

Naloxone (Narcan)

1. **Pharmacology**
   Reverses all effects due to opioid (morphine-like) agents. This drug will reverse the respiratory depression and all central and peripheral nervous system effects.
2. **Pharmacokinetics**
   a) Onset of action is within a few minutes with intranasal (IN) administration.
   b) Patients responding to naloxone may require additional doses and transportation to the hospital since most opioids/narcotics last longer than naloxone.
   c) Has no effect in the absence of opioid/narcotic.
3. **Indications**
   To reverse respiratory depression induced by opioid/narcotic agent.
4. **Contraindications**
   Patients under 28 days of age.
5. **Adverse Effects**
   Opioid withdrawal
6. **Precautions**
   a) Naloxone may induce opiate withdrawal in patients who are physically dependent on opioids.
   b) Certain drugs may require much higher doses of naloxone for reversal than are currently used.
   c) Should be administered and titrated so respiratory efforts return, but not intended to restore full consciousness.
   d) Intranasal naloxone must be administered via nasal atomizer.
   e) Naloxone has a duration of action of 40 minutes; the effect of the opioid/narcotic may last longer than naloxone and patients should be encouraged to be transported.

ALERT

PROVIDERS MUST CONTACT A BASE STATION PHYSICIAN FOR PATIENTS WISHING TO REFUSE TRANSPORT AFTER BLS ADMINISTRATION OF NALOXONE.

7. **Dosage**
   a) Adult: Administer 2 mg IN. Divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril.
   b) Pediatric:
      (1) **Child 8 years of age to adult:**
      Administer 2 mg IN. Divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril.
      (2) **Child 28 days to less than 8 years of age:**
      Administer 0.8–1 mg IN; Divide administration of the dose equally between the nostrils to a maximum of 1 mL per nostril.
      (3) **Child less than 28 days:**
      Not indicated

Repeat as necessary to maintain respiratory activity.

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Q3. AIRWAY MANAGEMENT: BI-LEVEL POSITIVE AIRWAY PRESSURE (BiPAP)

1. INDICATIONS

a) Interfacility transfer of a patient with established/chronic respiratory distress or failure due to cardiogenic pulmonary edema or COPD/Asthma in which the patient demonstrates spontaneous respirations and a patent, self-maintained airway
b) No increase in pressure settings or oxygen requirement of the current BiPAP device within 48 hours of the transfer. Otherwise, the patient shall be transferred by a SCT team.
c) Patients who are 15 years of age or older

2. CONTRAINDICATIONS

a) Circumstances in which endotracheal intubation or a surgical airway is preferred or necessary to secure a patent airway
b) Circumstances in which the patient is being transferred for treatment of acute respiratory distress

3. PROCEDURE

a) Assure patent airway.
b) Perform appropriate patient assessment, including obtaining vital signs, pulse oximeter (SpO_2) reading, and cardiac rhythm.
c) Apply BiPAP device per manufacturer's instructions.
d) Program the device to match the settings of the BiPAP machine that the patient is currently using.
e) Assess the patient after placing the BiPAP device selected for transfer. If respiratory distress occurs, support the patient with a BVM until facility personnel reestablish therapy with original BiPAP device.
f) Continuously reassess the patient.
g) Monitor continuous pulse oximetry.
h) Monitor continuous $ETCO_2$ with nasal prongs.
i) Follow the appropriate set of standing orders for continued treatment.
j) Confirm the availability of a BiPAP device at the destination facility.

ALERT

FOR CIRCUMSTANCES IN WHICH THE PATIENT DOES NOT IMPROVE OR CONTINUES TO DETERIORATE DESPITE BIPAP AND/OR MEDICATIVE THERAPY, TERMINATE BIPAP ADMINISTRATION AND PERFORM BVM VENTILATION AND ENDOTRACHEAL INTUBATION IF NECESSARY.

BIPAP MAY BE CONSIDERED FOR NON-CARDIOGENIC PULMONARY EDEMA.

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Q4. BLS GLUCOMETER PROTOCOL (NEW '14)

(EMT ONLY)

a) PURPOSE

The glucometer should be utilized by BLS providers to determine the blood glucose level in an attempt to determine the etiology of the patient's condition and provide treatment tailored to the needs of the patient before ALS intervention can be made.

b) INDICATIONS

The glucometer should be utilized for any patient presenting with an altered mental status, seizure activity, or unresponsiveness.

c) TREATMENT

Utilize the glucometer to determine the patient's blood glucose level. If the glucose level is less than 70 mg/dl:

(1) ADULT: Administer glucose paste (10–15 grams) between the gum and cheek. Consider single additional dose of glucose paste if not improved after 10 minutes.

(2) PEDIATRIC: Administer glucose paste (10–15 grams) between the gum and cheek; this may be accomplished through several small administrations. Consider single additional dose of glucose paste if not improved after 10 minutes.

IF THE GLUCOSE LEVEL IS GREATER THAN 100 MG/DL, DO NOT ADMINISTER GLUCOSE PASTE.

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Q5. HIGH PERFORMANCE CPR (HPCPR) (NEW '14)

a) PURPOSE

To improve the overall survival rate of sudden out-of-hospital cardiac arrest patients within the State of Maryland. High Performance Cardio Pulmonary Resuscitation (HPCPR) employed with Code Resource Management (CRM) is a proven concept based on a team approach that ensures effective and efficient use of EMS resources. This systematic change in treatment and management of cardiac arrest patients is based on research and practices being used in many other high performance EMS systems across the country.

b) INDICATIONS

Patients in Cardiac Arrest who have reached their 8th birthday.

c) CONTRAINDICATIONS

Patients meeting the criteria for PDOA protocol
Patients who have not reached their 8th birthday.

d) POTENTIAL ADVERSE EFFECTS/COMPLICATIONS

None

e) PRECAUTIONS

None

f) PROCEDURE FOR HIGH PERFORMANCE CPR

The first provider at the patient's side will assess and initiate compressions.

(1) Effective Compressions - Manual chest compressions should be initiated immediately upon identification of cardiac arrest, as long as the scene is safe. When compressions are done manually, compressors should be rotated **every 2 minutes** in order to maintain high-quality compressions. Ideally, one compressor is on each side of the patient's chest; one person compressing the chest and the other person ready to start. Chest compressions will be performed at a depth of at least two inches allowing for complete recoil of the chest after each compression. Compressions should be accomplished with equal time given for the down and up motion, and achieve a rate of 100–120/min.

(2) Continuous Compressions - Chest compressions will be performed at a rate of 100 to 120 per minute and will NOT be interrupted during the two-minute cycle for any reason. Other treatments such as ventilations, IV access, or intubation attempts will be done while compressions are ongoing. After completion of a two-minute cycle, a phase to assess pulses and/or defibrillate will be limited to < 10 seconds.

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(3) Defibrillation – placement of the defibrillator pads will not interrupt chest compressions

(a) Automatic External Defibrillation

The AED will be powered on as soon as the cardiac arrest is confirmed. Do not interrupt chest compressions to remove clothing or place defibrillation pads. If the AED charges after analyzing, chest compressions will be performed while the device charges, then the patient will be "cleared" and defibrillated. Compressors will hover over the patient with hands ready during defibrillation so compressions can start immediately after a shock. Another two-minute cycle of compressions will be immediately performed. Pulse checks will not occur after a shock, but only after the AED prompts "no shock advised." If no pulse is palpated, or if unsure, immediately perform another two minutes of CPR.

(b) Cardiac Monitor/Defibrillator

When a manual defibrillator is in use, it will be charged to the appropriate energy level as the end of the compression cycle nears (approximately 1 minute and 45 seconds into a two-minute cycle). At the end of the two-minute cycle, the patient will be cleared, the rhythm will then be interpreted rapidly, and the patient will either be defibrillated or the defibrillator energy charge will be cancelled. This sequence must be performed within 10 seconds. During this sequence, the compressors will hover over the patient with hands ready. If a shock is delivered, the compressor will immediately resume CPR. Rhythm interpretation will not occur after a shock, but only after the two-minute cycle of CPR is performed. If a shock is not indicated, check for a pulse. If patient remains pulseless, immediately resume HPCPR

(4) Ventilations

Ventilations will be performed without stopping chest compressions. One ventilation will be given every 10th compression during recoil (upstroke). Once an advanced airway is in place, ventilations will be asynchronous with compressions (1 ventilation every 6 to 8 seconds). High performance, continuous compressions remain the priority. Ensure ventilations are adequate with BVM attached to 100% oxygen. Providers will not interrupt compressions to obtain an advanced airway.

(5) Advanced Life Support - ALS providers will address defibrillation, IV/IO access, medication administration, and advanced airway placement, as indicated within these protocols; however, the placement of an advanced airway is no longer a focus of cardiac arrest management and will not interrupt chest compressions.

Nasal capnography may be utilized to optimize CPR performance and evaluation of ROSC with use of bag-valve-mask ventilation.

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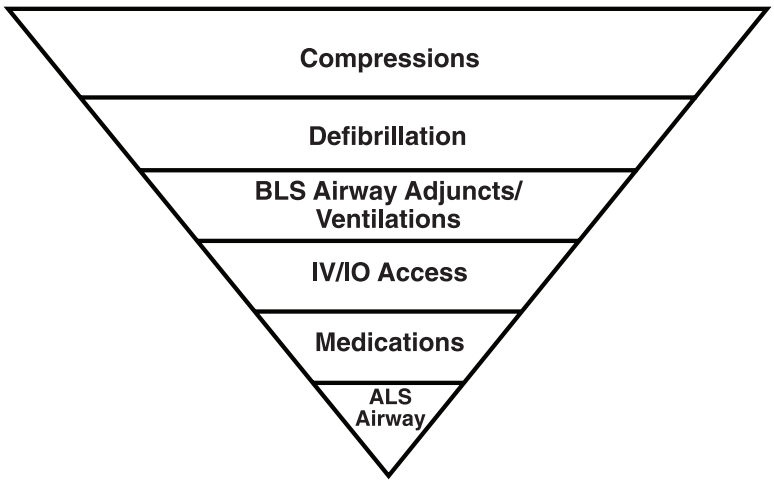
(6) Return of Spontaneous Circulation (ROSC) - Implement the hypothermic resuscitation protocol as indicated and transport to the closest cardiac interventional center. Following stabilization, post-ROSC, obtain a 12-lead ECG.

g) PROCEDURE: CODE RESOURCE MANAGEMENT (CRM)
Crews should coordinate their duties keeping the call priorities in mind. Intervention priorities are (in order of highest to lowest):



The number of personnel on a given incident and the qualifications of those personnel can vary; however, the priorities remain the same. Appropriate crew roles are outlined below:

2 provider crew:
Provider 1 – Chest compressions
Provider 2 – Ventilate, attach/operate AED/defibrillator, assume crew leader responsibilities (providers rotate positions every two minutes)
Roles remain the same even if providers are ALS equipped

3 provider crew:
Provider 1 – Chest compressions
Provider 2 – Ventilate
Provider 3 – Crew Leader, attach/operate AED/defibrillator
(Providers 1 and 2 rotate every two minutes)
Roles remain the same even if providers are ALS equipped

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4 provider crew:
Provider 1 – Chest compressions
Provider 2 – Ventilate
Provider 3 – Attach/operate AED/defibrillator
Provider 4 – Crew leader
(Providers 1, 2, and 3 rotate every two minutes)

*** Once first two roles have begun treatment, ALS providers will establish IV/IO and administer medications*

Greater than 4 providers - Utilize the same initial assignments as the four provider crew. The crew leader will assign additional roles such as informing the family of patient status, gathering patient information, and documenting the medical interventions performed on the call. If resources allow, rotate additional providers to do chest compressions to achieve optimal performance.

Crew leader - The crew leader will keep time, record interventions performed during the arrest, give compression feedback and ensure rotation of personnel doing compressions every two minutes. Verbal announcements of time should occur at one minute, 30 seconds before reassessment, 15 seconds left, and countdown to reassessment at 10 seconds.

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