

TEMS, Inc.



Regional Medical Protocols

Tenth Edition, January 2010



Tidewater Emergency Medical Services Council, Inc.

Tidewater EMS Emergency Department/Hospital Radio Network
HEAR (Hospital Emergency Administrative Radio) VHF and COR (Coronary Observation Radio) Systems
 Effective 24 March 2008

HOSPITAL	HEAR CTCSS (Hz)	HEAR DIAL & DTMF	CALL SIGN	TELEPHONE	FAX	COR (MED) CHANNELS
Bon Secours DePaul Medical Center	94.8	172-4922	KXA301	(757) 889-5111	(757) 889-5987	3
Bon Secours Harbour View	114.8	172-4322		(757) 673-6064	(757) 638-1020	1
Bon Secours Maryview Medical Center	173.8	172-4822	KVC500	(757) 398-2425	(757) 398-2162	7
Chesapeake Regional Medical Center	85.4	172-4622	KXV695	(757) 312-6200	(757) 312-6181	2
Children's Hospital of the King's Daughters	79.7	172-4222	WPKC842	(757) 668-9247	(757) 668-7753	N/A
Portsmouth Naval Medical Center	136.5	170-9822		(757) 953-1365	(757) 953-5527	8
Sentara Bayside Hospital	74.4	172-5622	WPGZ470	(757) 363-6579	(757) 363-6175	7
Sentara Bellehardour Hospital	127.3	N/A		(757) 983-0040	(757) 983-0024	4
Sentara Leigh Memorial Hospital	131.8	172-5022	KJR400	(757) 261-6804	(757) 233-1006	6
Sentara Norfolk General Hospital	100	172-4022	KNGA812	(757) 388-3296	(757) 388-3239	5
Sentara Obici Hospital	110.8	172-4722	KYO241	(757) 934-4815	(757) 934-4265	6
Sentara Princess Anne Health Complex	82.5	N/A		(757) 507-0025	(757) 507-0026	4
Sentara Virginia Beach General Hospital	141.3	172-4522	WNCF438	(757) 395-8079	(757) 395-6382	1
Shore Memorial Hospital	123	182-4822	KNDG602	(757) 414-8777	(757) 414-8618	5
Southampton Memorial Hospital	192.8	172-5922	KXX440	(757) 569-6150	(757) 516-1058	N/A

HEAR System	
Ambulance to Hospital Frequency:	155.400 MHz
Hospital to Hospital Frequency:	155.280 MHz

COR System	Base (MHz)	Mobile (MHz)
Med 1	463.000	468.000
Med 2	463.025	468.025
Med 3	463.050	468.050
Med 4	463.075	468.075
Med 5	463.100	468.100
Med 6	463.125	468.125
Med 7	463.150	468.150
Med 8	463.175	468.175
Med 9 (Call 1)	462.950	467.950
Med 10 (Call 2)	462.975	467.975

HEAR All Call Tidewater Region: 1-3336
HEAR All Call TEMS & PEMS Regions: 1-3333

TIDEWATER EMERGENCY MEDICAL SERVICES COUNCIL, INC.

REGIONAL MEDICAL PROTOCOLS, 10th EDITION (2010)

TABLE OF CONTENTS

ACKNOWLEDGMENTS

PHILOSOPHY of the PROTOCOLS

PERFORMANCE INDICATORS

LEGEND OF SYMBOLS

PREHOSPITAL SKILLS DELINIATION

TEMS DRUG BOX MEDICATION INVENTORY/LIST

ADULT REFERENCE PROTOCOLS

- Burn Chart
- Dopamine and Epinephrine Mix Chart
- Glasgow Coma Score
- Pain Scale (Wong-Baker Faces)
- Trauma - Transport Criteria
- Triage - S.T.A.R.T Flowchart

ADULT CARDIAC PROTOCOLS

- Emergency Cardiac Care
- Asystole & Pulseless Electrical Activity
- Bradycardia
- Tachycardia – Narrow Complex
- Tachycardia – Wide Complex
- Ventricular Fibrillation & Pulseless Ventricular Tachycardia
- ROSC – Return of Spontaneous Circulation
- Termination of Resuscitation

ADULT GENERAL PROTOCOLS

- Airway / Oxygenation / Ventilation
- Allergic / Anaphylactic Reactions
- Altered Mental Status
- Behavioral Emergencies
- Bites / Stings
- Breathing Difficulty
- Burns
- Cerebral Vascular Accident
- Chemical Exposure (Poisoning)
- Chest Pain / AMI
- Combative Patient
- Dialysis – Renal Failure
- Diving Medical Disorders
- Drowning / Near Drowning (Submersion Injuries)
- Electrical / Lightning Injuries
- Extraordinary Measures
- Hyper – Hypoglycemia
- Hyperthermia
- Hypothermia
- Nausea Vomiting
- OB GYN – Delivery
- OB GYN – Pregnancy Eclampsia
- Pain Management (Non-Cardiac)
- Rehabilitation

RSI – Rapid Sequence Induction – Page 1 RSI
RSI – Rapid Sequence Induction – Page 2 Post – Intubation Care
Seizures
Shock
Spinal Immobilization
Toxicological Emergencies (Overdose)
Trauma
Trauma – Crush Syndrome
Vascular Access

PEDIATRIC REFERENCE PROTOCOLS

Age / Weight / ETT Size Chart
APGAR
Burn Chart
Glasgow Coma Score
Pain Scale (Wong-Baker FACES)
Trauma - Transport Criteria
Triage - Jump S.T.A.R.T. Flowchart

PEDIATRIC CARDIAC PROTOCOLS

Pediatric Emergency Cardiac Care
Pediatric Asystole & Pulseless Electrical Activity
Pediatric Bradycardia
Pediatric Tachycardia – Narrow Complex
Pediatric Tachycardia – Wide Complex
Pediatric Ventricular Fibrillation & Pulseless Ventricular Tachycardia

PEDIATRIC GENERAL PROTOCOLS

Airway / Oxygenation / Ventilation
Allergic / Anaphylactic Reactions
Altered Mental Status
Breathing Difficulty
Burns
Care of the Newly Born
Hyper – Hypoglycemia
Nausea Vomiting
Pain Management (Non-Cardiac)
Seizures

ACKNOWLEDGMENTS

This manual was prepared by the Protocol Workgroup of the Medical Operations Committee, with technical assistance, guidance and approval from the Operational Medical Directors Committee of the Tidewater Emergency Medical Services Council, Inc.

The participants are listed below:

Debbie Brennaman, RN, NREMT-P	Virginia Beach EMS
Gary Burke, Chair NREMT-P	Chesapeake Fire Department
David Coulling, EMT-I	Tidewater EMS Council
Paul Gorski, NREMT-P	Chesapeake Fire Department
Theresa Guins, MD	Children's Hospital of The King's Daughters
David Long, NREMT-P	Chesapeake Fire Department
Christine MacKinnon, NREMT-P	Virginia Beach EMS
Stewart W. Martin, MD, FACEP	Virginia Beach EMS/Virginia Beach Fire
Cheryl Masters, NREMT-P	Norfolk Fire-Rescue
Tom Mingin, NREMT-P	Norfolk Fire-Rescue
Todd Nolen, NREMT-P	Chesapeake Fire Department
Jay Porter, NREMT-P	Tidewater EMS Council
Lewis H. Siegel, MD	Chesapeake Fire Department
Thomas Watson, NREMT-P	Chesapeake Fire Department
GW Willman, NREMT-P	Nansmond-Suffolk Vol. Rescue Squad

The Tidewater Emergency Medical Services Council, Inc
Operational Medical Directors

Stewart W. Martin, Chair	Paul Holota
Manuel Armada	Jamil Khan
Michael Bono	Barry J. Knapp
Susan Boyle	Phil Leavy
Donald Byars	Timothy Lee
P. David Cash	Rebecca Lipscomb
William Ray Dennis	Bruce Lo
Christopher Foley	Joel Michael
Mike Genco	Chris Register
Lori A. Givonetti	Lewis H. Siegel
Theresa Guins	Steve Skrip
Richard Hatch	Carl Wentzel

The revision of these protocols could not have been accomplished without the invaluable assistance and input from the following individuals:

James Chandler	Executive Director	Tidewater EMS Council, Inc.
Rusty Hundley	Chair	Medical Operations Committee

We would also like to thank all the physicians, nurses, and EMS providers who unselfishly gave their time and expertise in reviewing and commenting on the protocols during the revision process. Without their input we would not be using the most well organized, progressive, and complete set of prehospital medical protocols in the Commonwealth of Virginia today. Many thanks are extended to each and every person who assisted in this project.

Thank you all very much from the TEMS staff.

Mission

To promote high-quality, consistent pre-hospital care in the Tidewater region

Philosophy of Protocols

Medical protocols in the pre-hospital setting are established to ensure safe, efficient and effective interventions during the pre-hospital phase of patient care. Provider safety, coupled with the patient's best interests, should be the final determinants for all decisions. The goals of the Tidewater EMS Regional Medical Protocols are:

- To establish minimum expectations for appropriate patient care
- To relieve pain and suffering, improve patient outcomes and do no harm
- To ensure a structure of accountability for operational medical directors, facilities, agencies and providers

These protocols represent a consolidation of national, state and local sources of information, and will serve as the ideal standard of care for all pre-hospital patient care providers within the Tidewater EMS region, as directed by the Operational Medical Directors committee. ***In situations where an approved medical protocol conflicts with other recognized care standards, the care provider shall adhere to the Tidewater EMS Regional Medical Protocol.*** It is acknowledged that there are situations in which deviation from the protocols may be needed in the interest of patient care. In those situations, when possible, EMS personnel should obtain permission from on-line medical direction to deviate from established protocols. All instances of protocol deviation must be thoroughly documented in the patient care report, noting the deviation which occurred and the specific circumstances and reasoning that led to that deviation.

It is expected that providers will use the protocols in conjunction with each other as necessary. Providers should use the Airway/Oxygenation/Ventilation protocol on each patient, and may implement two or more protocols simultaneously as the patient condition warrants.

Expectations

Ongoing review of protocols is required to remain current with interventions known to be effective in pre-hospital care and should be the responsibility of each provider of the Tidewater EMS region. ***It is expected that each provider maintain a functional knowledge of these protocols***, and apply them appropriately during all patient interactions, so the continuum of care may be effectively achieved.

The protocols should be used to direct appropriate treatments, both through standing orders and with online medical control, to the patients we encounter. At each patient encounter it is expected that an initial assessment will be completed, regardless of whether the patient is transported. The initial assessment must be completed before proceeding to the appropriate protocol. The initial assessment should include, at a minimum:

Scene size-up: Is the scene safe? Do you have enough resources? If not, how can you get them? What is the mechanism of injury / nature of illness?

Airway: Is the airway open? If not, correct any airway problems immediately. If you cannot correct an airway problem, transport the patient immediately to the closest hospital.

Breathing: Is the patient breathing? Is it adequate? If respirations are absent or inadequate, ensure an open airway and assist the patient's ventilations as needed.

Circulation: Assess the patient's pulse and note the skin color and temperature. The initial blood pressure reading should be obtained manually, by auscultation (preferred) or palpation.

Disability: Assess the patient's level of consciousness and mental status. A simple AVPU exam and/or Glasgow Coma Scale should be completed and documented on each patient as appropriate.

BLS providers are expected to request ALS assistance if the patient has any deficiencies in the initial assessment. Additional ALS providers may be needed for critically sick or injured patients.

All providers are expected to reassess patients throughout the EMS encounter. Stable patients should be reassessed at least every 15 minutes, and unstable patients should be reassessed at least every 5 minutes. Vital signs should be obtained and documented on every patient, including those who ultimately refuse transportation.

These protocols are not intended to prolong the treatment of patients on scene or delay transport. These protocols exist to provide prompt, quality pre-hospital medicine to the sick and injured patients in our community.

It is expected that providers will make early contact with the receiving facility to advise them about incoming patients. Waiting to contact the facility until you are just a few minutes out provides little benefit to patient care. Providers should persist in their attempts to contact medical control, using radio, cellular phone or relay through dispatch as needed. In situations where providers are truly unable to make contact with medical control, providers may implement life saving procedures as standing orders not to exceed their scope of practice. The provider must notify their agency and thoroughly document the incident, utilizing the patient care report and the TEMS regional quality improvement form.

Authority

TEMS regional medical protocols are developed by consensus of participating agencies, under Virginia Emergency Medical Services Regulations 12VAC 31-2730 (Performance standards). Each agency OMD must approve the protocols and has the authority to limit or expand implementation of protocols within their agency. Virginia Emergency Medical Services Regulations 12VAC5-31-1890 (responsibilities of operational medical directors) grants authority to establish and enforce protocols, policies and procedures. All prehospital medical care is carried out with the express written authority of the Operational Medical Directors and under their supervision. Virginia Emergency Medical Services Regulations 12VAC 5-31-1040 (Operational medical director authorization to practice) states “EMS personnel may only provide emergency medical care while acting under authority of the operational medical director for the EMS agency for which they are affiliated and within the scope of the EMS agency license.”

Performance Indicators

Under the direction of the Commonwealth of Virginia Office of Emergency Medical Services, the Tidewater EMS Council, Inc. (TEMS) has been directed to enhance regional quality improvement monitoring capabilities. TEMS has elected to start this process with the addition of performance indicators to the regional protocols.

Performance indicators are a means of following identified performance benchmarks through the quality improvement process. TEMS is enabling all agencies in the region to participate in quality or performance improvement management through a regional database and statistical package which will monitor how well the region is delivering prehospital medical care.

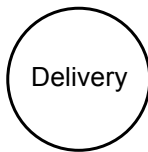
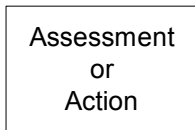
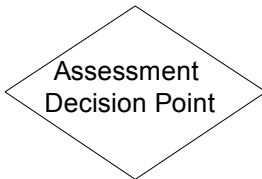
Many of the performance indicators have been developed to increase documentation reliability throughout the region. The performance indicators should be used as a basic template for patient care documentation related to specific protocols. Compliance with the performance indicators will enable the regional council and local EMS/Fire agencies to obtain a valid snapshot of how any given agency is performing with regards to specific protocols. Over time, these snapshots can be used by the regional council and local EMS/Fire agencies to improve the consistency and quality of prehospital patient care.

We encourage all providers in the TEMS region to actively use the performance indicators. Thank you for assisting the TEMS Regional Council and your local EMS/Fire agency as we strive to provide the highest level of quality prehospital medical care.

Legend of Symbols



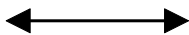
A teddy bear in the upper corner of the protocol Indicates a corresponding pediatric protocol.



[B]
[E]
I
P

B = EMT-Basic
E = EMT-Enhanced
I = EMT-Intermediate
P = EMT-Paramedic
MD = Physician

NOTE: Bracketed letter indicates PHYSICIAN ORDER needed.
Non-Bracketed letter indicates STANDING ORDER.



A double arrow indicates a decision point which can occur independently of other actions in the protocol or at the same.

Prehospital Skills Delineation

The following skills are authorized for technicians functioning in the Tidewater EMS region *with the approval* of their agency's Operational Medical Director and in accordance with the Regional Medical Protocols.

Skill	EMT – B	Enhanced	Intermediate	Paramedic
Airway				
L.M.A. or Combi-tube	O	X	X	X
King Airway	O	X	X	X
Endotracheal Intubation <ul style="list-style-type: none"> • Oral • Nasal 			X X	X X
Magills use		X	X	X
CPAP/BiPAP		O	X	X
Cricothyrotomy (Needle/Kit)				X
Chest Decompression (Needle/Kit)			X	X
Gastric Decompression (OG/NG) <ul style="list-style-type: none"> Adult with advanced airway Pediatric with BLS/ALS airway 		X O	X X	X X
Circulatory Support				
Peripheral IV		X	X	X
Intraosseous Cannulation			X	X
External Jugular Cannulation			X	X
Glucometry	X	X	X	X
Defibrillation <ul style="list-style-type: none"> • Automatic • Manual 	X	X	X X	X X
Synchronized Cardioversion			X	X
Pacing			X	X
Medications (Skill Only)				
Assisted Medications	X	X	X	X
Inhaled Meds - Nebulizer		X	X	X
SL Meds		X	X	X
SQ Meds		X	X	X
PO Meds		X	X	X
Transdermal Meds		X	X	X
IM Meds		X	X	X
Rectal Meds			X	X

X – Procedure is approved
O - Optional Skill, Agency OMD Approval Needed

Tidewater Emergency Medical Services Council, Inc.
Drug Box Inventory (January 2010)

<u>Quantity</u>	<u>Medication</u>		<u>Form</u>	<u>Concentration</u>	<u>Unit Dose</u>
	<u>Generic name</u>	<u>Trade name</u>			
3	Adenosine	Adenocard	Vial	3 mg / mL	6 mg
3	Amiodarone	Cordarone	Ampule	150 mg / 3 mL	150 mg
3	Albuterol	N/A	Solution	0.83 mg / mL	2.5 mg
3	Atropine	N/A	Preloaded	0.1 mg / mL	1 mg
1	Calcium Chloride	N/A	Vial	100 mg / mL	1 gm
2	Dextrose 50%	N/A	Preloaded	500 mg / mL	25 gm
2	Diazepam	Valium	Preloaded	5 mg / mL	10 mg
2	Diphenhydramine	Benadryl	Tubex	50 mg / mL	50 mg
1	Dopamine	N/A	Vial	40 mg / mL	400 mg
3	Epinephrine 1:1000	Adrenalin	Vial	1 mg / mL	1 mg
8	Epinephrine 1:10000	Adrenalin	Preloaded	0.1 mg / mL	1 mg
2	Furosemide	Lasix	Preloaded	10 mg / mL	100 mg
1	Glucagon	GlucaGen	Preloaded	1 mg / mL	Single Dose
3	Haloperidol	Haldol	Vial	5 mg / mL	5 mg
1	Ipratropium bromide	Atrovent	Solution	0.25 mg / mL	0.5 mg
4	Lidocaine	Xylocaine	Preloaded	20 mg / mL	100 mg
2	Lorazepam	Ativan	Vial	2 mg / mL	2 mg
4	Magnesium Sulfate	N/A	Vial	500 mg / mL	1 gm
1	Methylprednisolone	Solu-Medrol	Vial	125 mg	Single Dose
5	Midazolam	Versed	Vial	2 mg / 2 mL	10 mg
2	Morphine Sulfate	N/A	Preloaded	10 mg / mL	10 mg
4	Naloxone	Narcan	Preloaded	1 mg / mL	2 mg
25	Nitroglycerin	Nitrostat	Tablets	0.4 mg	0.4 mg
1	Nitro Paste (single use)	N/A	Kit	2%	Single Dose
2	Ondansetron	Zofran	Vial	4 mg / vial	4 mg
2	Sodium Bicarbonate	N/A	Preloaded	1 mEq / mL	50 mEq
1	Thiamine HCL	N/A	Ampule	100 mg / mL	100 mg
1	Tubex Holder	N/A	N/A	N/A	N/A
1	Medex INT Needle Port	N/A	N/A	N/A	N/A

Tidewater EMS Region Medication List 2010

EMT-B MEDICATIONS Patient Assisted Medications (PAM) and Ambulance Stock Medications		
Medication	Protocol/Use	Dose
Epinephrine Auto-injector (Epi-pen)	Allergic/Anaphylactic reaction	Adult 0.3 mg; Infant/Child 0.15 mg; Patient Assisted Medication (PAM) <i>Physician order required.</i>
Glucose (Oral)	Hyper/Hypoglycemia	15 grams between cheek & gum or under tongue. Patient must be able to maintain own airway. Ambulance stock medication. <i>Standing orders.</i>
Metered-Dose Inhaler (MDI)	Breathing Difficulty	Medication and dose as prescribed by patient's physician. Patient Assisted Medication (PAM). <i>Physician order required.</i>
Nitroglycerin	Chest Pain/AMI	0.4 mg SL Repeat every 3-5 minutes up to 3. Patient Assisted Medication (PAM) or Ambulance stock medication (IV Box) <i>Physician order required.</i>
Aspirin	Chest Pain/AMI	324 mg PO Patient Assisted Medication (PAM) or Ambulance stock medication (IV Box) <i>Physician order required.</i>

Tidewater EMS Region Medication List 2010

Medication	Protocol/Use	Dose
Adenosine <i>Adenocard</i>	Adult Tachycardia - Narrow Complex	6 mg rapid IV push; Follow with rapid 10 ml NS bolus If not resolved in 1-2 minutes repeat at 12 mg rapid IV push
	Pediatric Tachycardia - Narrow Complex	0.1 mg/kg rapid IV; Follow with rapid 10 ml NS bolus. Repeat at 0.2 mg/kg
Albuterol <i>Proventil</i> <i>Ventolin</i>	Allergic/Anaphylactic Reaction	2.5 mg HHN
	Trauma - Crush Syndrome	For Asystole, PEA, VF/Pulseless V-TACH: 2.5 mg HHN/BVM
		For peaked T wave, wide QRS, lengthening QT, loss of P wave: continuous albuterol via HHN/BVM
	Breathing Difficulty Pediatric Breathing Difficulty	2.5 mg HHN. If no improvement or in severe distress, albuterol 2.5 mg / atrovent 0.5mg
Pediatric Allergic/Anaphylaxis	2.5 mg HHN if wheezing or diminished lung sounds	
Amiodarone <i>Cordarone</i>	Adult V-Fib / Pulseless V-Tach	300 mg IV repeat in 3-5 minutes at 150 mg IV
	Hypothermia V-Fib / Pulseless V-Tach	300 mg IV. Repeat dose physician order.
	ROSC (Return of Spontaneous Circulation)	150 mg in 100 ml NS over 10 minutes Contraindicated if current rhythm is bradycardia or heart block
	Pediatric Tachycardia - Wide Complex	5 mg/kg IV given over 20 minutes.
	Pediatric V-Fib / Pulseless V-Tach	5 mg/kg IV. Repeat 5mg/kg if necessary.
Aspirin	Chest Pain/AMI	324 mg PO EMT-B: Patient Assisted Medication (PAM) or Ambulance stock medication (IV Box) <u>Physician order required.</u>
	Diving Medical Disorders	648 mg PO
Ativan <i>Lorazepam</i>	Adult Combative Patient	2 mg IM
	OB GYN – Pregnancy Eclampsia Adult Seizures Pediatric Seizures	Adult: 2 mg IV/IM/IO Pediatric: 0.1 mg/kg up to 2 mg IV/IM/IO

Tidewater EMS Region Medication List 2010

Atropine	Adult Asystole Adult PEA (if heart rate <60)	1 mg IV repeat every 3-5 minutes Maximum dose 0.04 mg/kg or 3 mg
	Adult Bradycardia	0.5 mg IV repeat every 3-5 minutes Maximum dose 0.04 mg/kg or 3 mg.
	Pediatric Bradycardia	0.02 mg/kg IV. Minimum dose 0.1 mg. Maximum single dose child 0.5 mg, adolescent 1.0 mg. May be repeated once. Not for neonates.
	RSI Adult	Bradycardia 1 mg
	RSI (Pediatric)	Bradycardia 0.02 mg/kg Minimum dose 0.1 mg
Atrovent <i>Ipratropium Bromide</i>	Breathing Difficulty Pediatric Breathing Difficulty	0.5 mg HHN (administered with albuterol) Atrovent only allowed once under standing order.
Calcium Chloride	Crush Syndrome	1 gm IV over 3 minutes
	Dialysis – Renal Failure	Cardiac Arrest – 1 gram over 3 minutes Post Dialysis with peaked T-waves with widened QRS – 0.5-1. gram in 100 ml NS over 10 minutes
Dextrose 50%	Hyper/Hypoglycemia	<i>Adult</i> (glucometry < 60) 25 gm IV
	Crush Syndrome	25 gm IV administered with insulin 10 units IV
	Pediatric Hyper / Hypoglycemia	<i>Child > 2 years old:</i> (glucometry < 60) D50W 1-4 2/kg IV or IO <i>Child < 2 years old:</i> (glucometry <60) D25W 2-4 ml/kg IV or IO <i>Newborn (0-30 days; glucometry < 40):</i> D10W 2-4 ml/kg IV or IO Rectal if no response to glucagon: 0.5 g/kg with lubricated syringe
<i>Diazepam</i> Valium	Post-intubation sedation Sedation for pacing	Adult: 5 mg in incremental doses slow IV
	Cholenergics	5-10 mg IV/IO/IM
	Pregnancy (if seizures persist) Seizures Sedation for cardioversion	Adult: Up to 5 mg slow IV (over 2 minutes)
	Pediatric AOV (post intubation sedation)	2 mg
	Pediatric Seizures	0.1 mg/kg IV (Max 4 mg) If no IV: Rectal 0.4 mg/kg with lubricated syringe
<i>Diphenhydramine</i> Benadryl	Allergic/Anaphylactic Reaction	50 mg IV or IM <i>Peds: 1 mg/kg</i>
<i>Dopamine</i> <i>Intropin</i>	Adult Bradycardia Shock / Non-Traumatic ROSC (Return of Spontaneous Circulation) Asphyxiants, Cholenergics, Corrosives, Hydrocarbons, Irritant gases	2-10 mcg/kg/min titrate to BP 90-100 systolic; BP 100-110 in the head injured patient

Tidewater EMS Region Medication List 2010

Epinephrine 1:1000	Allergic/Anaphylactic Reaction	0.01 mg/kg IM/SQ maximum dose 0.5 mg
	Pediatric Asystole / PEA Pediatric Bradycardia Pediatric V-Fib / Pulseless V-Tach	0.1 mg/kg (1:1000 0.1 ml/kg added to 2-5 ml NS maximum of 10 ml fluid) ETT Repeat in 3-5 minutes as necessary
	Pediatric Allergic / Anaphylaxis	0.01 mg/kg IM/SQ maximum dose 0.5 mg
Epinephrine 1:10,000	Adult Asystole Adult V-fib / Pulseless V-Tach Adult PEA	1 mg IV/IO push repeat every 3-5 minutes
	Hypothermia V-fib/ Pulseless V-Tach	1 mg IV/IO Additional doses physician order
	Pediatric Asystole / PEA Pediatric Bradycardia Pediatric V-fib / Pulseless V-Tach	0.01 mg/kg (1:10,000 0.1 ml/kg) IV/IO Repeat in 3-5 minutes as necessary
Nebulized Epinephrine	Pediatric Breathing Difficulty	2 ml 1:1000 in 2 ml NS in HHN
Epinephrine Drip	Adult Bradycardia	2-10 mcg/min Add 1 mg 1:1000 to 250ml D5W (or 0.4 mg to 100ml bag) for concentration 4 mcg/ml
Etomidate <i>Amidate</i>	Rapid Sequence Induction	0.3 mg/kg IV push over 30-60 seconds
Glucagon	Hyper/Hypoglycemia Adult and Pediatric	1 mg IM
Glucose (Oral)	Hyper/Hypoglycemia	1 tube between cheek & gum or under tongue
Haldol <i>Haloperidol</i>	Combative Patient	5 mg IM Repeat dose of 10 mg IM if indicated
Lasix <i>Furosemide</i>	Breathing Difficulty	40 mg IV
	Pediatric Breathing Difficulty	2 mg/kg IV
Lidocaine <i>Xylocaine</i>	Adult V-fib / Pulseless V-Tach	If unable to obtain IV access: 3mg/kg ETT If no response to amiodarone: 1- 1.5 mg/kg IV
	Pediatric V-fib / Pulseless V-Tach	If vascular attempts fail, 2 mg/kg ETT. May repeat same dose if necessary.
	RSI	Head Injury- 1 mg/kg up to 100mgs IV/IO
	Vascular Access (EZ IO insertion)	Adult 20-40 mg Pediatric 0.5 mg/kg
Magnesium Sulfate	Adult V-fib / Pulseless V-Tach	For Torsades or refractory VF 2 g in 10ml NS over 5 minutes, IV push
	Breathing Difficulty	2 g in 100 ml NS IV over 5 minutes
	Pregnancy (Pre-eclampsia)	2 g in 100 ml NS IV over 5 minutes
	Pediatric Breathing Difficulty	50 mg/kg (maximum dose 2 grams) in 250 ml NS IV/IO drip over 10-15 minutes

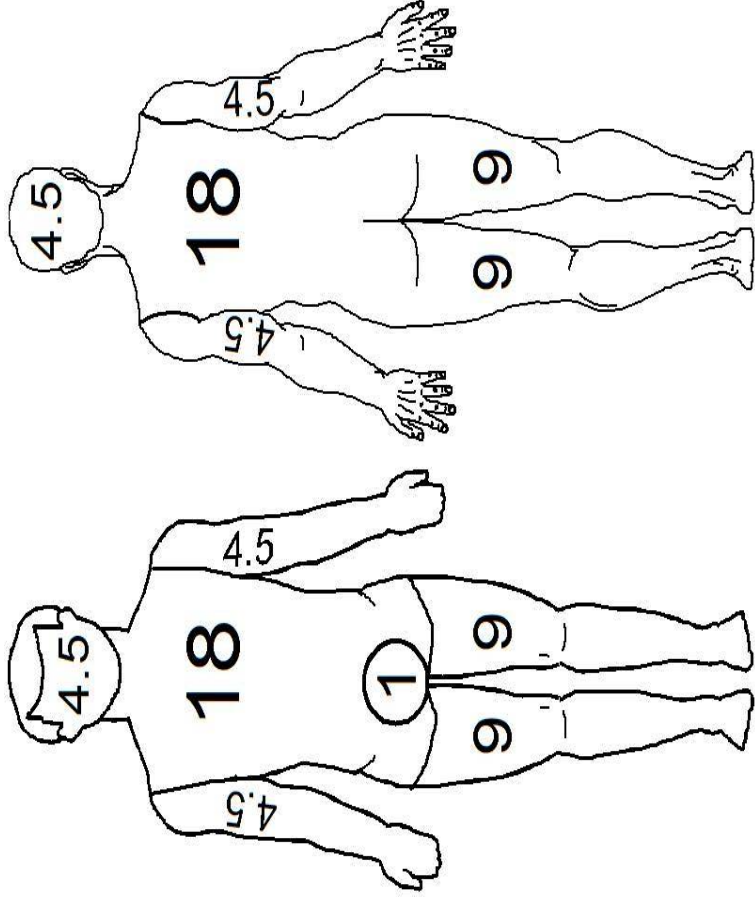
Tidewater EMS Region Medication List 2010

Morphine	Burns Chest Pain/AMI Breathing Difficulty Pain Management Trauma Trauma - Crush Syndrome	2 mg slow IV (Do not exceed 10 mg Total) Pediatric dose: 0.1 mg/kg maximum of 5 mg; may be repeated once after 10 minutes
Naloxone <i>Narcan</i>	Toxicological Emergencies (overdose)	Adult: 2-4 mg IV or IM. May repeat once Pediatric: 0.1 mg/kg up to 2 mg IV or IM
Nitroglycerin	Chest Pain/AMI Breathing Difficulty	0.4 mg SL repeat every 3-5 minutes up to 3 Additional doses physician order. EMT-B: Patient Assisted Medication (PAM) or Ambulance stock medication (IV Box) <i>Physician order required.</i>
Nitroglycerin Paste	Chest Pain/AMI Breathing Difficulty	1 inch transdermal covered with bioclusive dressing
Norcuron <i>Vecuronium</i>	Rapid Sequence Induction	10 mg IV push to maintain paralysis
Sodium Bicarbonate	Adult Asystole Adult PEA Pediatric Asystole/PEA	1 mEq/kg IV Consider for pre-existing acidosis, tricyclic overdose, return of circulation after long arrest, as determined by medical control
	Dialysis/ Renal Patient	Cardiac Arrest: 1 mEq/kg IV/IO Post Dialysis with peaked T-waves with widened QRS 1 mEq/kg IV/IO
	Toxicological Emergencies	50 mEq IV/IO over 2 minutes
	Trauma - Crush Syndrome	1-2 mEq/kg IV
Solu-Medrol <i>Methylprednisolone</i>	Allergic/Anaphylactic Reaction Breathing Difficulty	125 mg IV
	Pediatric Breathing Difficulty	<u>Solumedrol should not be routinely administered to pediatric patients; however it may be considered for extended transports (physician order only)</u> 2 mg/kg IV
Succinylcholine <i>Anectine</i>	Rapid Sequence Induction	Adult 1.5 mg/kg IV up to 150 mg Child 1-2 mg/kg Infant 1-2 mg/kg
Thiamine	Hyper/Hypoglycemia	100 mg IV if patient abuses ETOH/is malnourished
Versed <i>Midazolam</i>	Post-intubation sedation Sedation for cardioversion/pacing Seizures	2 mg slow IV
	Pediatric Seizures Pediatric Tachycardia-Narrow Complex	0.1 mg/kg IV/IO/IO (Max 2 mg) 6 mo.- to 5 yrs.- 0.05- 1.0 mg/kg (max single dose 2 mg) 6 to 12 years- 0.025- 0.05 mg/kg (max single dose 2 mg) 12 to 16 years- 1.0 to 2.0 mg (max single dose 2 mg)
Zofran <i>Ondansetron</i>	Nausea/Vomiting Pain Management - Trauma	4 mg IV/IM, may repeat dose one time.

Notes

Adult References

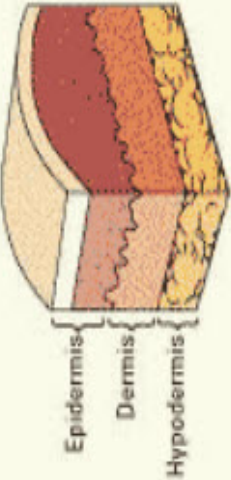
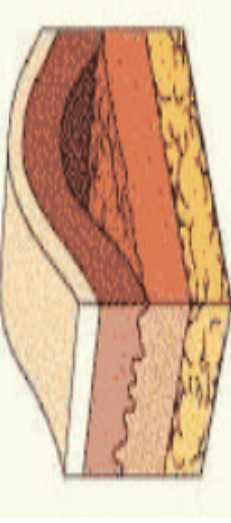
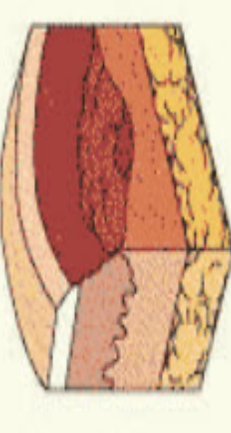
Adult Burn Chart/Reference



Palm Method:

The palm method is a tool whereby the size of the patients palm is used as an indicator for specific percentage of TBSA. The surface area of a patients palm equals approximately 1% of TBSA.

This method is particularly useful where the burn has an irregular shape or has a scattered distribution.

First-Degree	Second-Degree	Third-Degree
 <p>Epidermis Dermis Hypodermis</p>		
<p>Damage to the outer layer of skin {epidermis}, causing pain, redness and swelling.</p>	<p>Damage to both outer skin and underlying tissue layers {epidermis and dermis} causing pain, redness, swelling and blistering.</p>	<p>Damage extends deeper into tissues {epidermis, dermis and hypodermis} causing extensive tissue destruction. The skin may feel numb.</p>

Dopamine Drip Dosage Chart
For 1600 mcg/ml concentrations

	2	3	4	5	6	7	8	9	10
	mcg/kg/min	mcg/kg/min	mcg/kg/min	mcg/kg/min	mcg/kg/min	mcg/kg/min	mcg/kg/min	mcg/kg/min	mcg/kg/min
Small Adult (100 lbs)	3	5	7	8	10	12	14	15	17
Medium Adult (150 lbs)	5	8	10	13	15	18	20	23	26
Large Adult (200 lbs)	7	10	14	17	20	24	27	31	34
Extra-Large Adult (250 lbs)	9	13	17	21	26	30	34	38	43
Obese Adult (more than 300 lbs)	10	15	20	26	31	36	41	46	51

Add 400mg of Dopamine to 250ml Normal Saline (NS) or use premixed infusion bag for a concentration of 1600mcg/ml.

Estimating body weight is difficult. These doses represent initial starting doses based on estimated weight.
The infusion should be titrated to achieve a systolic blood pressure between 90-100 mmHg.

Epinephrine Drip Dosage Chart
For 4 mcg/ml

	2	3	4	5	6	7	8	9	10
	mcg/kg/min	mcg/kg/min	mcg/kg/min	mcg/kg/min	mcg/kg/min	mcg/kg/min	mcg/kg/min	mcg/kg/min	mcg/kg/min
Drops per 60 seconds	30	45	60	75	90	105	120	135	150
Drops per 15 seconds	8	11	15	19	23	26	30	34	38

To prepare an epinephrine drip solution:
Add 1 mg of Epinephrine to a 250ml bag of Normal Saline (NS)
1 mg of Epinephrine is:
1ml of Epinephrine 1:1000 or 10ml of Epinephrine 1:10,000

Thoroughly mix the bag by inverting it twice. Inspect for any leaks or particulate.

Glasgow Coma Score

The GCS is scored between 3 and 15, 3 being the worst, and 15 the best. It is composed of three parameters: Best Eye Response, Best Verbal Response, and Best Motor Response, as given below:

Glasgow Coma Score Eye Opening (E) Verbal Response (V) Motor Response (M)

Best Eye Response. (E)	Best Verbal Response. (V)	Best Motor Response. (M)
<ol style="list-style-type: none"> 1. No eye opening. 2. Eye opening to pain. 3. Eye opening to verbal command. 4. Eyes open spontaneously. 	<ol style="list-style-type: none"> 1. No verbal response 2. Incomprehensible sounds. 3. Inappropriate words. 4. Confused 5. Orientated 	<ol style="list-style-type: none"> 1. No motor response. 2. Extension to pain. 3. Flexion to pain. 4. Withdrawal from pain. 5. Localizing pain. 6. Obeys Commands.
<p>Note that the phrase 'GCS of 11' is essentially meaningless, and it is important to break the figure down into its components, such as Total = E+V+M Displayed as = E3V3M5 = GCS 11.</p>		
<p>A Coma Score of 13 or higher correlates with a mild brain injury, 9 to 12 is a moderate injury and 8 or less a severe brain injury.</p>		

The Glasgow Coma Scale is the most widely used scoring system used in quantifying level of consciousness following traumatic brain injury. It is used primarily because it is simple, has a relatively high degree of interobserver reliability and because it correlates well with outcome following severe brain injury.

It is easy to use, particularly if a form is used with a table similar to the one above. One determines the best eye opening response, the best verbal response, and the best motor response. The score represents the sum of the numeric scores of each of the categories. There are limitations to its use. If the patient has an endotracheal tube in place, they cannot talk. For this reason, many prefer to document the score by its individual components; so a patient with a Glasgow Coma Score of 15 would be documented as follows: E4 V5 M6. An intubated patient would be scored as E4 V-intubated M6. Of these individual factors, the best motor response is probably the most significant.

Other factors which alter the patient's level of consciousness interfere with the scale's ability to accurately reflect the severity of a traumatic brain injury. So, shock, hypoxemia, drug use, alcohol intoxication, metabolic disturbances may alter the GCS independently of the brain injury. Obviously, a patient with a spinal cord injury will make the motor scale invalid, and severe orbital trauma may make eye opening impossible to assess. The GCS also has limited utility in children, particularly those less than 36 months. In spite of these limitations, it is quite useful and is far and away the most widely used scoring system used today to assess patients with traumatic brain injury.

Pain Rating Scale

In assessing any patient complaining of pain, utilize the **Wong-Baker FACES Pain Rating Scale** as shown below. This is extremely useful in the pediatric population, as well as any patient that there may be a communication barrier.

Wong-Baker FACES Pain Rating Scale



Brief Instructions: Point to each face using the words to describe pain intensity. Ask the patient to choose face that best describes own pain and document the appropriate number on your PPCR.

Original instructions: Explain to the person that each face is for a person who feels happy because he has no pain (hurt) or sad because he has some or a lot of pain. **Face 0-1** is very happy because he doesn't hurt at all. **Face 2-3** hurts just a little bit. **Face 4-5** hurts a little more. **Face 6-7** hurts even more. **Face 8-9** hurts a whole lot. **Face 10** hurts more than you can imagine, although you don't have to be crying to feel this bad. Ask the person to choose which face that best describes how he is feeling.

From Hockenberry MJ, Wilson D, Winkelstein ML: Wong's Essentials of Pediatric Nursing, ed. 7, St. Louis, 2005, p. 1259. Used with permission. Copyright Mosby.

Trauma - Transport Criteria -Adult

Prehospital Transport Criteria Of Adult Trauma Patients To A Designated Trauma Center

Respiratory

- Requires constant observation for patency
- Assisted ventilations
- Partial or complete airway obstruction
- Unable to establish or maintain airway *
- Intubation

Central Nervous System

- Unconscious or unresponsive
- Any suspicious change in mental status, does not follow commands
- Unable to move extremities

Hemodynamics *

- Signs and Symptoms of Shock (Diaphoretic, Hypotension, Tachycardia)
- Uncontrolled bleeding
- Extremities with uncontrolled bleeding, loss of pulse,
- Major amputation above elbow or knee

Penetrating Injury

- Head
- Neck
- Chest
- Abdomen

Blunt Trauma

- Significant signs of bruising and / or tenderness to Head, Neck, Chest or Abdomen

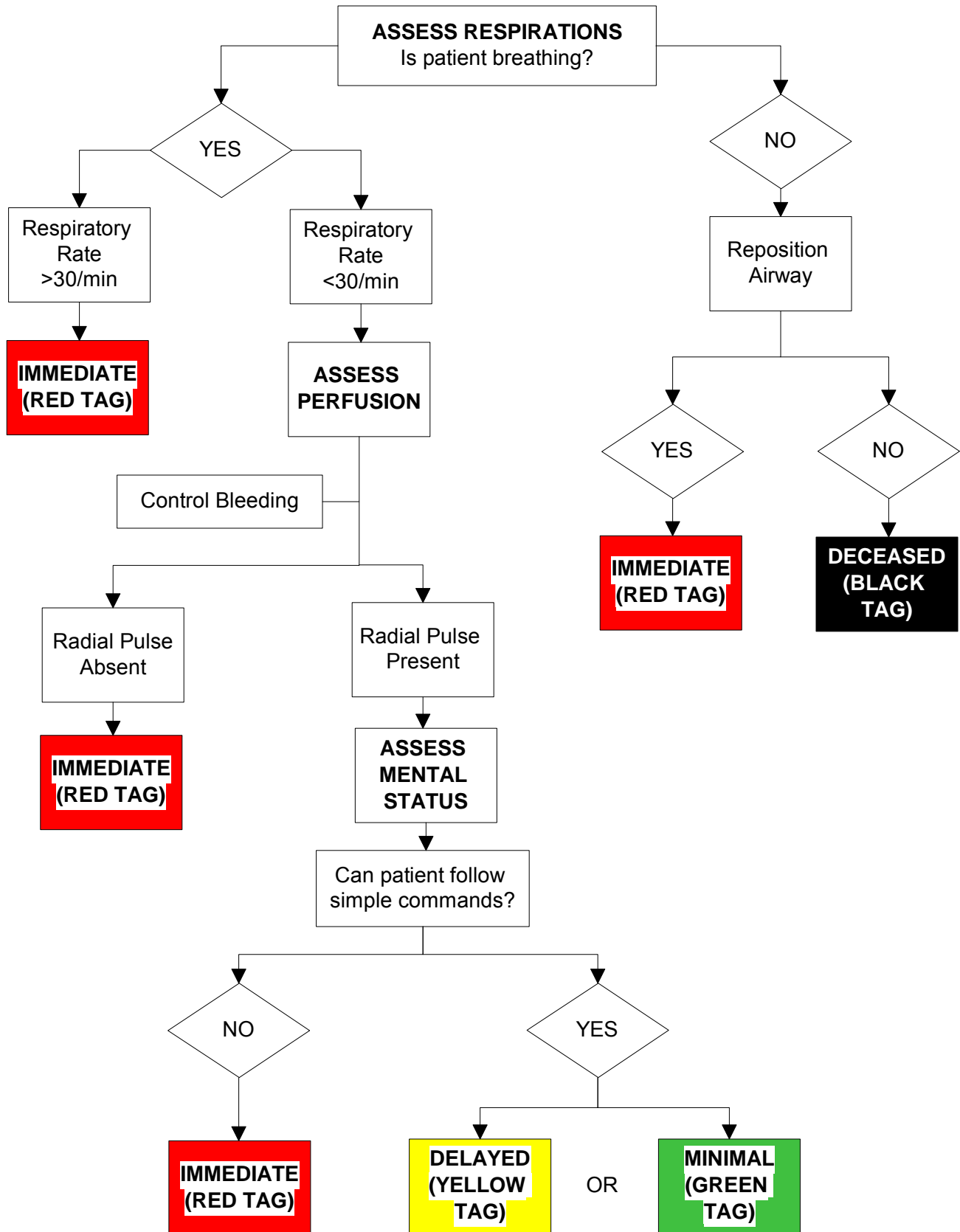
Special Considerations

- Critical Burns 25% BSA or 20% TBSA
 - Circumferential burns
 - Burns to face, hands, feet, groin
- Evidence of pelvic instability
- Crush injury to torso or upper thighs

* Consider transporting patients with an uncontrollable and compromised airway to the closest hospital emergency department.

** Patients with CPR initiated at the scene should be transported to the closest hospital emergency department.

S.T.A.R.T. - Simple Triage and Rapid Treatment
Remember RPM: Respirations, Perfusion, Mental Status



Notes

Adult Cardiac Protocols

Adult Emergency Cardiac Care

Objectives:

- Early recognition and appropriate intervention of pulseless / apneic adult patients

General Information:

- During CPR
 - a) Push hard and fast (100/min)
 - b) Ensure full chest recoil
 - c) Minimize interruptions in compressions
 - d) One cycle of CPR: 30 compressions then 2 breaths; 5 cycles – 2 min
 - e) Rotate compressors every 2 min
 - f) Avoid hyperventilation
 - g) Check rhythm every 2 minutes
 - h) After an advanced airway is placed, rescuers no longer deliver “cycles” of CPR
 - i) Give continuous chest compressions without pauses for breaths
 - ii) Give 8-10 breaths/min
- AED use
 - a) Follow the voice prompts of your agency or department’s AED
 - b) Contraindications to AED
 - i) Rigor/Livor Mortis
 - ii) No Code/DNR situations
 - c) If patient successfully regains a pulse, maintain airway and ventilations as necessary and continue to monitor a pulse

*If patient becomes pulseless during transport, start CPR, STOP VEHICLE, analyze



Warnings/Alerts:

- CPR may still be required in the presence of an organized cardiac rhythm
- It is the responsibility of the provider delivering the shock to ensure that no one is touching the patient prior to the shock delivery
- Failure to stop a moving vehicle during AED analysis may lead to inappropriate defibrillation
- The following conditions need to be addressed prior to defibrillation:
 - a) Patient in standing water
 - b) Patients with transdermal medications

OMD Notes:

-

References:

Brady 10th Edition 2005 page 392
AHA BLS Healthcare Provider

Performance Indicators:

Onset of Arrest Time

Time of Initial Defibrillation

Patient Packaging

Initial Rhythm

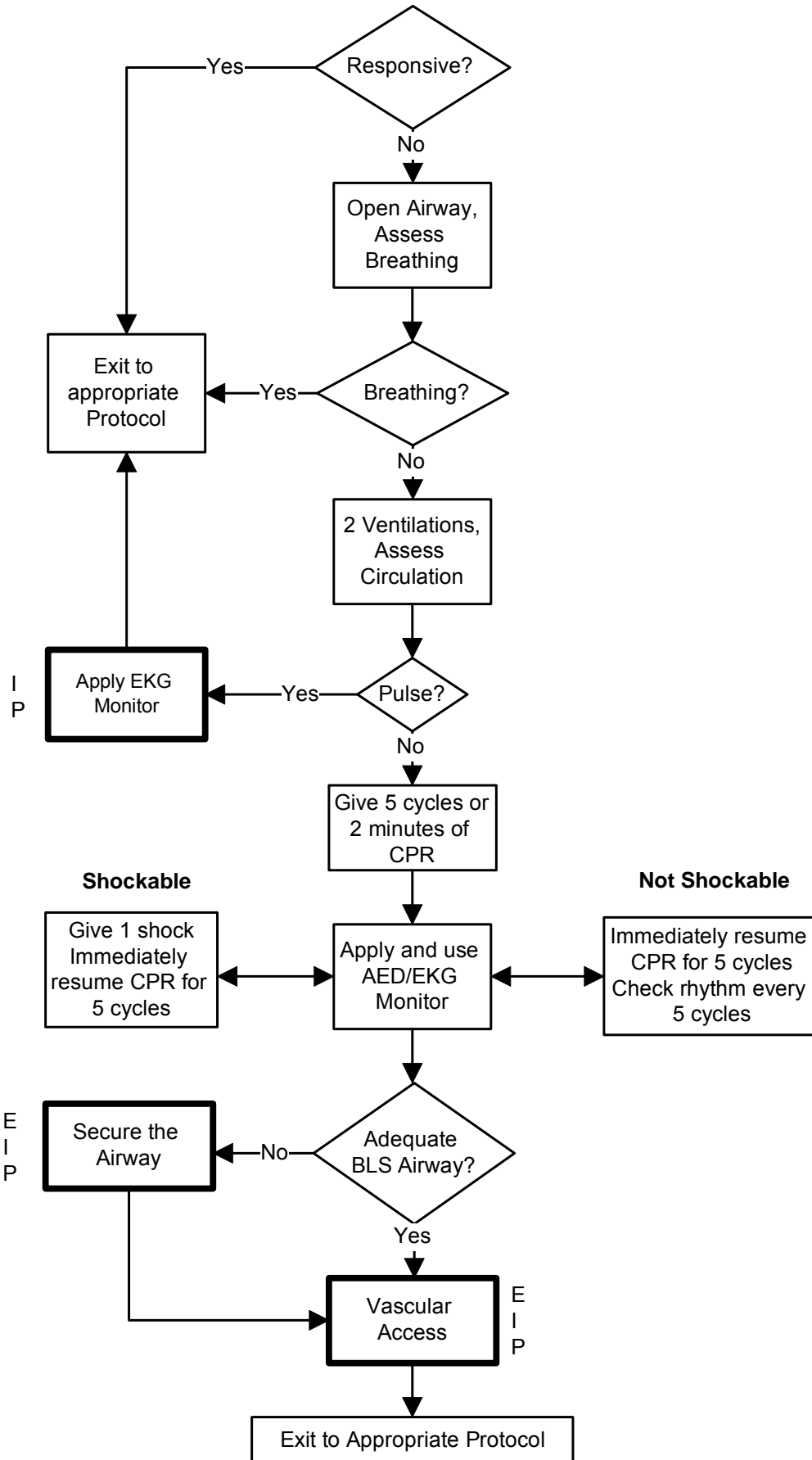
Consistency of CPR

Patient Disposition

Bystander/FR CPR/AED

Changes in EKG Rhythm

Adult Emergency Cardiac Care



Adult Asystole and Pulseless Electrical Activity

Objectives:

- Early recognition and appropriate intervention of pulseless / apneic adult patients
- Early appropriated recognition of lethal rhythms

General Information:

- During CPR
 - a) Push hard and fast (100/min)
 - b) Ensure full chest recoil
 - c) Minimize interruptions in compressions
 - d) One cycle of CPR: 30 compressions then 2 breaths; 5 cycles – 2 min
 - e) Rotate compressors every 2 min
 - f) Avoid hyperventilation
 - g) After an advanced airway is placed, rescuers no longer deliver “cycles” of CPR
 - h) Give continuous chest compressions without pauses for breaths
 - i) Give 8-10 breaths/min
 - j) Check rhythm every 2 minutes
- Endotracheal administration of medications should be used ONLY when IV/IO access is not available
- Search for and treat possible contributing factors:
 - a) Hypovolemia
 - b) Hypoxia
 - c) Hypokalemia / Hyperkalemia
 - d) Hypoglycemia
 - e) Hypothermia / Hyperthermia
 - f) Hydrogen ion- (Acidosis)
 - g) Tension Pneumothorax
 - h) Toxins
 - i) Trauma
 - j) Tamponade Cardiac
 - k) Thrombosis (coronary or pulmonary)
- For cardiac arrest in renal patients administer Calcium Chloride 1 gm IV/IO push followed by 40 ml flush, Sodium Bicarbonate 1 Meq/kg and repeat in 10 minutes if no change and medications are available



Warnings/Alerts:

- CPR may still be required in the presence of an organized cardiac rhythm

OMD Notes:

-

References:

2005 AHA ACLS
EMT-B Curriculum

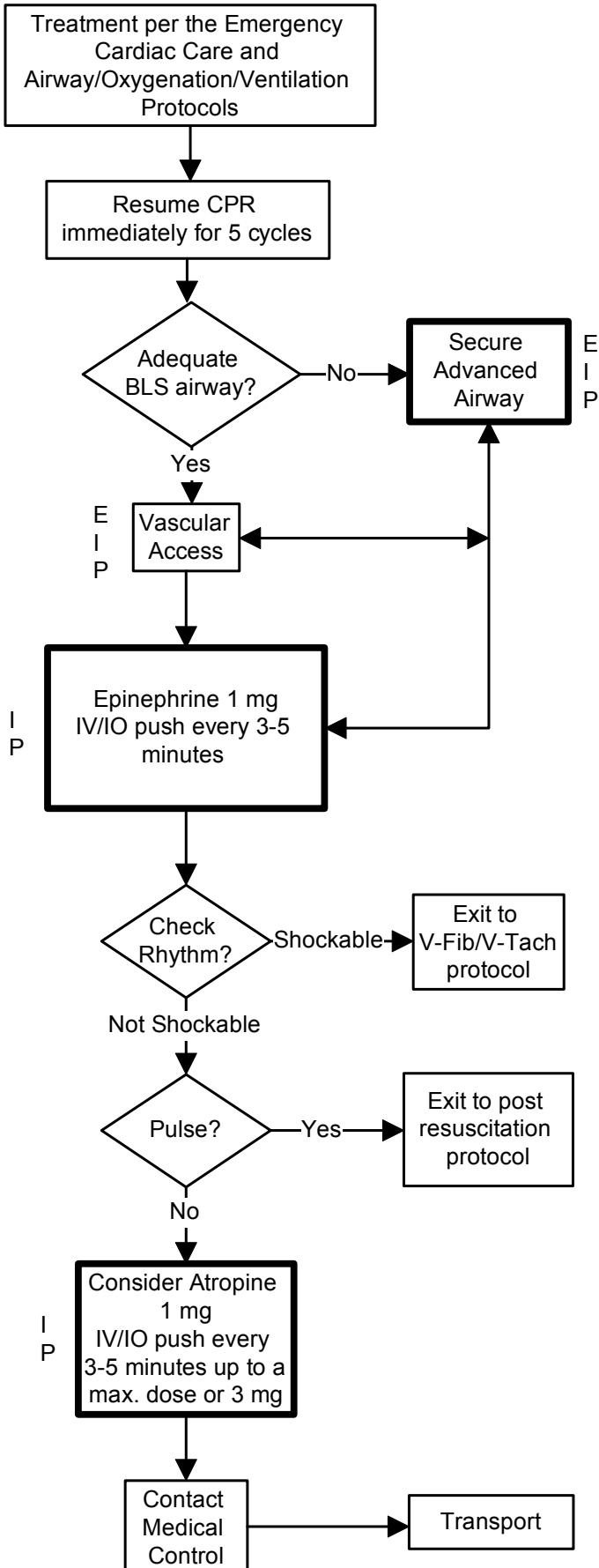
Performance Indicators:

Onset of Arrest Time
Time of Initial Treatment
Consistency of CPR

Initial Rhythm
Changes in EKG Rhythm
Patient Packaging

Bystander/FR CPR/AED
Confirmation of Airway
Patient Disposition

Adult Asystole & Pulseless Electrical Activity



Adult Bradycardia

Objectives:

- Early appropriate recognition and management of bradycardic rhythms
- Recognition of poor perfusion attributed to a bradycardic rhythm

General Information:

- Signs and symptoms of poor perfusion include:
 - a) New onset of altered mental status
 - b) Ongoing chest pain
 - c) Hypotension
- External Pacing
 - a) Consider pain control and/or sedation
 - b) Do not delay pacing for administration of medication
- Dopamine Drip
 - a) Premixed Drip is preferred
 - i) If not available then add 400 mg of Dopamine to 250 ml NS for concentration of 1600 mcg/ml
 - b) Dose 2-10 mcg/kg/min
- Epinephrine Drip
 - a) Add 0.4 mg of Epinephrine 1:1000 to 100 ml NS for a concentration of 4mcg/ml
 - i) Dose 2-10 mcg/min



Warnings/Alerts:

- Patient may deteriorate due to unnecessary delay in pacing
- Failure to recognize electrical and mechanical capture may lead to patient deterioration
- Assessment of a carotid pulse may be inaccurate due to muscle jerking which may mimic a carotid pulse
- Patients that are hypothermic should not be paced

OMD Notes:

-

References:

2005 AHA ACLS pg 78

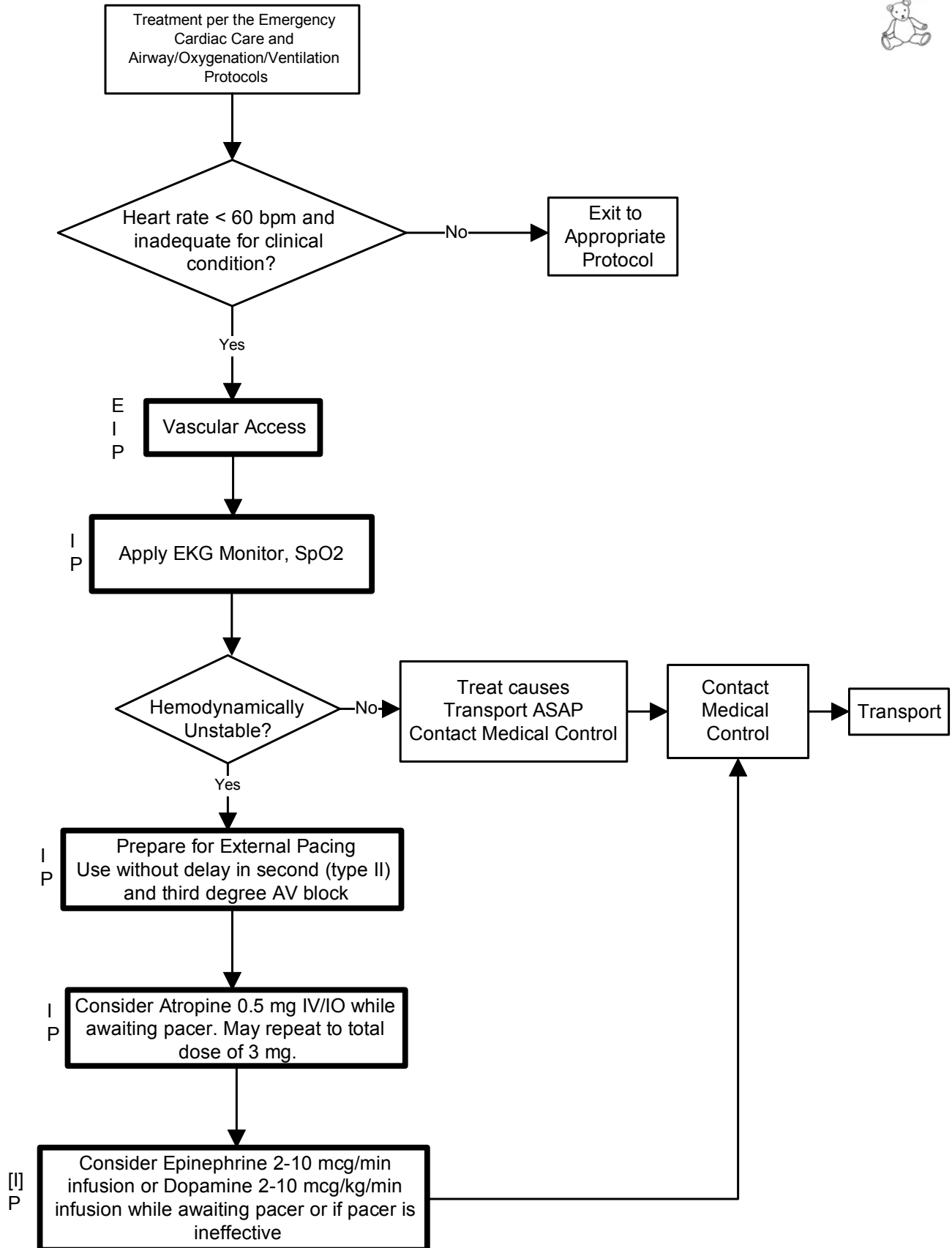
Performance Indicators:

Onset of Symptoms (time)
LOC

Treatment and Response
Pacing Parameters

Vital Signs – 2 set minimum

Adult Bradycardia



Adult Tachycardia – Narrow Complex

Objectives:

- Early appropriate recognition and management of narrow complex tachycardic rhythms
- Recognition of poor perfusion attributed to a narrow complex tachycardic rhythm

General Information:

- Signs and Symptoms of a hemodynamically unstable patient include:
 - a) Altered mental status
 - b) Ongoing chest discomfort
 - c) Shortness of breath
 - d) Hypotension
 - e) Shock
- Follow manufacturer guidelines for biphasic settings for synchronized cardioversion
- Heart rate of 150/minute is one factor to distinguish SVT from sinus tach. Younger adult patients may experience sinus tach at rates greater than 150/minute and older patients may have SVT at rates lower than 150/minute. Other considerations should include presence/absence of P waves, beat to beat variability and patient history; if unsure of treatment contact medical control
- If the patient has cocaine-induced SVT, physician may order Valium 5 mg IV/IO



Warnings/Alerts:

- Avoid low energy unsynchronized shocks. Low energy shocks are likely to induce ventricular fibrillation
- If unable to obtain synchronization, deliver unsynchronized shock at defibrillation energy (manufacturer recommendations)
- Do not delay cardioversion for administration of sedation to the unstable patient
- It is the responsibility of the provider delivering the shock to ensure that no one is touching the patient prior to shock delivery
- The following conditions need to be addressed prior to cardioversion:
 - a) Patients in standing water
 - b) Patients with transdermal medications
- Adenosine is contra-indicated in patients with a history of WPW

OMD Notes:

-

References:

AHA 2005 ACLS pgs 87-96

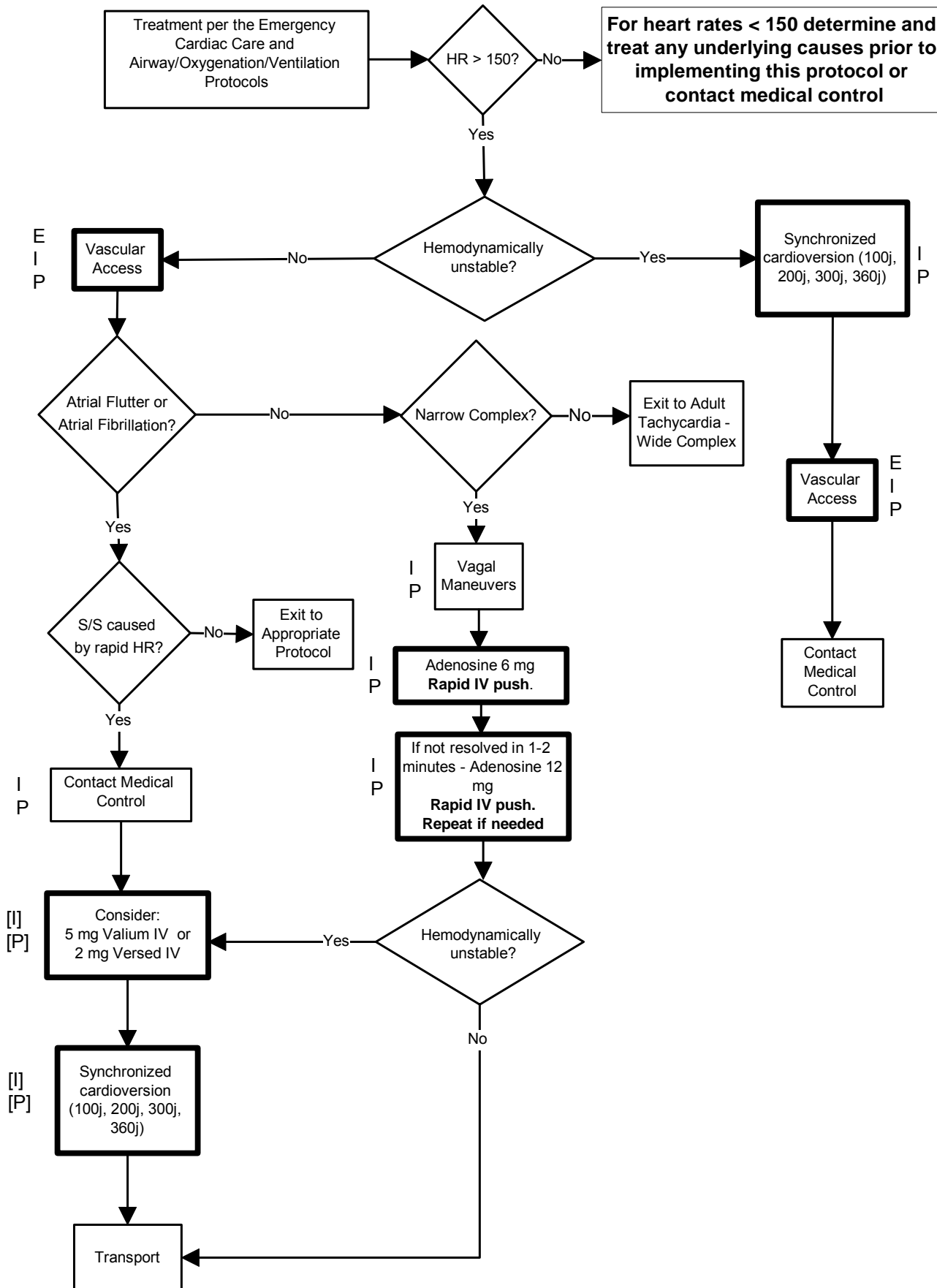
Performance Indicators:

Vital Signs before Intervention
Response to Therapy
Onset of Symptoms

Vital Signs after Intervention
Initial Rhythm

Stable or Unstable Patient
LOC

Adult Tachycardia - Narrow Complex



Adult Tachycardia – Wide Complex

Objectives:

- Early appropriate recognition and management of wide complex tachycardic rhythms
- Recognition of poor perfusion attributed to a wide complex tachycardic rhythm

General Information:

- Signs and Symptoms of a hemodynamically unstable patient include:
 - a) Altered mental status
 - b) Ongoing chest discomfort
 - c) Shortness of breath
 - d) Hypotension
 - e) Shock
- Follow manufacturer guidelines for biphasic settings for synchronized cardioversion
- Although not common, V-Tach can occur at rates less than 150; if unsure of treatment contact medical control



Warnings/Alerts:

- Polymorphic VT can deteriorate quickly to VF – defibrillate ASAP
- Avoid low energy unsynchronized shocks. Low energy shocks are likely to induce ventricular fibrillation
- If unable to obtain synchronization, deliver unsynchronized shock at defibrillation energy (manufacturer recommendations)
- Do not delay cardioversion for administration of sedation to the unstable patient
- It is the responsibility of the provider delivering the shock to ensure that no one is touching the patient prior to shock delivery
- The following conditions need to be addressed prior to cardioversion
 - a) Patients in standing water
 - b) Patients with transdermal medications
- Other conditions may mimic wide complex tachycardia
 - a) Internal pacemakers
 - b) Aberrancy

OMD Notes:

-

References:

AHA 2005 ACLS pgs 87-102

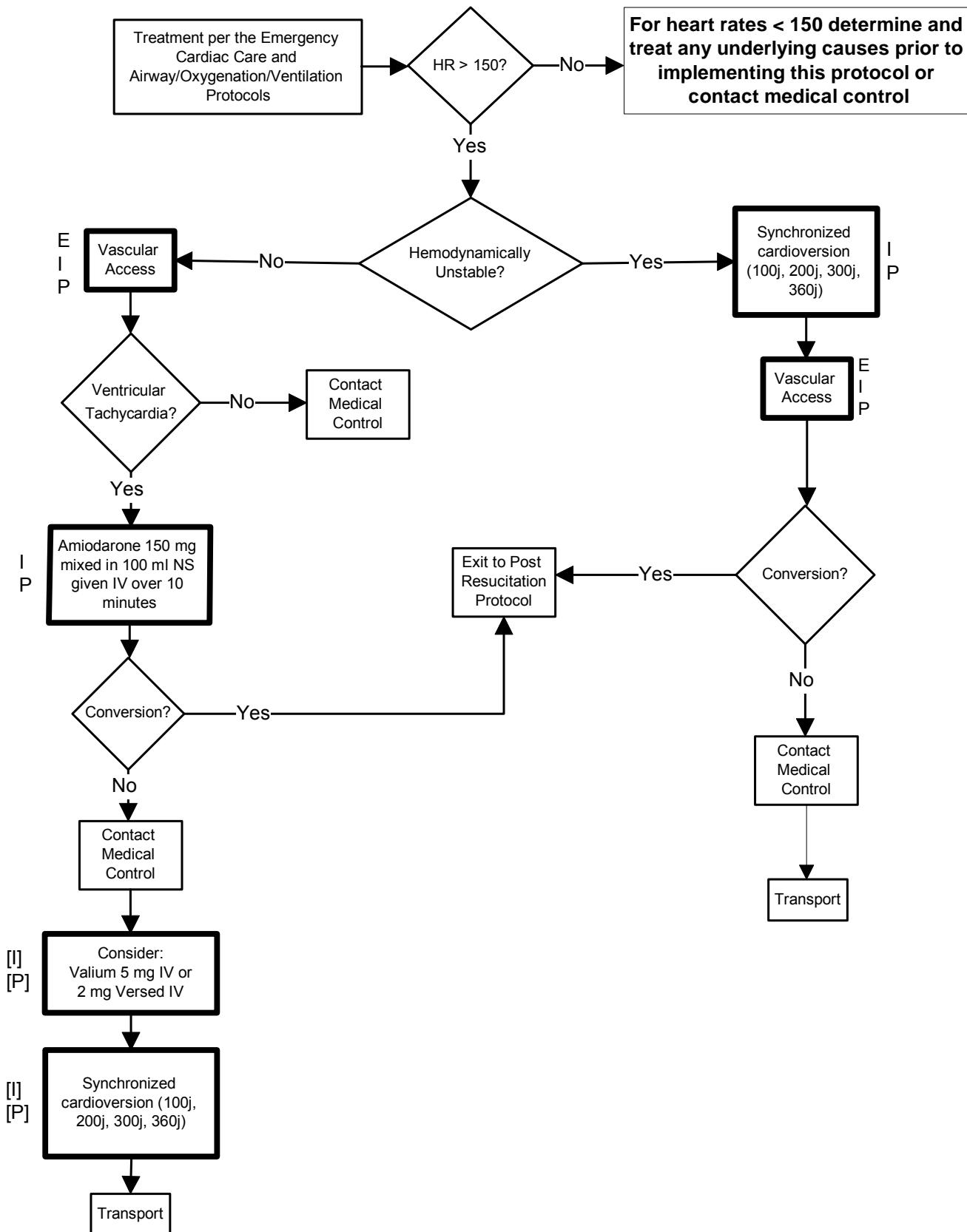
Performance Indicators:

Vital Signs before Intervention
Response to Therapy
Onset of Symptoms

Vital Signs after Intervention
Initial Rhythm

Stable or Unstable Patient
LOC

Adult Tachycardia - Wide Complex



Adult Ventricular Fibrillation & Pulseless Ventricular Tachycardia

Objectives:

- Early appropriate recognition and management of Ventricular fibrillation or Pulseless Ventricular Tachycardia
- Recognition of poor perfusion attributed to a Ventricular fibrillation or Pulseless Ventricular Tachycardia

General Information:

- Continuous effective CPR is the foundation for pulseless rhythms and should never be compromised (see Emergency Cardiac Care protocol)
- Lidocaine should be used for endotracheal administration
- Magnesium Sulfate is the antiarrhythmic of choice for torsades de pointes
 - a) 2 gms in 10 ml NS over 5 minutes (standing orders for I and P)
- Second line antiarrhythmic (standing order I and P)
 - a) Lidocaine dose 1 -1.5 mg/kg, repeated at 0.5 – 0.75 mg/kg up to maximum dose of 3 mg/kg
 - b) Magnesium Sulfate dose 2 gms in 10 ml NS over 5 minutes
- When using a monophasic device, defibrillate at 360 joules
- When using a biphasic device, follow manufacturer guidelines for energy settings or if unknown defibrillate at 200 joules
- Endotracheal administration of medications should be used only when IV /IO access not available (dose 2 – 2.5 times IV dose)
- If patient regains a pulse, refer to Post Resuscitation protocol
- For cardiac arrest in renal patients administer Calcium Chloride 1 gm IV/IO push followed by 40 ml flush, Sodium Bicarbonate 1 Meq/kg and repeat in 10 minutes if no change and medications are available



Warnings/Alerts:

- Do not give Amiodorone via the endotracheal tube
- It is the responsibility of the provider delivering the shock to ensure that no one is touching the patient prior to shock delivery
- The following conditions need to be addressed prior to defibrillation
 - a) Patients in standing water
 - b) Patients with transdermal medications
- CPR may still be required in the presence of an organized cardiac rhythm

OMD Notes:

- Magnesium Sulfate should be given over 5 minutes in emergent situations

References:

AHA 2005 ACLS pgs 40-50

Performance Indicators:

Onset of arrest time

Time of Initial Defibrillation

Patient Packaging

Initial rhythm

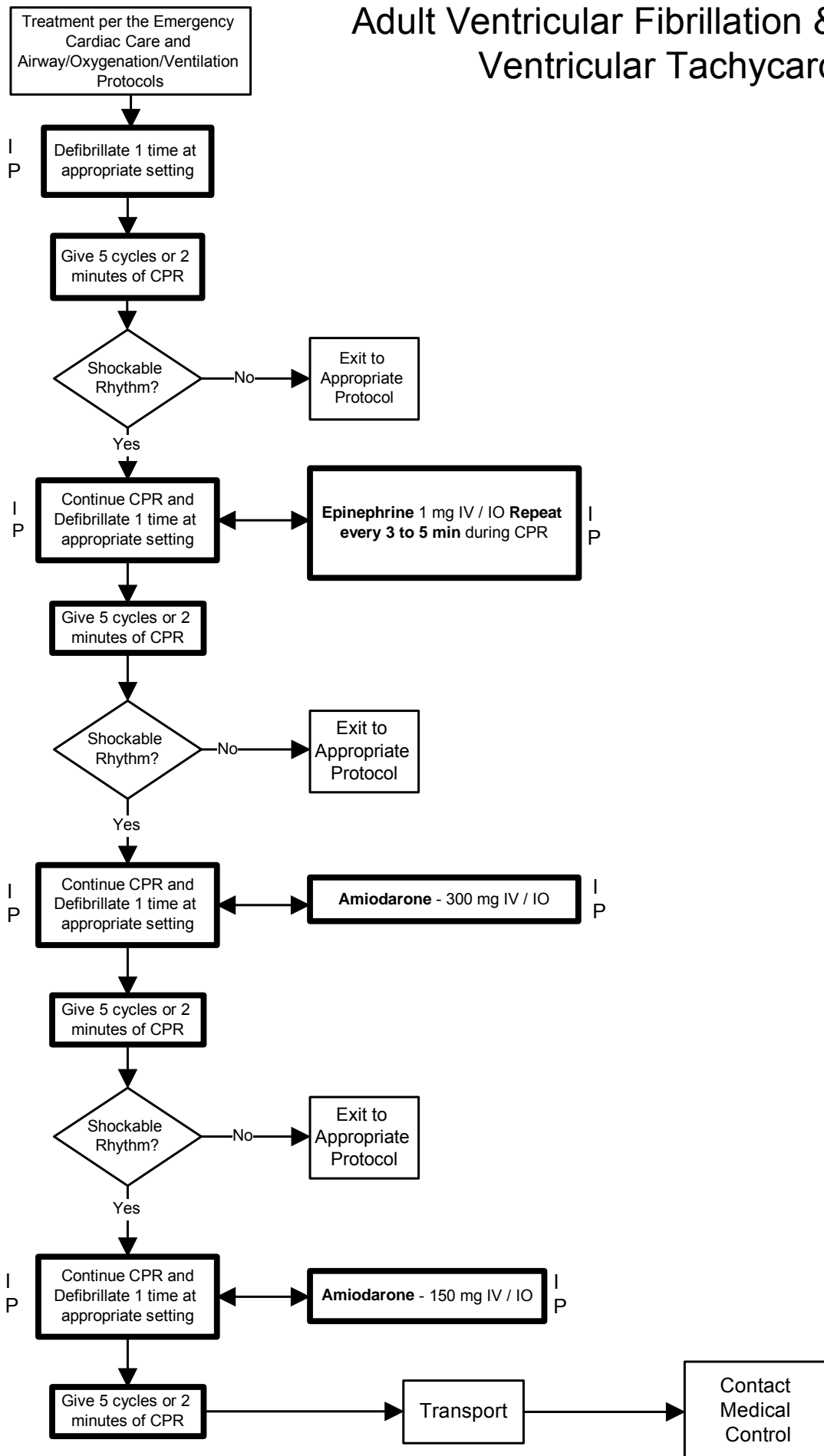
Confirmation of Airway

Patient Disposition

Bystander/FR CPR/AED

Consistency of CPR

Adult Ventricular Fibrillation & Pulseless Ventricular Tachycardia



ROSC

(Return of Spontaneous Circulation)

Objectives:

- To appropriately treat patients who have return of spontaneous circulation
- To ensure adequate perfusion

General Information:

- Amiodorone
 - a) 150 mg in 100 ml over 10 minutes
 - b) Do not use in the same IV line with furosemide, heparin or sodium bicarbonate
- Dopamine
 - a) Starting dose 2 mcg/kg/min
 - b) Max dose of 20 mcg/kg/min
 - c) Titrate to systolic blood pressure of 90-100 mm/Hg
 - d) Mix 400 mg in 250 ml NS for a concentration of 1600 mcg/ml; see reference chart for drip rate



Warnings/Alerts:

- Amiodorone is contraindicated in the following conditions:
 - a) Bradycardia
 - b) Heart block
 - c) Hypotension
 - d) Pulmonary edema
 - e) Cardiogenic shock

OMD Notes:

- 250 ml bolus is best accepted medical practice 09/09/08 OMD committee minutes

References:

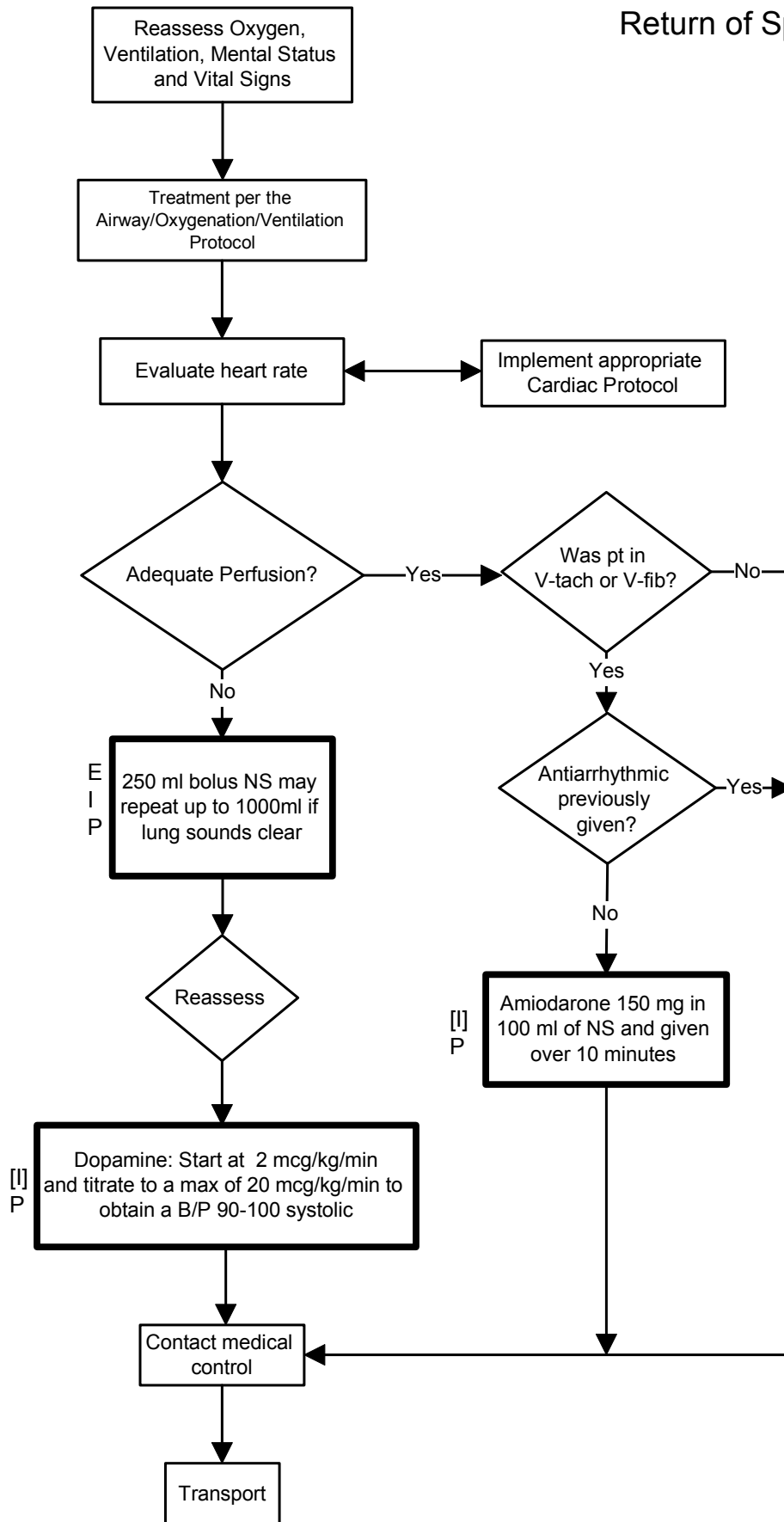
Mosby's Paramedic Textbook, Third Edition, 2007 pg 1308

Performance Indicators:

EKG Rhythm Evaluation of Perfusion Treatment and Response to Treatment

ROSC

Return of Spontaneous Circulation



Termination of Resuscitation

Objectives:

- To provide criteria for terminating resuscitation

General Information:

- Contraindications to using the protocol include patients who are exhibiting neurological activity, patients under 18 years old, or patients with suspected hypothermia
- Inappropriate initiation of CPR includes patients with dependent lividity, rigor mortis, injuries incompatible with life or a valid DDNR
- Resuscitation must continue while you are evaluating the patient
- Patients in cardiac arrest from environmental causes may warrant resuscitation efforts greater than 20 minutes (ie hypothermia, submersion injuries etc.)
- Once resuscitation has been discontinued
 - a) Distribute bereavement booklet to family members, if available
 - b) Leave all expendable ALS supplies in place



Warnings/Alerts:

- This protocol is not to be used during transport (transport is defined as moving the patient into the ambulance)

OMD Notes:

-

References:

ACLS Provider Manual pg 63-64

Performance Indicators:

Onset of Arrest

Initial Rhythm

Patient Age

Neurological Exam

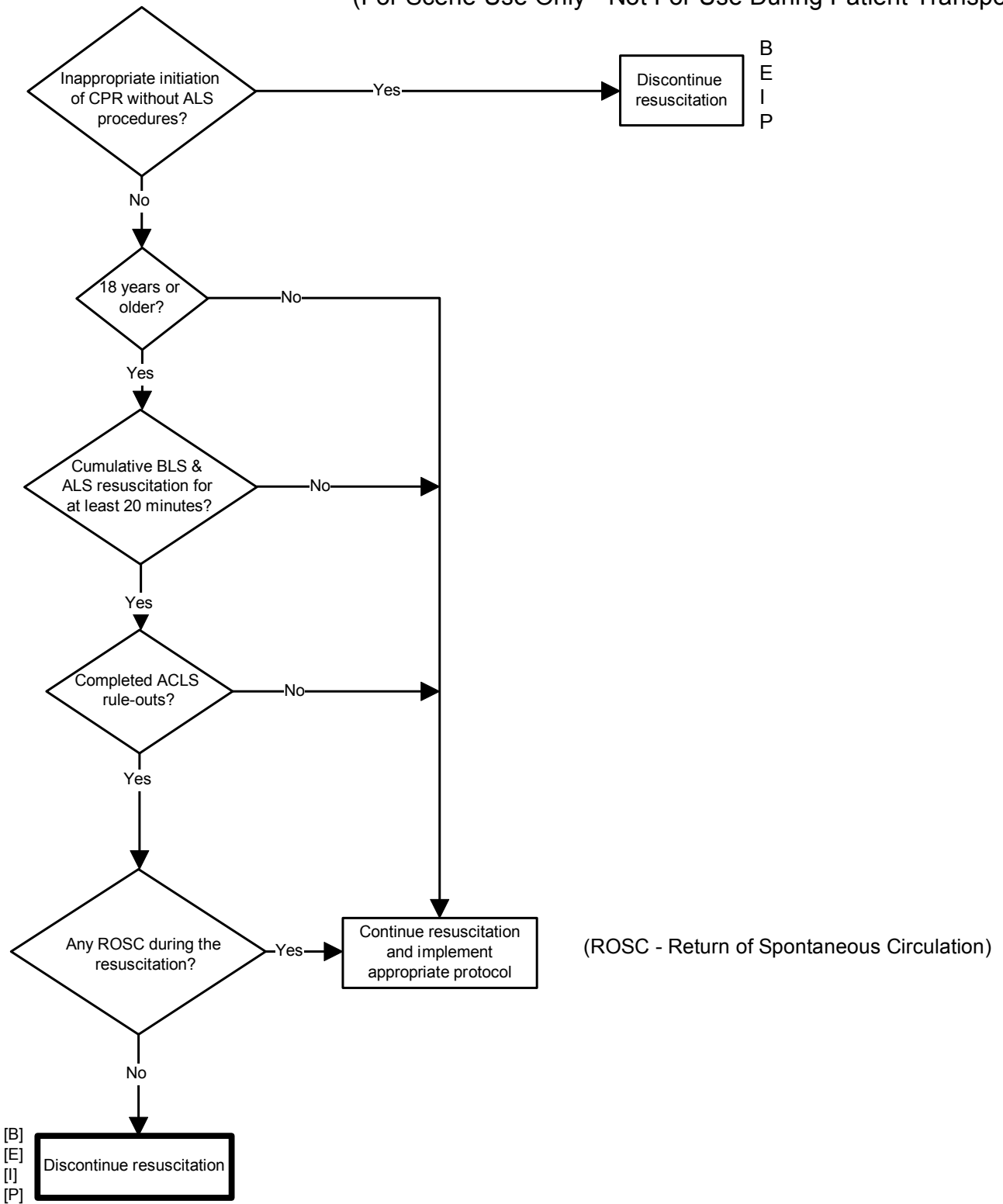
External Body Temperature

Online Medical Control (Physician Name)

Time Resuscitation ended

Termination of Resuscitation

(For Scene Use Only - Not For Use During Patient Transport)



Notes

Adult General Protocols

Airway/Oxygenation/Ventilation

Objectives:

- When possible, a room air pulse oximetry reading should be obtained and documented
- The goal is to maintain SPO₂ ≥ 95%
- Oxygen therapy for patients with Altered Mental Status, Hypoperfusion, Cardiac Chest Pain or Dyspnea regardless of SPO₂ reading
- Support the patient's breathing as needed

General Information:

- Oxygen therapy
 - a) SpO₂ 90-94% - Nasal Cannula at 1 – 6 lpm
 - b) SpO₂ <90% - Non-Rebreather at 10 – 15 lpm
- Assisted Ventilations
 - a) BLS Airway 10 -12 Breaths per minute
 - i) Attempts should be made to use 2 providers to ensure adequate BVM ventilations using "E-C" technique
 - ii) Cricoid pressure should be maintained until an advanced airway is in place
 - b) ALS (Advanced) Airway 8 -10 breaths per minute
 - i) Cardiac Monitor and Pulse Oximetry are required
 - ii) Consider OG/NG tube when using BVM or after endotracheal intubation
 - iii) Unconscious Intubated Patients
 - * Verify tube placement
 - * Secure with commercial device
 - * Package on a long board
 - * Immobilize Cervical Spine
 - * Reassess tube placement every 5 minute, during transport or after movement of the patient



Warnings/Alerts:

- Failure to use end-tidal CO₂ monitoring increases the risk of an unrecognized misplaced tube
- Failure to confirm tube placement prior to securing or following patient movement may lead to unrecognized tube displacement
- Apnea is an absolute contraindication to nasal intubation

OMD Notes:

-

References:

2005 AHA ACLS
EMT-B Curriculum

Performance Indicators:

Initial and Ongoing SpO₂
Use of CPAP
Use of Secondary Airway

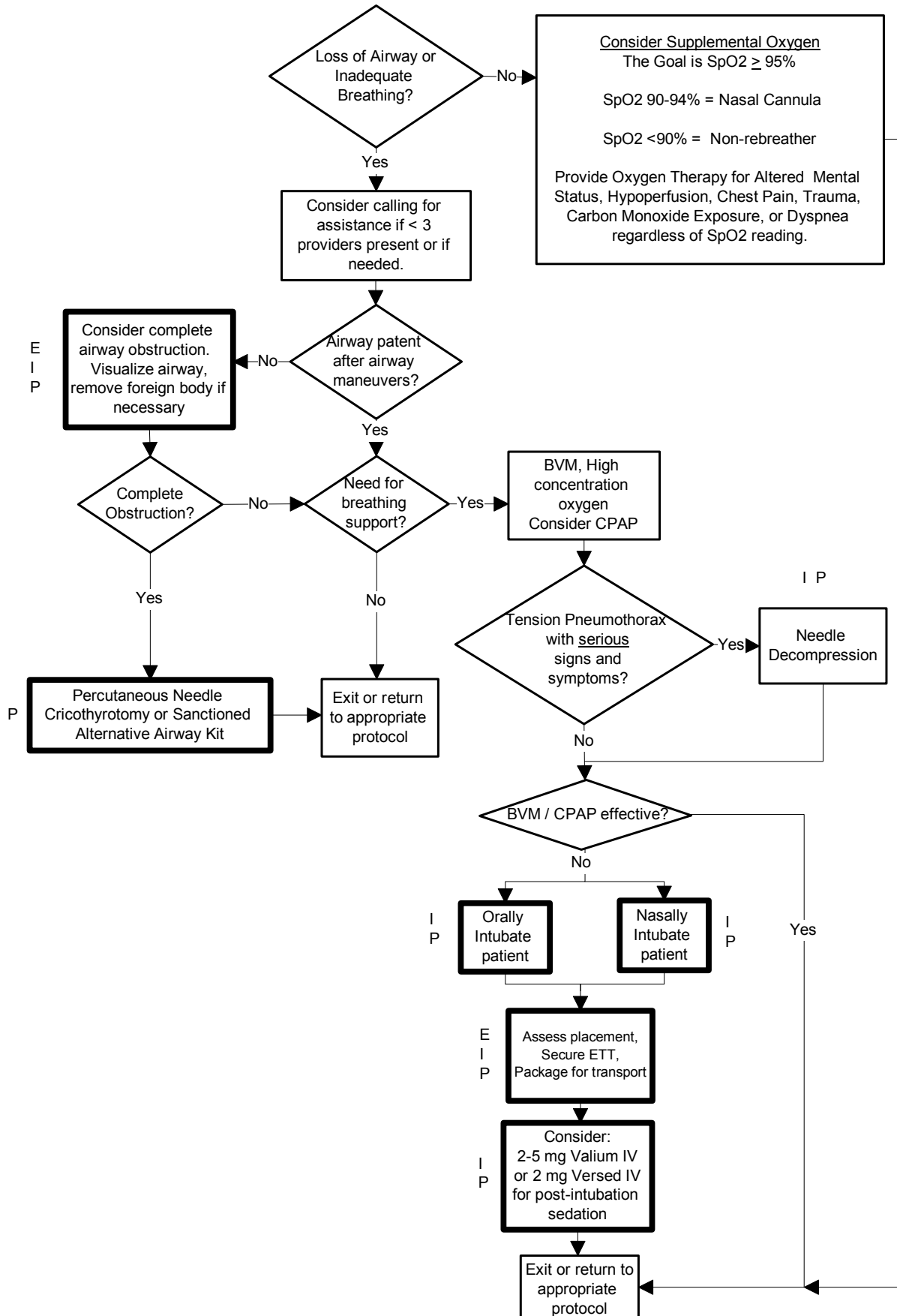
Confirmation of ETT
Application of Oxygen
Patient Packaging

Documentation of Breath Sounds
Confirmation of Airway

Airway/Oxygenation/Ventilation



Note: This protocol is to be used in conjunction with existing protocols in a complementary manner.



Allergic/Anaphylactic Reaction

Objectives:

- To assess and appropriately treat patients with allergic reactions and/or anaphylaxis
- To differentiate between an allergic reaction and anaphylaxis

General Information:

- Signs and Symptoms of allergic reaction may include:
 - a) Itching
 - b) Hives
 - c) Flushing (red skin)
 - d) Mild swelling of face (especially the eyes and lips), neck, hands, feet or tongue
- Signs and Symptoms of anaphylaxis may include all of the above; but must include one of the following:
 - a) Respiratory distress
 - i) Labored breathing (ie. Stridor, wheezing, hoarseness, cough)
 - b) Hemodynamic instability
 - i) Hypotension
 - ii) Weak or absent distal pulses
 - iii) Excessive Sweating (Diaphoresis)
- Rapidly progressing signs and symptoms should be treated as anaphylaxis
- EMT-Bs may use patient's Epi-Pen and MDI only
- In severe anaphylaxis with hypotension and/or severe airway obstruction, medical control may order Epinephrine 1:10,000 IV
- In hemodynamic instability Epinephrine 1:1,000 IM is the preferred route of administration instead of SQ
- Solu-medrol should not be routinely administered to pediatric patients; however, it may be considered for extended transports (physician order only)



Warnings/Alerts:

- Epinephrine 1:1,000 should not be given IV
- Contact medical control before administering Epinephrine to patients with a cardiac history to patients 40 years old or older
- Administration of Epinephrine may cause lethal dysrhythmias; providers must be prepared for emergent intervention

OMD Notes:

- Maximum dose of epinephrine is 0.5 mg

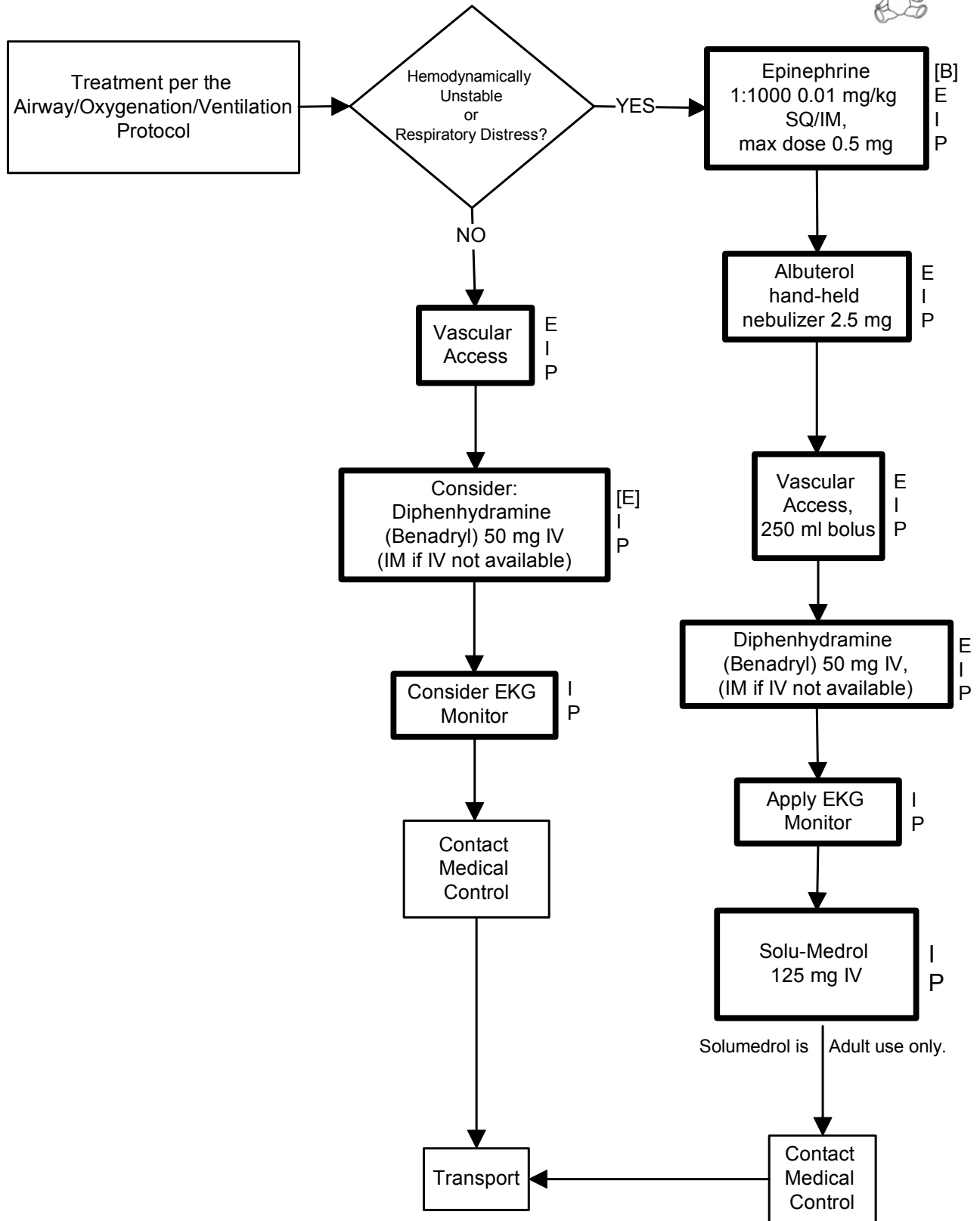
References:

Mosby's Paramedic Textbook, 3rd Edition, 2007 pg 873-875
Brady Emergency Care, 10th Edition, 2005 pg 447

Performance Indicators:

Documented Cause (If Known) Application of Oxygen Treatment and Response to Treatment
Use of Patient Epi-Pen

Allergic/Anaphylactic Reaction



Altered Mental Status

Objectives:

- To assess and appropriately treat patients with altered mental status
- To determine the underlying cause of altered mental status

General Information:

- Causes of Altered Mental Status may be remembered with the acronym AEIOU-TIPS
 - a) Alcohol or acidosis
 - b) Epilepsy (seizure), Electrolytes
 - c) Infection
 - d) Overdose
 - e) Uremia
 - f) Trauma, Temperature (hypo/hyperthermia, fever)
 - g) Insulin (hypo/hyperglycemia)
 - h) Psychosis, Poison
 - i) Shock (hypoperfusion), Stroke (CVA), Subarachnoid Hemorrhage
- Left lateral recumbent or semi-fowler's position is preferred for transport if spinal injury is not suspected
- Some conditions that can cause Altered Mental Status cannot be treated in the field. If providers cannot quickly identify a condition that can be treated pre-hospital, they should contact medical control and transport the patient urgently



Warnings/Alerts:

- Patients with Altered Level of Consciousness are at high risk for airway compromise
 - a) Example: vomiting, gurgling, drooling, snoring, change in breathing pattern, change in head position
- The airway should be continuously monitored for patency

OMD Notes:

-

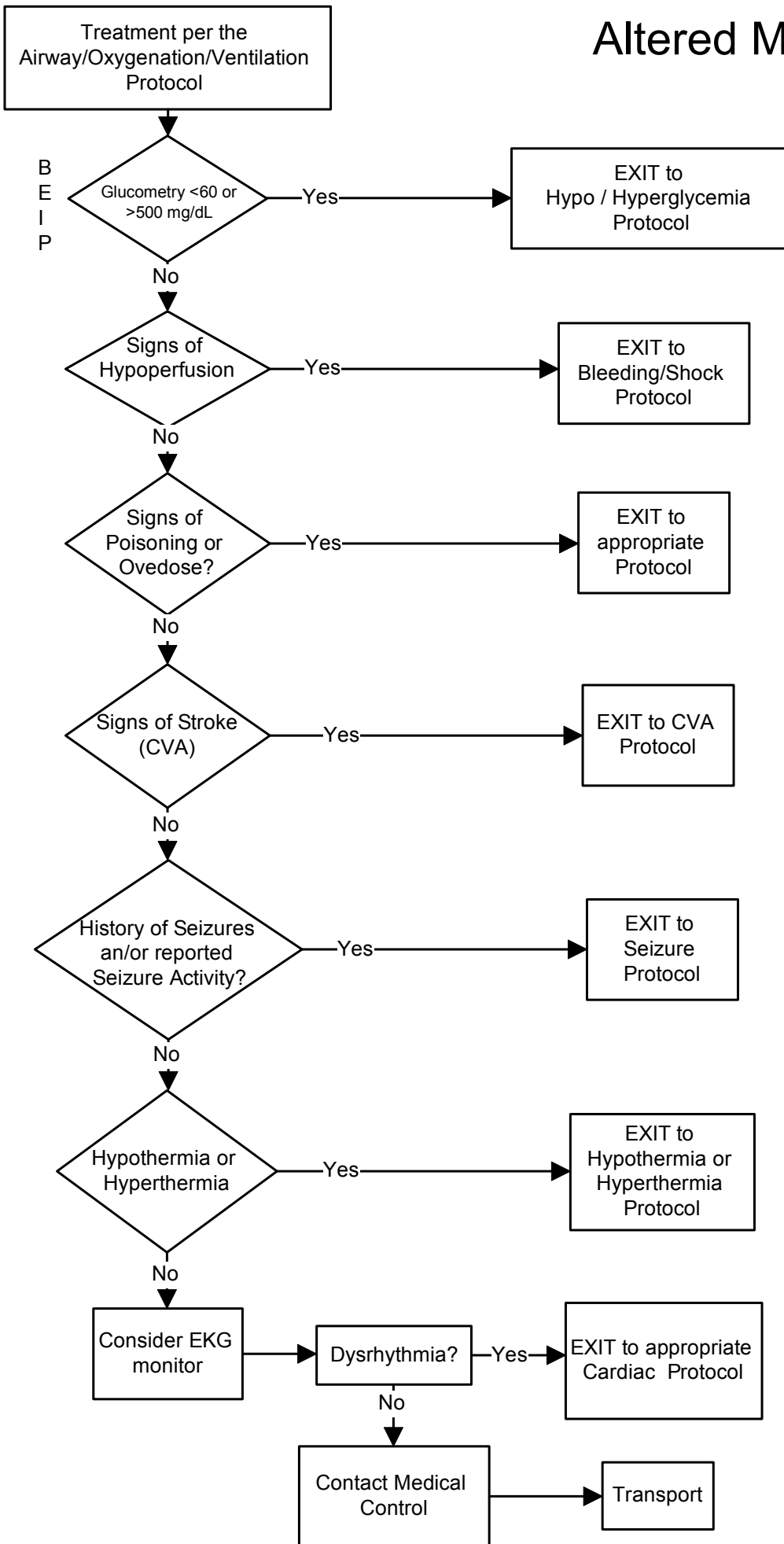
References:

Mosby's Paramedic Textbook, 3rd Edition, 2007 pg 284, 452

Performance Indicators:

Documented Cause (if known) Treatment and Response to Treatment

Altered Mental Status



Behavioral Emergencies

Objectives:

- To assess and appropriately treat patients with behavioral emergencies
- Address any underlying conditions that may contribute to behavioral emergencies

General Information:

- Contact police if there is any question of scene safety
- Assure physical safety of patient and EMS personnel
- Capacity issues are complex. If a patient is intoxicated, has a head injury, has a history of overdose or is thought to be of any danger to self or others, he/she is most likely not capable to refuse treatment. Contact police and Medical Control to aid in making the decision
- No transport does not mean no PPCR is necessary.
- Documentation should be complete including patient's mental state and your rationale for the no transport decision



Warnings/Alerts:

- Behavioral emergency calls can rapidly deteriorate
- Failure to appropriately address behavioral emergencies for patients with questionable capacity may lead to negative outcomes
 - a) Example: medical legal, harm to patient or others, further patient deterioration

OMD Notes:

-

References:

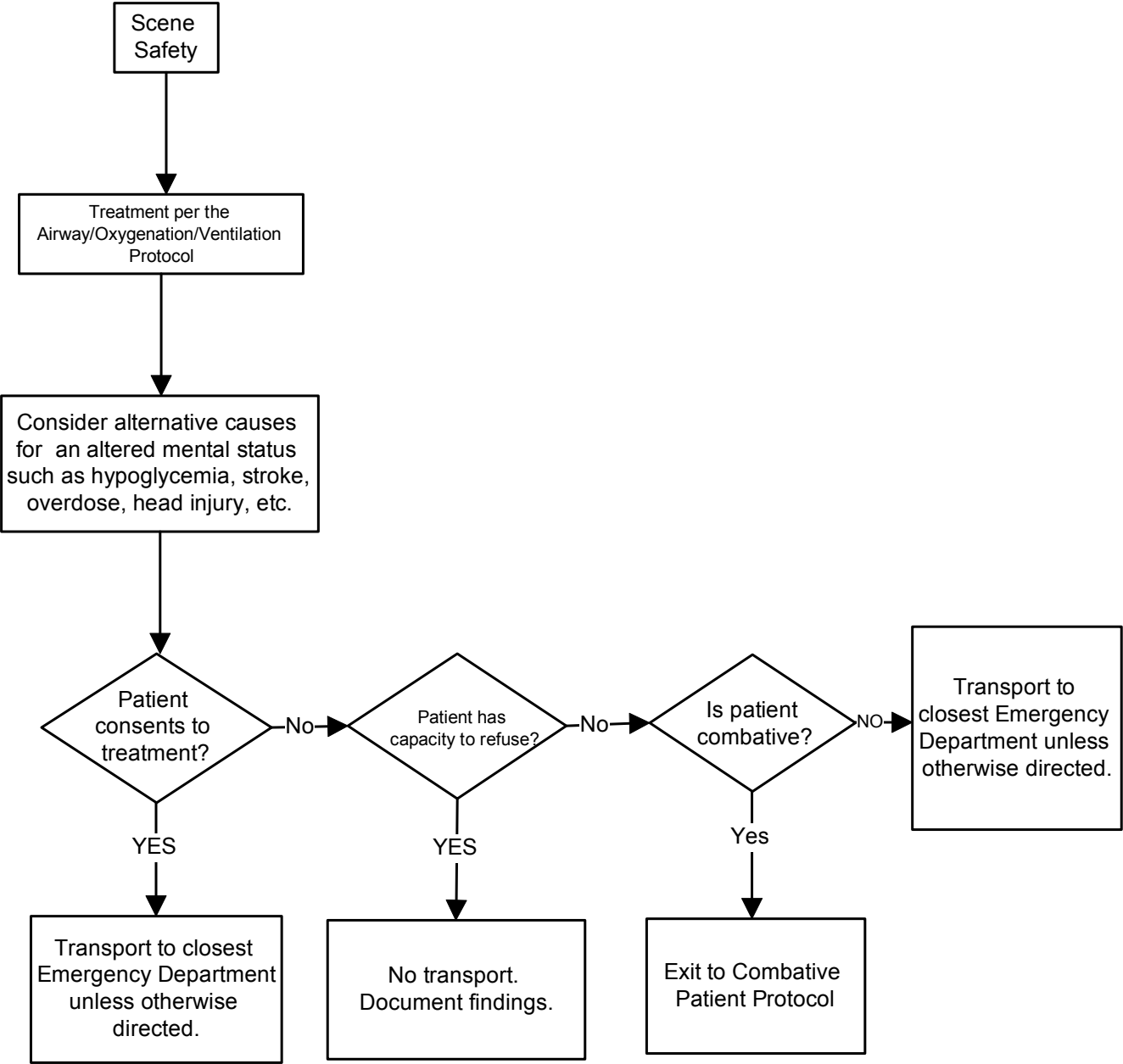
Performance Indicators:

Time on Scene

Patient Capacity

Transport or Non-Transport

Behavioral Emergencies



Bites and Stings

Objectives:

- To appropriately assess and treat patients who receive bites and stings
- To identify source of bite or sting

General Information:

- The use of constricting bands requires an order from Medical Control
- Consider contacting Animal Control for identification and management of animal



Warnings/Alerts:

- Make no attempts to capture or kill the animal or insect inflicting the bite or sting
- Do not bring live animals to the hospital. Transport dead animals in a sealed container or consider bringing a photograph of the animal or insect that inflicted the bite or sting

OMD Notes:

-

References:

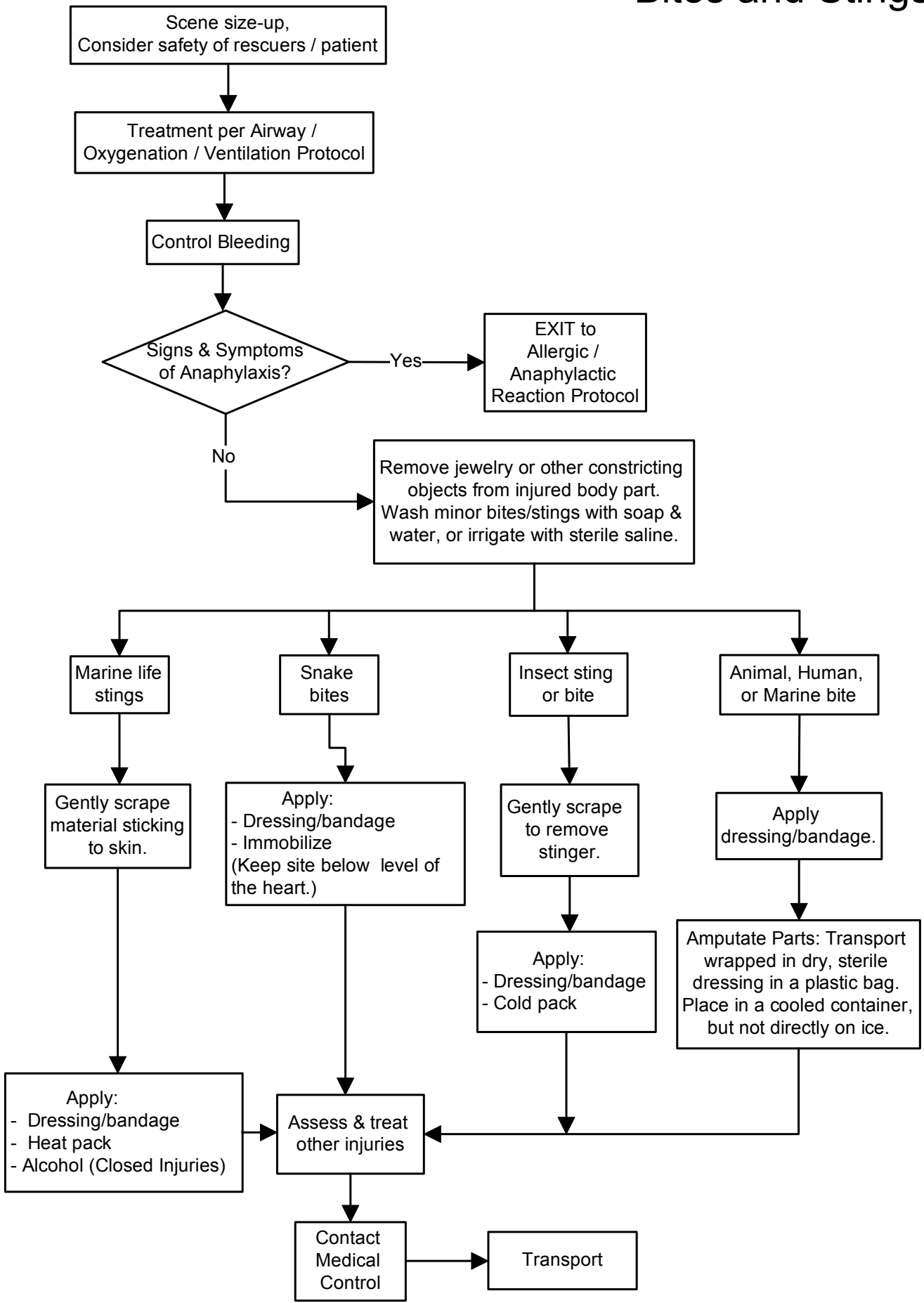
Brady Emergency Care, 10th Edition, pg 502-506
Mosby Paramedic Textbook, 3rd Edition, 2007, pg 926-927

Performance Indicators:

Identification of Bite/Sting Source

Packaging of Amputated Part(s)

Bites and Stings



Breathing Difficulty

Objectives:

- To assess and treat patients with breathing difficulty
- To determine the most likely cause of the patient's breathing difficulty

General Information:

- A patient with a history of CHF that has wheezing upon auscultation of lung sounds should not be automatically classified as an asthma or COPD patient. Each of the following conditions may produce wheezing.
- Pulmonary edema from congestive heart failure (CHF)
 - a Congestive heart failure is primarily a cardiac event, not a respiratory event. Treatment should focus on reducing preload and after load
 - b CPAP is an appropriate first-line treatment
 - i It is acceptable to briefly remove the CPAP mask to administer nitroglycerin
 - ii Consider sedation if necessary (physician orders for Intermediates/Paramedics)
 - c Lasix may not be appropriate for patients with end-stage renal failure. Consult Medical Control for more direction
 - d Pulmonary edema in the early stages can sound like wheezing
 - e Patients with clear breath sounds or unilateral crackles should be transported without medication
- Transdermal Nitroglycerin (I and P only)
 - a Sub Lingual should be given first, whenever possible; transdermal nitro has a slower onset (>30 minutes)
- Bronchoconstriction (asthma, COPD)
 - a Patients in severe distress or those who have not responded to home therapy may receive albuterol 2.5 mg/atrovent 0.5 mg as a first-line treatment
 - b Atrovent is only allowed once under standing orders
 - c EMT-Bs may only administer patient's MDI.
 - d Patients with severe asthma or COPD may not exhibit wheezing due to insufficient tidal volume
 - e For severe asthma, Medical Control may order other medications:
 - i Epinephrine 1:1,000 0.01 mg/kg SQ or IM, max dose 0.5 mg
 - ii Magnesium sulfate 2 g over 5 minutes
- Treatment of breathing difficulty should begin without delay



Warnings/Alerts:

- Do not administer Epinephrine 1:1,000 IV
- Do not administer nitroglycerin if the patient has taken sexually enhancing medications (ie. Viagra, Levitra or Cialis) within the past 72 hours
- CPAP may worsen any existing hypotension
- Patients must have adequate respirations for CPAP to be effective

OMD Notes:

- Albuterol should be given any time a CHF patient is wheezing
- Provider shall administer a minimum of 1 SL Nitroglycerin prior to application of CPAP

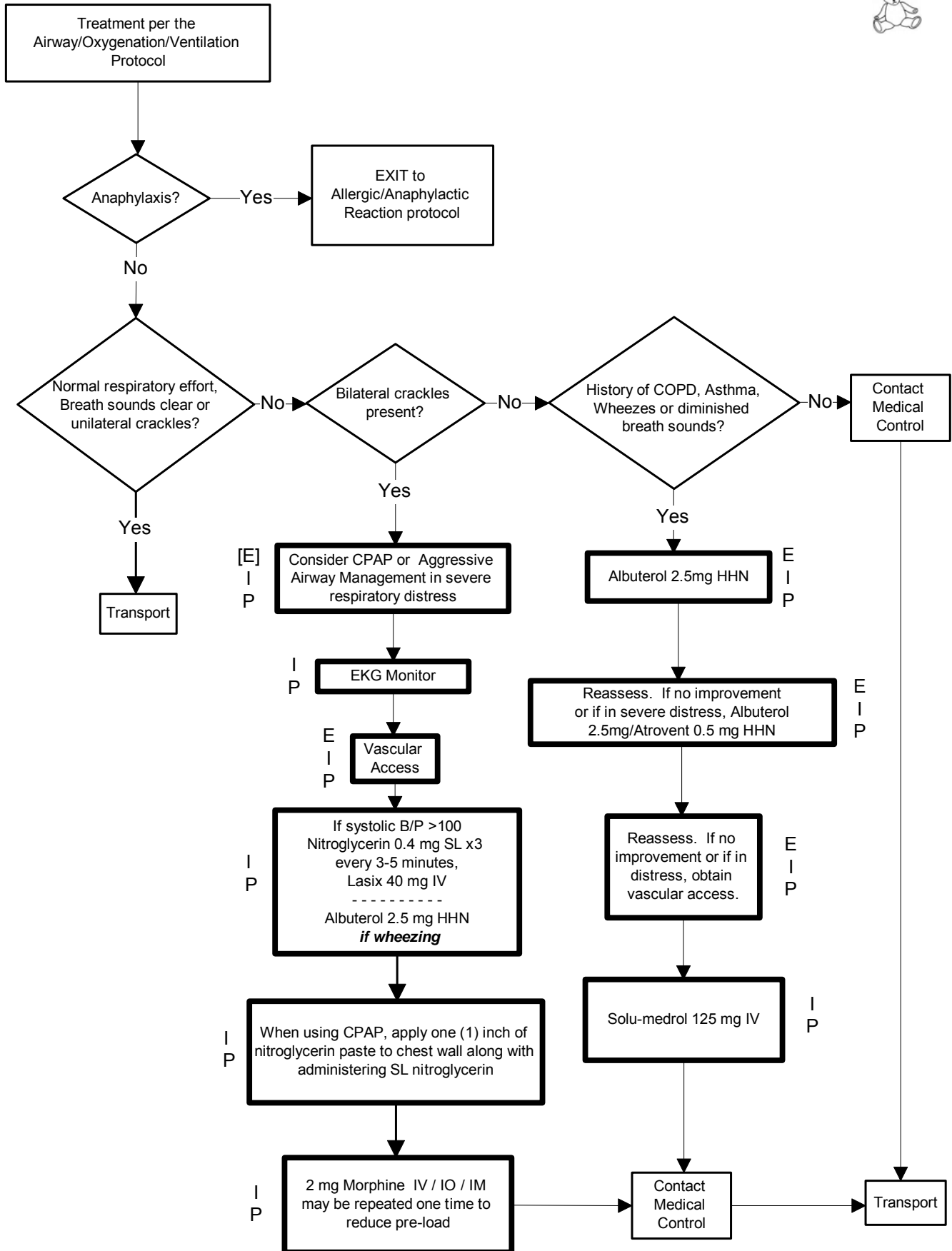
References:

Performance Indicators:

Breath Sounds Before and After Treatment
Initial and Ongoing SpO2

CPAP Application Sedative Use
Treatment and Response to Treatment

Breathing Difficulty



Burns

Objectives:

- To assess and appropriately treat patients with burn injuries
- To determine the extent and severity of burn injuries

General Information:

- Stop the burning process. Cool burned area(s) until pain is lessened or up to 30 minutes if patient can maintain normal body temperature.
- Remove clothing around burned area carefully. If clothing is stuck to skin, cut the clothing instead of pulling it away.
- Small burned areas may be covered with a moist dressing for patient comfort; large burned areas should be covered with dry, sterile dressings.
- Criteria for direct transport to a regional Burn/Trauma center:
 - a > 10% BSA full-thickness burns
 - b > 20% BSA partial-thickness burns
 - c > 15% BSA partial and full-thickness burns
 - d Burns to genitals, hands, feet, face or surface area over joints
 - e Geriatric or pediatric patients
 - f Inhalation, electrical injury or chemical burns
 - g Associated traumatic injuries



Warnings/Alerts:

- Do not delay transport to start IVs or perform other non-life-saving ALS interventions
- Use caution when cooling patients to avoid hypothermia
- Inhalation burns with impending airway compromise should be treated with aggressive airway management

OMD Notes:

-

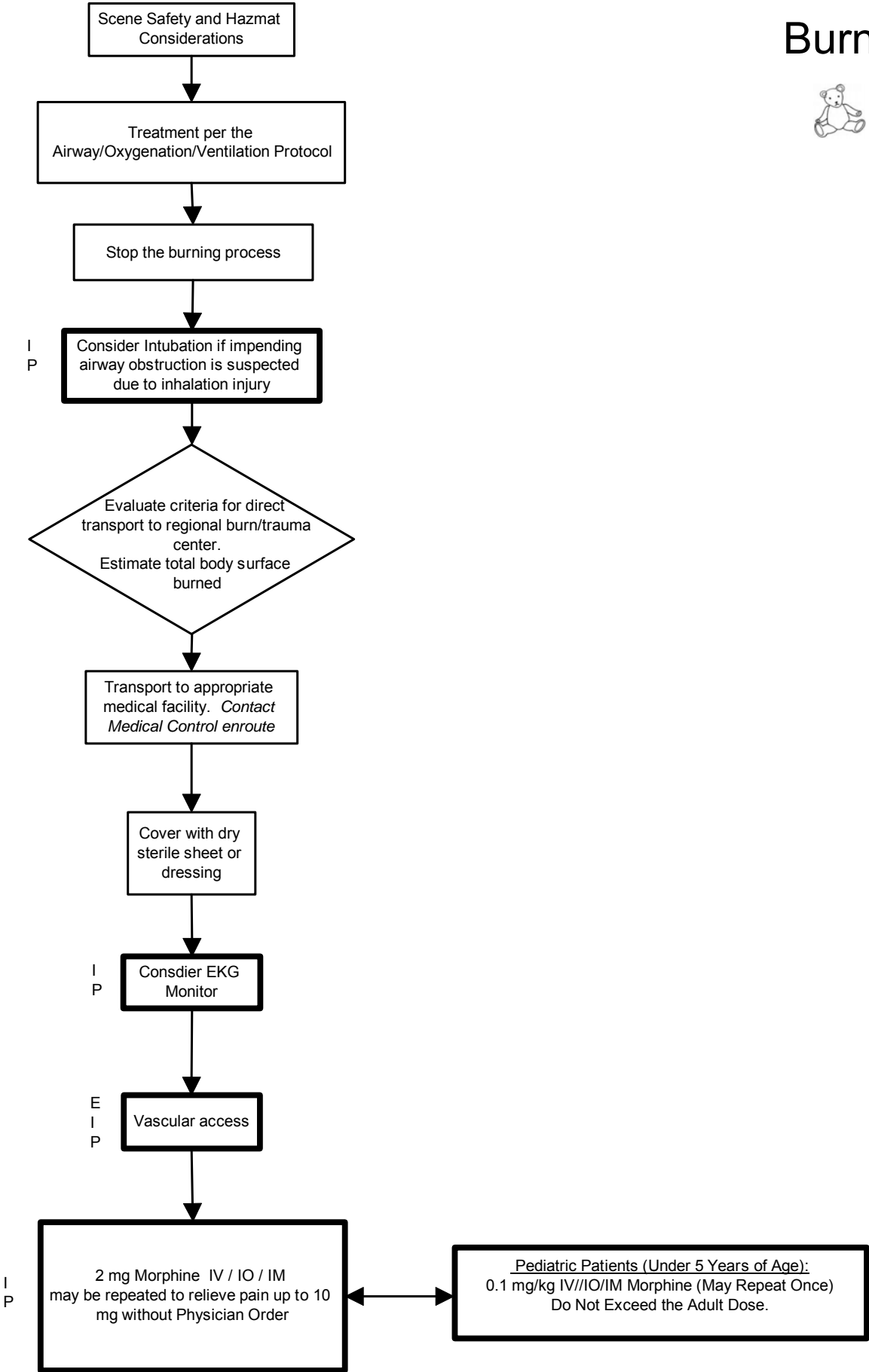
References:

Mosby Paramedic Textbook, 3rd Edition, 2007, pg 568

Performance Indicators:

Time on Scene	Initial and Ongoing SpO ₂	Estimated Body Surface Burned
Initial and Ongoing Vital Signs	Transport to Appropriate Facility	
Patient Disposition	Use of Appropriate Dressing	

Burns



Cerebral Vascular Accident (CVA or Stroke)

Objectives:

- To assess and appropriately treat patients with suspected Cerebral Vascular Accidents

General Information:

- Obtain CVA-specific history
 - a) Onset of stroke symptoms
 - b) List of signs/symptoms
 - c) Risk factors
 - d) Previous CVA
 - e) Medications
 - f) New onset dysrhythmias
- Transport patient, even if symptoms have resolved
- Transport a family member or other witness to verify time of onset of stroke symptoms
- Cincinnati Prehospital Stroke Scale:
 - a) Facial Droop (ask patient to smile or show their teeth)
 - i) Abnormal: one side of face moves differently
 - b) Arm drift (ask patient to close eyes and hold both arms straight out for 10 seconds)
 - i) Abnormal: one arm moves differently than the other
 - c) Abnormal speech (ask the patient to say "you can't teach an old dog new tricks")
 - i) Abnormal: speech is slurred or patient uses incorrect words
 - d) If any one of these 3 signs is abnormal, it is highly probable the patient is having a stroke
- If possible, transport to a medical facility with the ability to give thrombolytics. Make early contact with Medical Control



Warnings/Alerts:

- Do not delay transport to start IVs or perform other non-life-saving ALS interventions
- Patients with stroke symptoms are at high risk for airway compromise
 - a) Example: vomiting, gurgling, drooling, snoring, change in breathing pattern, change in head position
- The airway should be continuously monitored for patency
- Hypoxemia will worsen stroke outcomes

OMD Notes:

-

References:

AHA ACLS 2005 Provider Manual

Brady's Essentials of Paramedic Care, 2nd Edition, 2007 pg. 1257-1263

Performance Indicators:

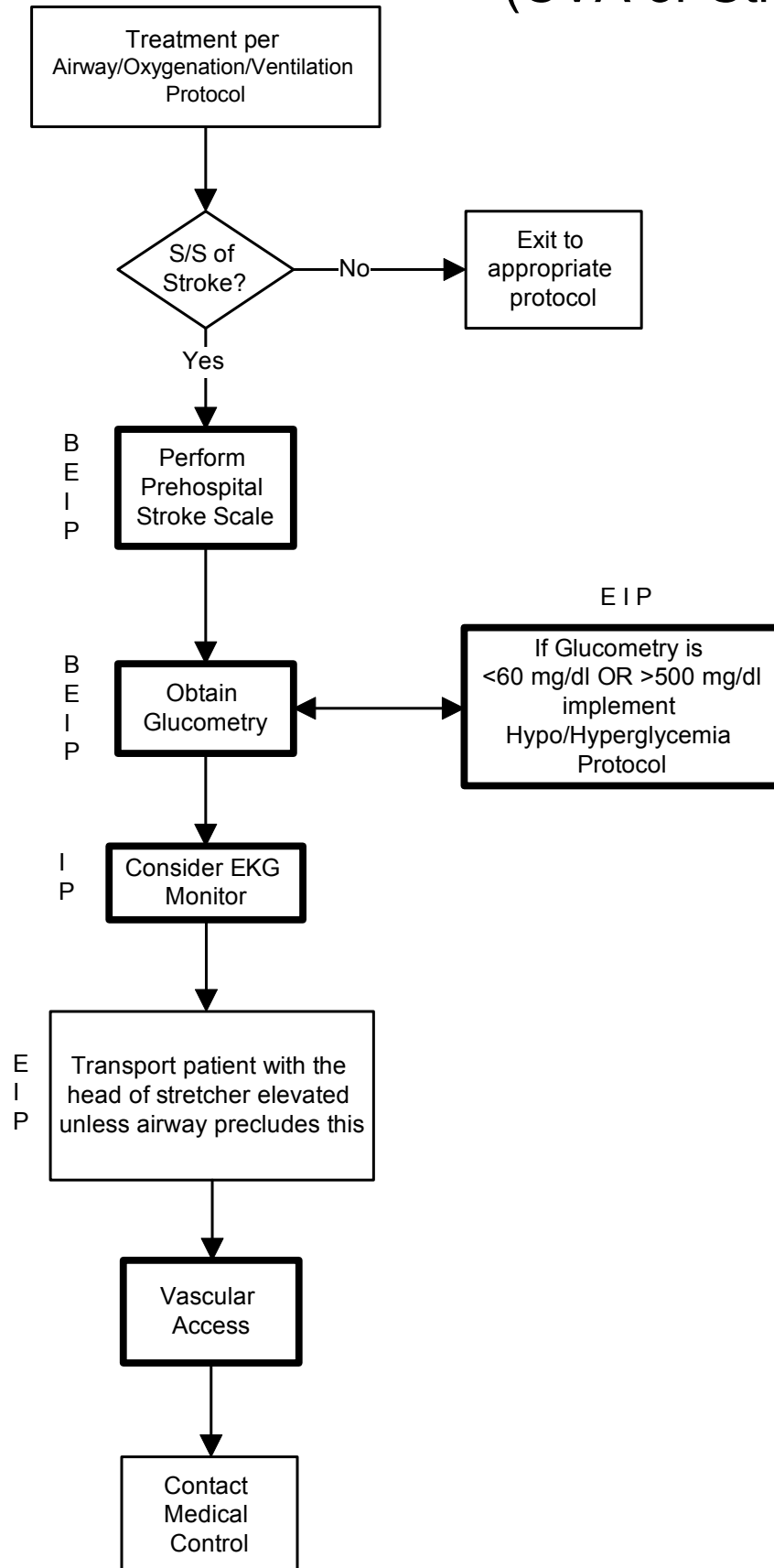
Onset of Symptoms
EKG Monitor

Time of Onset
Documentation

Prehospital Stroke Scale

Blood Glucose Level

Cerebral Vascular Accident (CVA or Stroke)



Chemical Exposure (Poisoning)

Objectives:

- To assess and treat patients who have been poisoned by various substances

General Information:

- If the scene is unsafe, notify fire department or HAZMAT team immediately
- Do not act upon advice from poison control center; contact medical control for instructions
- Dry chemicals should be brushed off patient's skin before flushing with water
- Chemical exposure to the eyes can be flushed with IV saline using an administration set by all field providers
- Remove any contaminated clothing
- Asphyxiants
 - a) Examples: Carbon monoxide, cyanide, hydrogen sulfide
 - b) Pulse oximetry may be unreliable due to asphyxiants' effects on red blood cells
 - c) Do not transport directly to a hyperbaric facility without consulting medical control
- Cholinergic
 - a) Examples: Organophosphates, carbamates, military nerve agents, azinphos-methyl, methyl parathion, chlorothiophos, carbaryl, aldicarb
 - b) SLUDGE
 - i) Salivation, Lacrimation, Urination, Defecation, Gastrointestinal cramping, Emesis
 - c) Valium (diazepam) 10 mg or Versed (midazolam) 2 mg may be substituted for Ativan (lorazepam) if necessary
- Corrosives
 - a) Examples: Acids (acetic, hydrochloric, nitric, phosphoric, sulfuric) and Bases (sodium hydroxide, ammonium hydroxide, potassium hydroxide)
 - b) Do not induce vomiting if ingested. If patient vomits, position patient and suction to avoid aspiration
 - c) Expect rapid mucous membrane swelling if ingested, and consider early and aggressive airway management
- Hydrocarbons
 - a) Examples: Gasoline, methane, toluene, carbon tetrachloride, methylene chloride, trichloroethylene
 - b) Do not induce vomiting if ingested. If patient vomits, position patient and suction to avoid aspiration
- Irritant Gas
 - a) Examples: Chlorine, ammonia, phosgene
 - b) Chlorine gas is created when bleach is mixed with ammonia or acid-based cleaners



Warnings/Alerts:

- Do not bring hazardous materials to the hospital / Notify hospital ASAP
- Do not use diuretics or nitroglycerin for patients with non-cardiogenic pulmonary edema

OMD Notes:

-

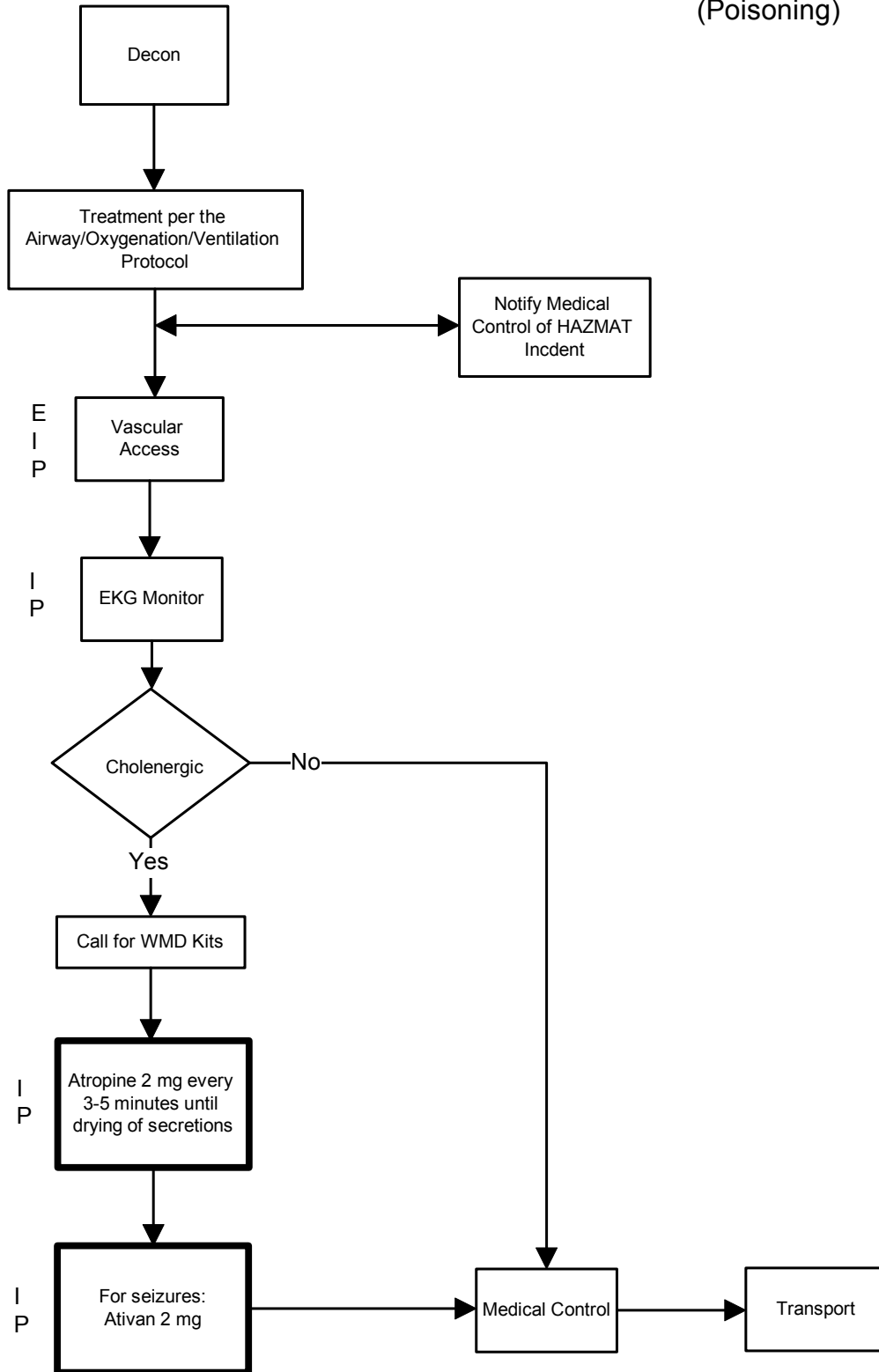
References:

Performance Indicators:

Initial Evaluation Appropriate Receiving Facility Documentation of Substance (if known)
Use of Decontamination Treatment and Response to Treatment

Chemical Exposure

(Poisoning)



Chest Pain/AMI/ACS

Objectives:

- To assess and appropriately treat patients with chest pain or suspected Acute Myocardial Infarction
- To eliminate patient's chest pain

General Information:

- Aspirin
 - a) EMT-Bs and EMT-Cs may administer aspirin with physician orders
 - b) If patient has taken aspirin within 1 day, administer additional aspirin up to the maximum protocol directed dose
 - c) Patient should be directed to chew and swallow
 - d) Do not administer aspirin in the following cases
 - i) Patients with history of GI bleeding or other bleeding disorders
 - ii) Patients with history of recent surgery (within 14 days)
 - iii) Patients that have already recently taken maximum dose of aspirin prior to EMS arrival
 - iv) Patients with sensitivity/allergy to aspirin
- Nitroglycerin
 - a) EMT-Bs and EMT-Cs may administer nitroglycerin with physician orders
 - b) Nitroglycerin should not be given to patients with a systolic blood pressure < 110 mmHg without IV access
 - c) Nitroglycerin may be given every 5 minutes (after the initial 3 doses) with physician orders as long as the systolic blood pressure remains > 100 mmHg
 - d) Sub Lingual should be given first, whenever possible; transdermal nitro has a slower onset (>30 minutes)
- Transdermal Nitroglycerin (I and P only)
 - a) Should be administered if patient cannot tolerate SL Nitroglycerin or if SL Nitroglycerin fails to relieve pain
- Morphine (I and P only)
 - a) May be administered concurrently with nitroglycerin if pain is unresolved
 - b) May administer additional morphine if needed with physician order
 - c) Implement Nausea/Vomiting protocol as necessary
- If the patient has cocaine-induced chest pain, physician may order Valium 5 mg IV/IM



Warnings/Alerts:

- Do not administer nitroglycerin to patients who have taken sexually-enhancing medications (ie. Viagra, Levitra or Cialis) within the past 72 hours
- Do not administer more than 3 nitroglycerin doses in a 15-minute time period
- Contact medical control if patient is on anticoagulant therapy (ie Heparin, Lovenox, Coumadin,

OMD Notes:

- May administer ASA if patient is taking Antithrombotics (ie Plavix, Aggrenox, Ticlid)
- Call medical control if patient has any history of prior sensitivity or allergic reaction to aspirin
- Do not delay patient treatment to obtain a 12 lead EKG

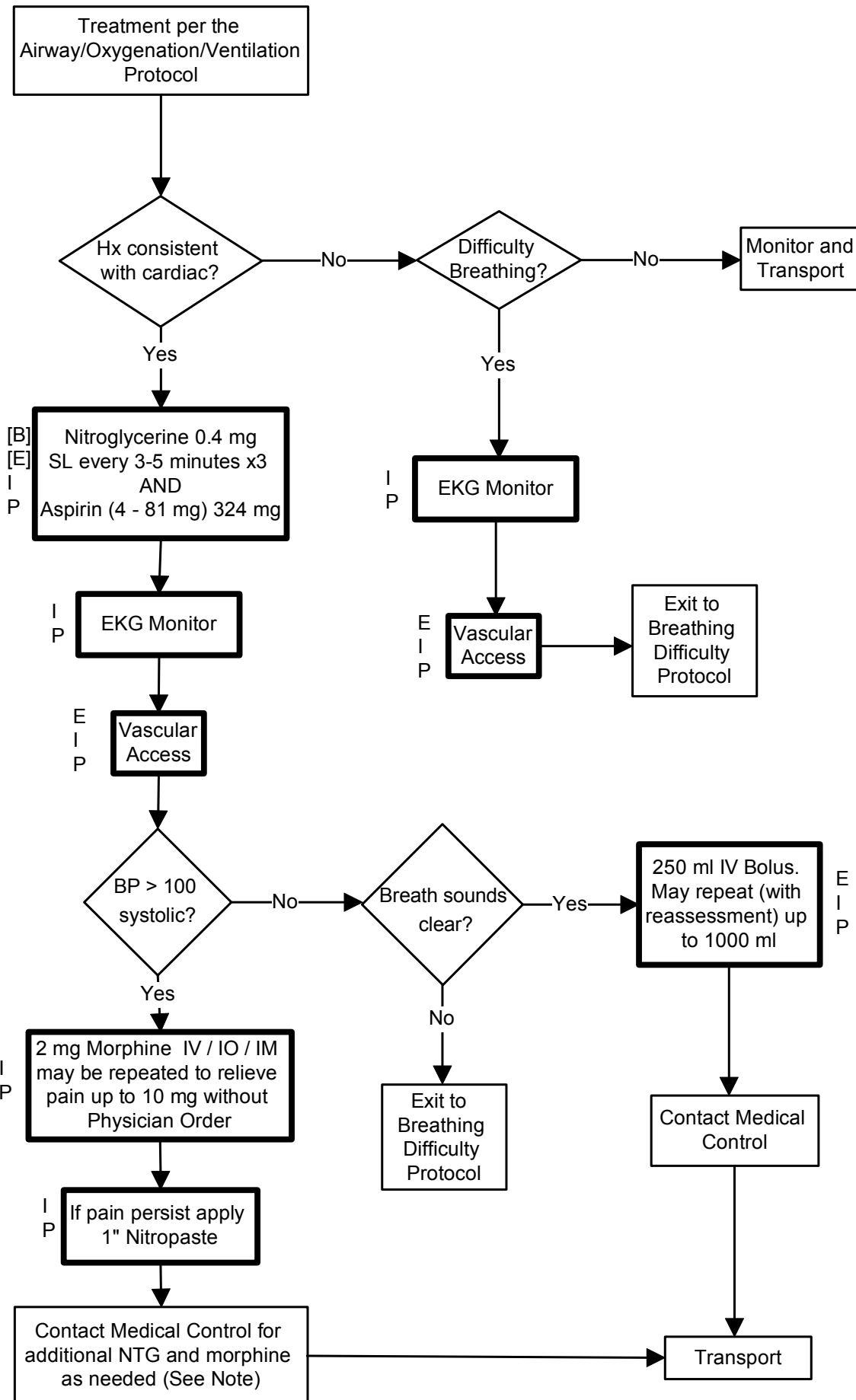
References:

AHA ACLS 2005 Provider Manual
Mosby's Paramedic Textbook, 3rd Edition, 2007 pg 1337
Brady Prehospital Emergency Pharmacology, 2005 pg 208

Performance Indicators:

Chest Pain Scale 1-10 MONA Administration Sexually Enhancing Drug Use OPQRST Assessment
12 Lead/EKG Monitor Vital Signs After Drug Administration

Chest Pain / AMI / ACS



Combative Patient

Objectives:

- To assess and appropriately treat a patient who is combative
- To ensure the safety of the patient and others
- To facilitate a means for an appropriate assessment
- To utilize de-escalation techniques prior to pharmaceutical intervention

General Information:

- De-escalation
- Physical Restraint Guidelines
 - a Use the minimum physical restraint required to accomplish necessary patient care and ensure safe transportation:
 - i Soft restraints may be sufficient
 - ii If law enforcement or additional personnel are needed, call for it prior to attempting restraint procedures
 - iii Do not endanger yourself or your crew
 - b Avoid placing restraints in such a way as to preclude evaluation of the patient's medical status (airway, breathing, and circulation). Consider whether placement of restraints will interfere with necessary patient care activities or will cause further harm.
- Chemical Restraint Guidelines
 - a Sedative agents may be used to provide a safe, humane method of restraining the violently combative patient who presents a danger to themselves or others and to prevent the violently combative patient from further injury while secured by physical restraints
 - b These patients may include but are not limited to the following:
 - i Alcohol and or drug-intoxicated patients
 - ii Restless, combative head-injury patients
 - iii Mental illness patients
 - iv Physical abuse patients (more humane than physical restraint)
- Capacity issues are complex. If the patient is intoxicated, has a head injury, has a history of overdose or is thought to be an immediate danger to self or others, he/she is most likely not capable to refuse treatment. Contact police and Medical Control to aid in making the decision
- Consider 50 mg IV/IM diphenhydramine (Benadryl) if patient exhibits signs of a dystonic reaction (standing orders for Intermediates/Paramedics)
 - a Abnormal muscle tone; sudden stiffening; turning head to one side



Warnings/Alerts:

- All patients who have been given Haldol must be physically restrained
- Haldol lowers the seizure threshold and is contraindicated in patients with a seizure history
- Considerations during restraint:
 - a) Airway/ventilation compromise
 - b) Positional asphyxia
 - c) Neurovascular injury/compromise
 - d) Agitated delirium (acidosis).

OMD Notes:

-

References:

Mosby's Paramedic Textbook, 3rd Edition, 2007 pg 1045-1046

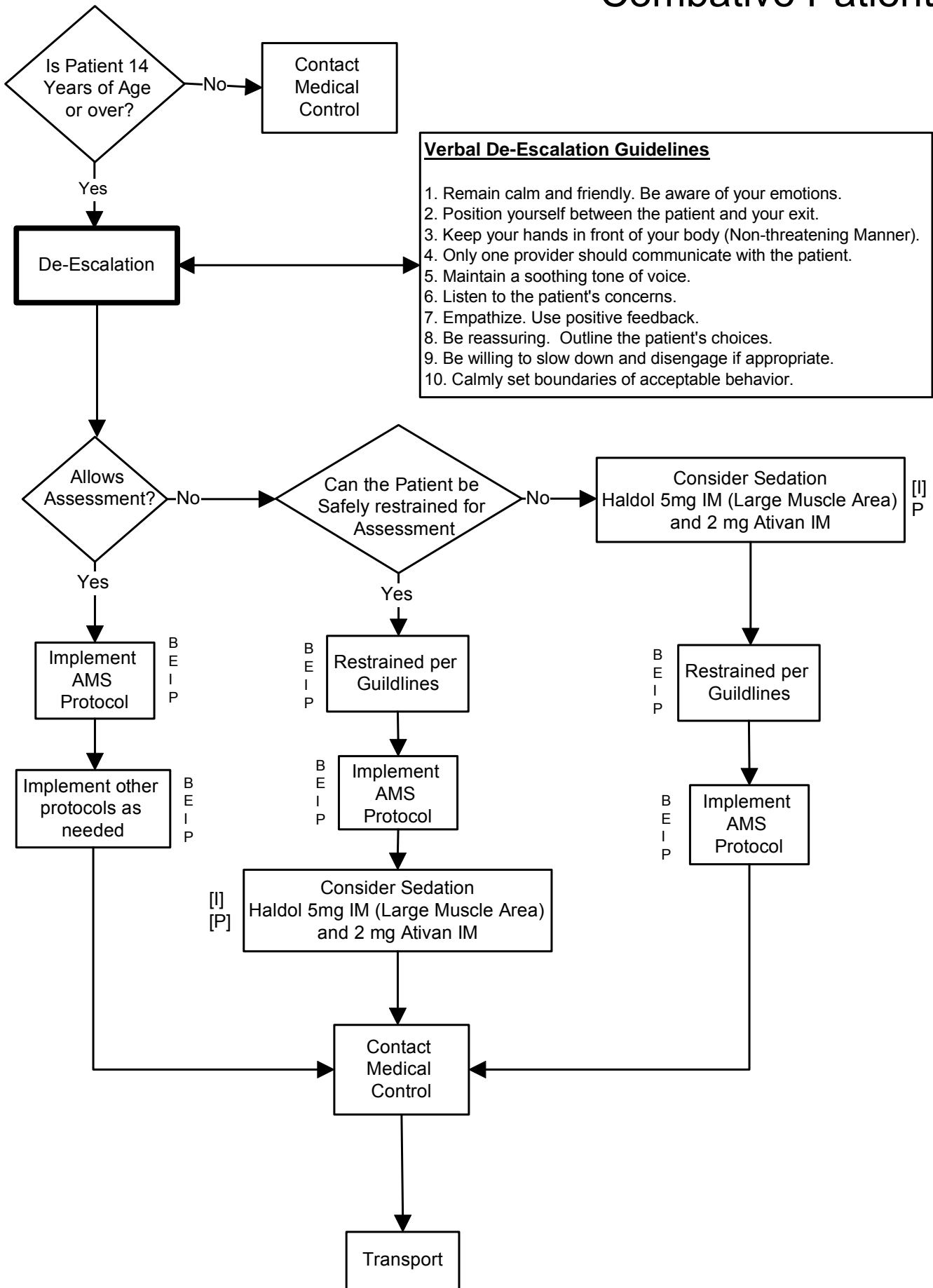
Performance Indicators:

De-Escalation Attempted
Use of Chemical Restraint

Patient Mental Capacity
Time on Scene

Use of Physical Restraint
Patient Disposition

Combative Patient



Dialysis/Renal Failure

Objectives:

- To assess and appropriately treat patients who receive dialysis

General Information:

- Dialysis patients are very susceptible to electrolyte imbalances and hypoglycemia
- Serious signs and symptoms of electrolyte imbalances include:
 - a) Weakness
 - b) Chest pain/pressure
 - c) Peaked T waves on an EKG
 - d) Hypotension
 - e) Hypertension
 - f) Pulmonary edema
 - g) Headache
 - h) Dizziness
- Shunts are formed by connecting a vein to an artery to provide access for hemodialysis
 - a) Do not take a blood pressure or start an IV in the extremity with the shunt.
- Dialysis patients are frequently given anticoagulant medications and bleeding may be difficult to control
- Bleeding from shunts or fistulas can be very difficult to control:
 - a) Apply fingertip pressure directly to the bleeding site
 - b) Do not apply pressure to other areas of the shunt
 - c) Do not use tourniquets directly on shunt or fistula
 - d) It may be necessary to assign a provider to maintain direct pressure
 - e) For life threatening, uncontrollable bleeding place a tourniquet above the fistula or shunt
- Dialysis patients with chest pain should be disconnected from the machine and reassessed prior to implementing the Chest Pain/AMI/ACS protocol.
- For cardiac arrest in dialysis patients, calcium chloride 1g IV/IO followed by 40 ml flush and sodium bicarbonate 1 mEq/kg IV/IO should be administered as first-line drugs



Warnings/Alerts:

- Do not use tourniquets directly on shunt or fistula
- Do not give magnesium sulfate to renal failure patients
- Flush IV lines thoroughly between sodium bicarbonate and calcium chloride administration

OMD Notes:

-

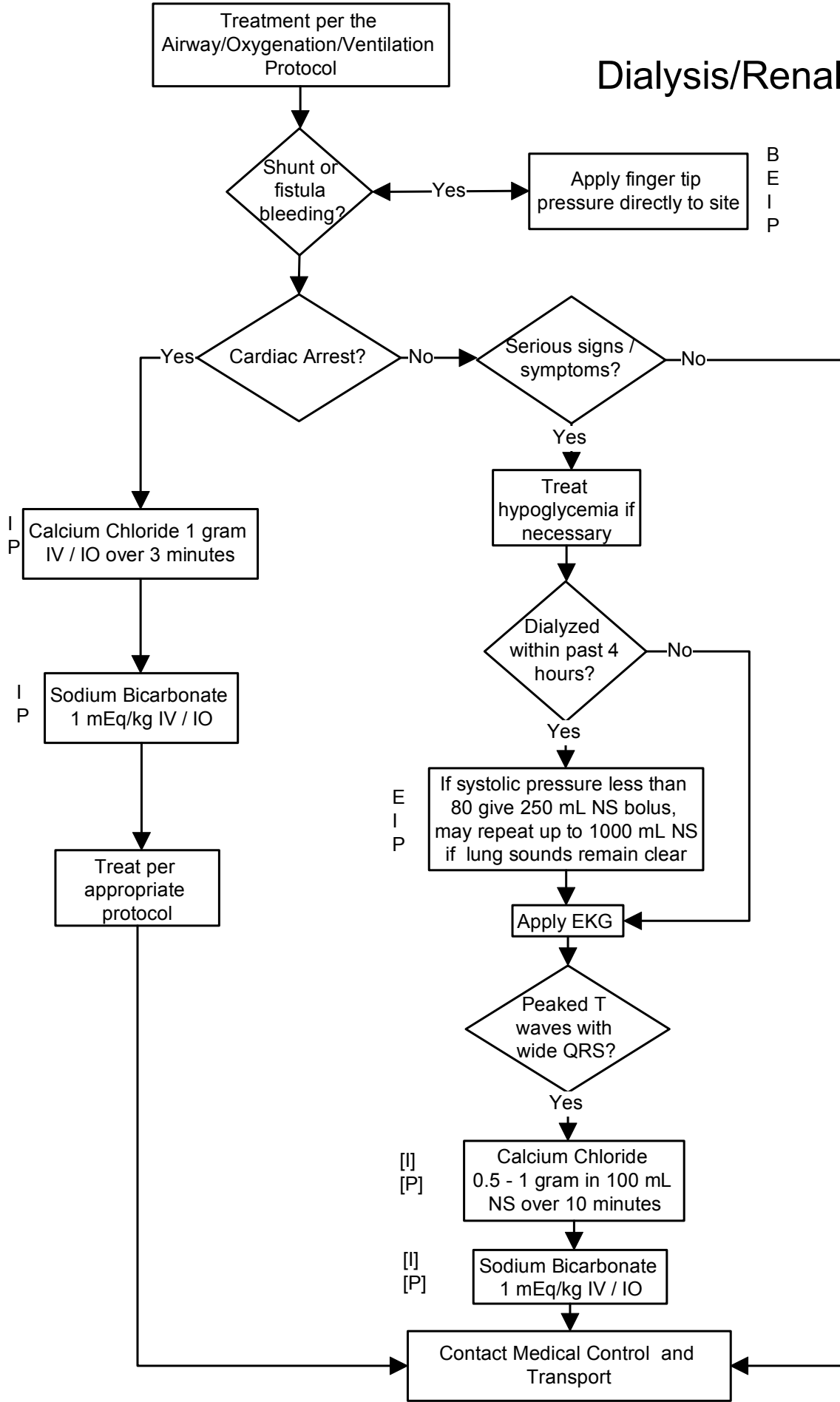
References:

Mosby's Paramedic Textbook, 3rd Edition (Revised), 2007, p. 902-904

Performance Indicators:

Last dialysis treatment Time of onset of S & S EKG rhythm Treatment and Response to Treatment

Dialysis/Renal Failure



Diving Medical Disorders

Objectives:

- To assess and appropriately treat patients who are experiencing a diving medical disorder

General Information:

- Mild symptoms
 - a) Fatigue
 - b) Itching
- Serious symptoms
 - a) Pain
 - b) Vertigo
 - c) Focal weakness
 - d) Vision and/or speech difficulty
 - e) Marbled rash
 - f) Numbness and/or tingling
 - g) Confusion
 - h) Seizure
 - i) Cardiac arrest
- Aspirin will help prevent clot formation around nitrogen bubbles in the bloodstream.
- Medical control will designate transport destination
 - a) Hyperbaric chambers:
 - i) Sentara Leigh Hospital ED (757) 261-6804 Hyperbaric (757) 261-4325
 - ii) Bon Secours DePaul ED (757) 889-5112 Hyperbaric (757) 889-2300
 - iii) Diver Alert Network (919) 684-8111
 - iv) Chesapeake Regional Medical Center (757) 312-6149



Warnings/Alerts:

- Transport patients in a supine position
- Do not transport directly to a hyperbaric chamber without direction from medical control

OMD Notes:

- Transport only to hyperbaric chambers at medical facilities listed above

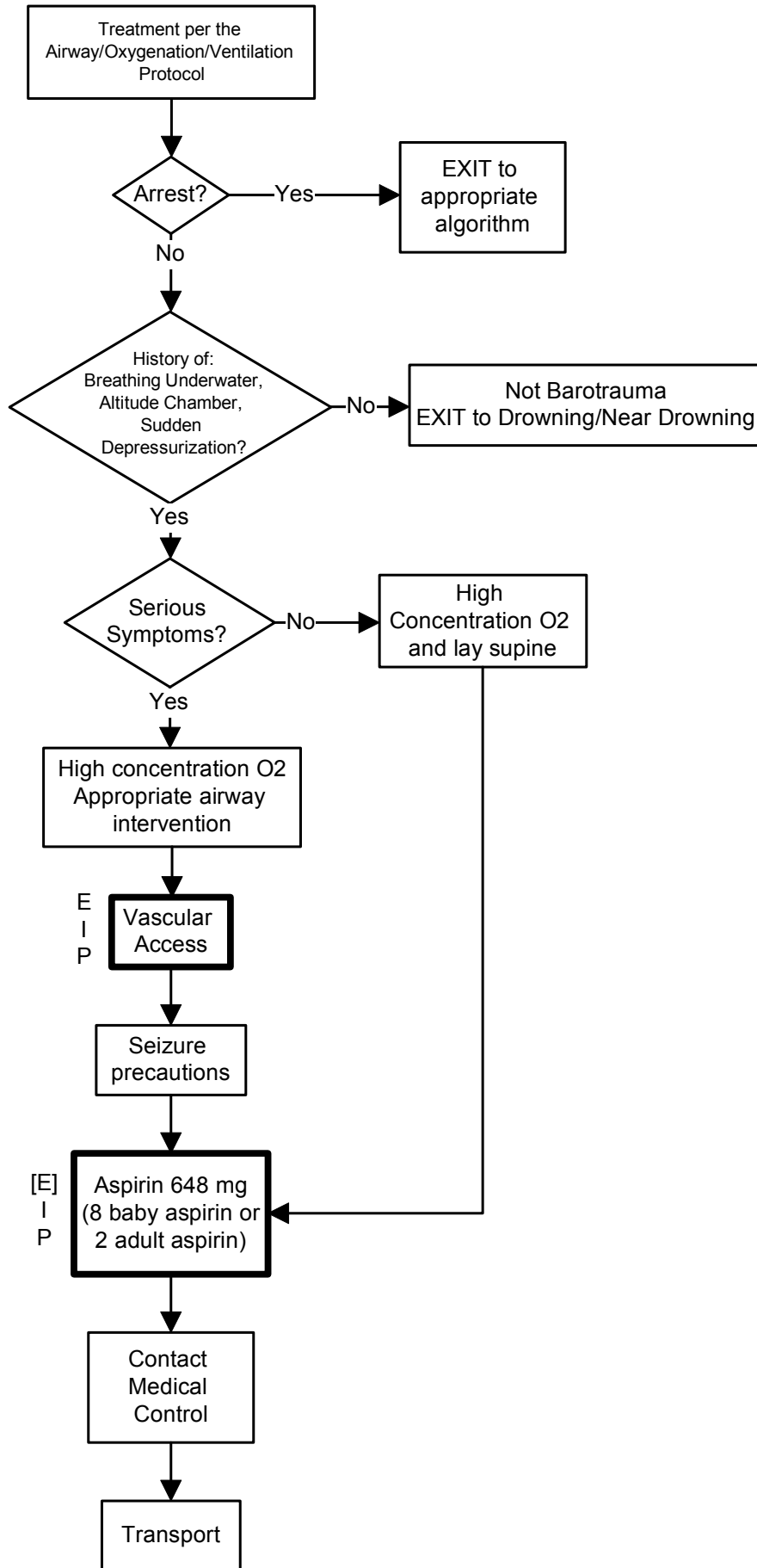
References:

Performance Indicators:

Barotrauma History Online Medical Control
Transport to Appropriate Facility

Aspirin Administration

Diving Medical Disorders



Drowning/Near Drowning (Submersion Injuries)

Objectives:

- To assess and appropriately treat patients who have experienced a submersion injury

General Information:

- Collect history
 - a) Trauma
 - b) Immersion time
 - c) Air and water temperature
 - d) Salt, brackish or fresh water
 - e) Substance abuse



Warnings/Alerts:

- Transport all submersion incident patients; patients who have experienced a submersion incident are at high risk for developing life-threatening pulmonary edema within 72 hours of the incident
- Do not insert a nasogastric or orogastric tube without securing the airway with endotracheal intubation
- Consider alternate methods of c-spine immobilization if patient will not tolerate a supine position (ie KED, short board, manual control)

OMD Notes:

-

References:

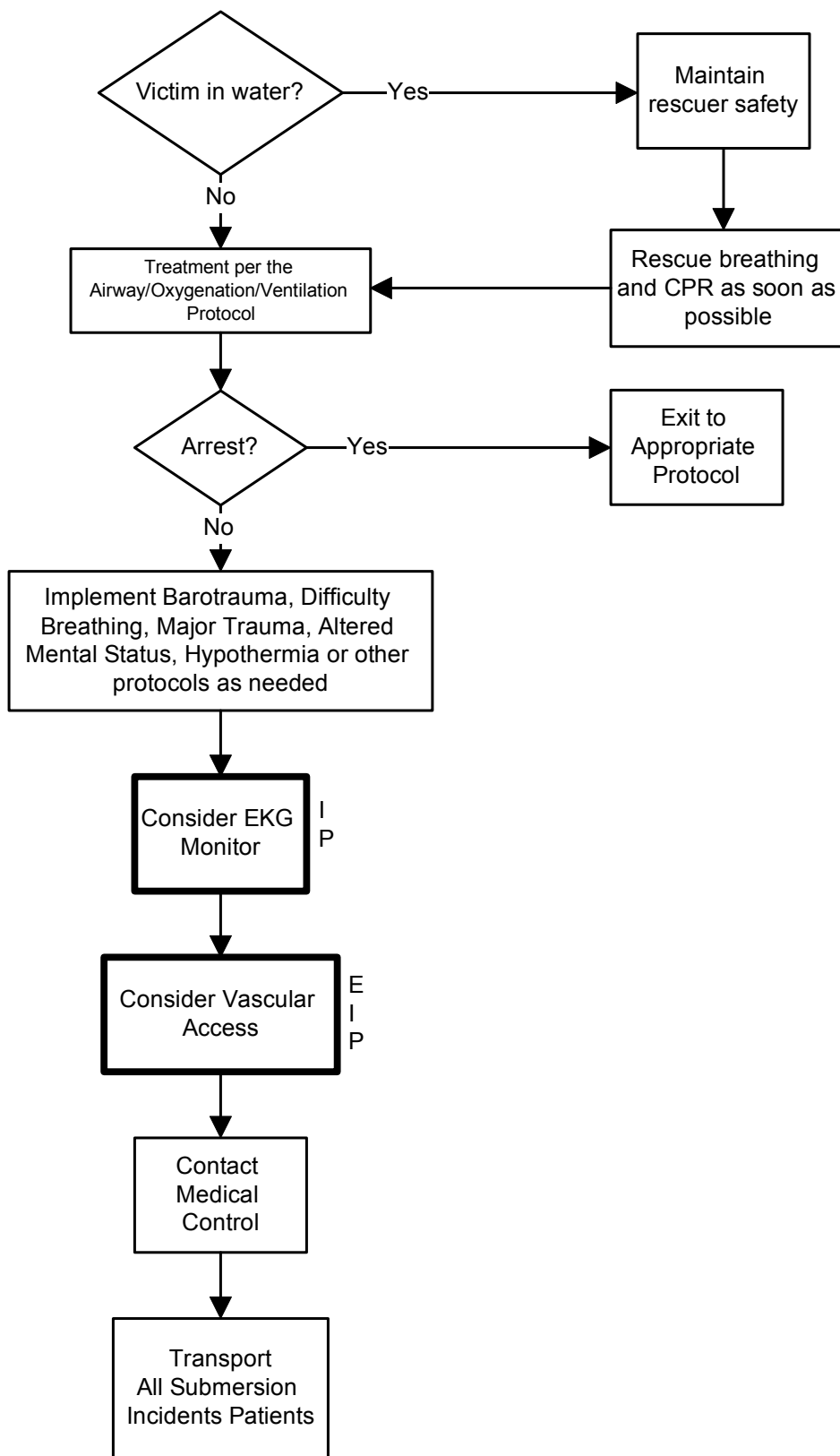
Performance Indicators:

Time in Water
Salt, Brackish or Fresh Water

Secondary Injury
Transport to Appropriate Facility

Water Temperature

Drowning/Near Drowning (Submersion Injuries)



Electrical/Lightning Injuries

Objectives:

- To assess and appropriately treat patients who have experienced and electrical or lightning injury

General Information:

- Note entrance/exit wounds
- Lightning and high voltage injuries can be associated with internal injuries from blast effect
- Electrical injuries are associated with falls, seizures and extremity injuries
- Multiple patients are common in lightning injuries
- Use reverse triage which requires patients in cardiac arrest to be treated first
- Patients with electrical/lightning injuries are at high risk for developing cardiac dysrhythmias



Warnings/Alerts:

- Scene safety is paramount. Ensure patient is not touching source of electrical current

OMD Notes:

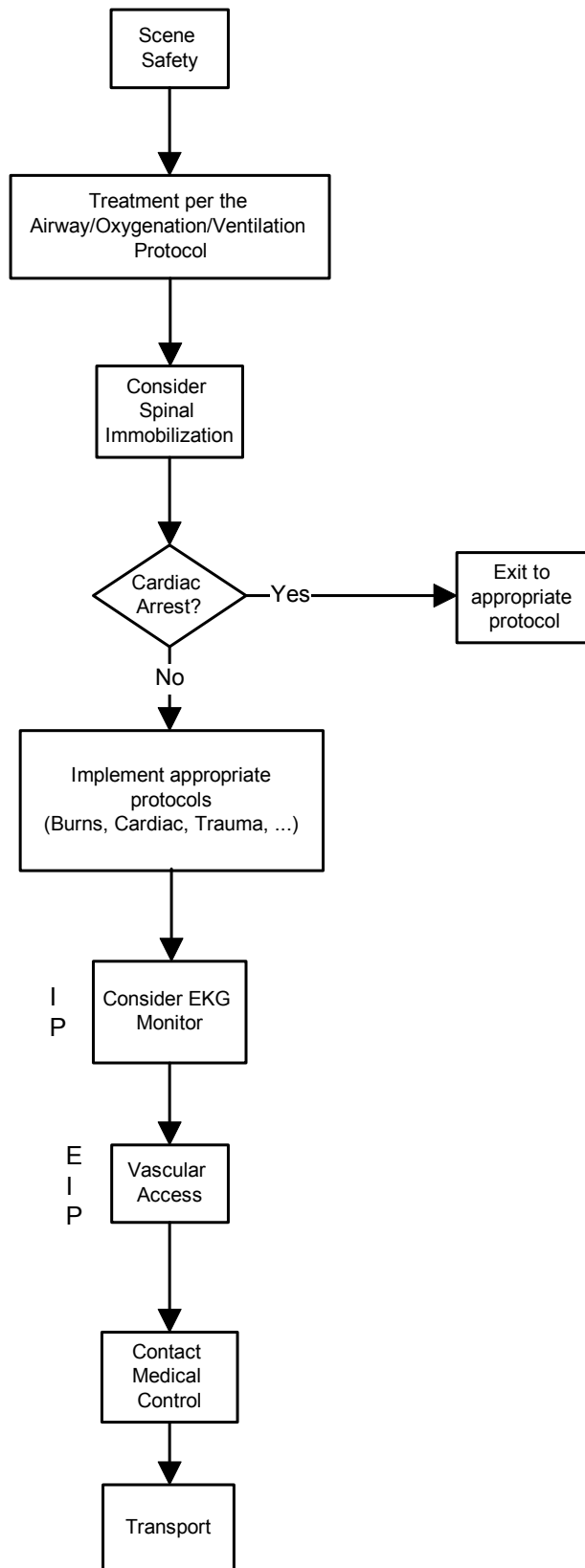
-

References:

Performance Indicators:

Vital Signs – 2 Set Minimum EKG Rhythm Transport to Appropriate Facility
Secondary Injury

Electrical/Lightning Injuries



Extraordinary Measures

Objectives:

- To maintain the life of a specific patient, it may be necessary, in rare situations, for the online physician to direct an ALS prehospital provider to render care not explicitly listed within the TEMS regional Medical Protocols

General Information:

- Extraordinary care is defined as any situation not covered by the TEMS Regional Medical Protocols
- If the prehospital provider receives a physician order for care, but does not feel comfortable with the order or does not agree that it is absolutely necessary to maintain the life of the patient, he/she must document the “inability to carry out a physician order” in the narrative section of the PPCR
- A TEMS Regional Trauma Triage or EMS Non-Trauma Quality Improvement form must be submitted by the receiving physician and the primary ALS provider immediately following the incident
- The agency medical director, specialty physician, attending physician, primary ALS provider and trauma attending physician (if applicable) must conduct a review of the incident for the purpose of quality improvement



Warnings/Alerts:

- All of the following essential criteria must be met:
 - a) The online physician and the provider must agree that the procedure is not addressed elsewhere in the protocols and that the procedure is absolutely necessary to maintain life of the patient
 - b) The provider must feel capable, based on the direction given by the online physician, of correctly performing the procedure
 - c) The prehospital provider must inform the consulting and receiving physician (s) of the effect of the treatment upon arrival at the receiving hospital

OMD Notes:

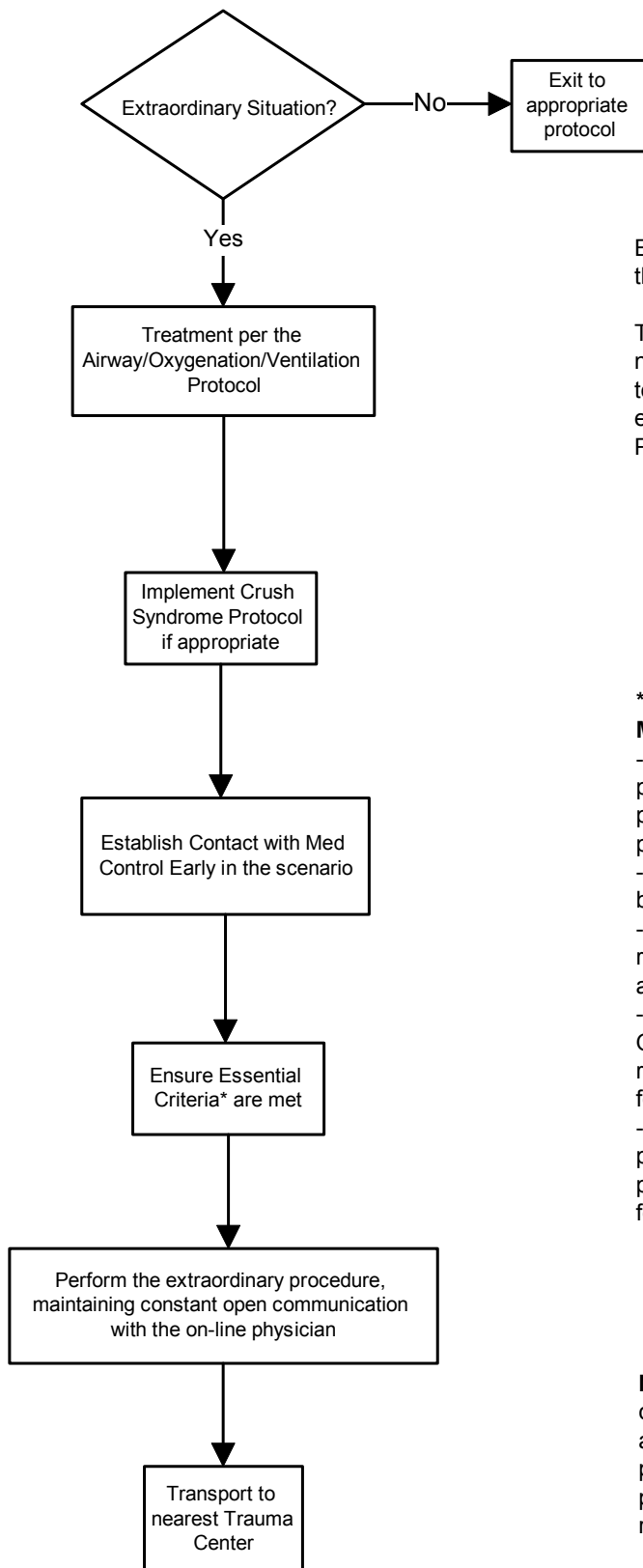
-

References:

Performance Indicators:

Onset of Injury (Physician Name)	Condition of Airway Procedure Performed	Patient Packaging Patient Response	Online Medical Control Scene Time
Transport to Appropriate Facility			

Extraordinary Measures



Extraordinary care is defined as any situation not covered by the Tidewater Regional Medical Protocols.

To maintain the life of a specific patient, it may be necessary, in rare situations, for the on-line physician to direct an ALS prehospital provider to render care not explicitly listed within the Tidewater Regional Medical Protocols.

*** ALL of the following ESSENTIAL CRITERIA MUST BE MET to validate this protocol:**

- The on-line physician and the provider must agree that the procedure is not addressed elsewhere in the protocols and this procedure is absolutely necessary to maintain the life of the patient.
- The provider must feel capable, based on the direction given by the on-line physician, of correctly performing the procedure.
- The prehospital provider must inform the consulting and receiving physician(s) of the effect of the treatment upon arrival at the receiving hospital.
- A Tidewater Regional Trauma Triage or EMS Non-Trauma Quality Improvement (QI) form must be submitted by the receiving physician and the primary ALS provider immediately following the incident.
- The agency medical director, specialty physician, attending physician, primary ALS provider and trauma attending physician (if applicable) must conduct a review of the incident for the purpose of quality improvement.

Note: If the prehospital provider receives a physician order for care, but does not feel comfortable with the order or does not agree that it is absolutely necessary to maintain the life of the patient, he/she must document the "inability to carry out a physician order" in the narrative of the prehospital patient care report (PPCR).

Hyper/Hypoglycemia

Objectives:

- To assess and appropriately treat patients with hyper/hypoglycemia

General Information:

- Oral glucose may be administered by EMT-Bs and above providers on standing orders, provided the patient meets the following criteria:
 - a) Glucometry < 60 mg/dL
 - b) Known or suspected history of diabetes
 - c) Conscious and able to swallow
 - d) Able to maintain own airway
- Dextrose 50% may be administered rectally with physician order
- Dextrose administration requires a patent flowing IV line, not a saline lock
- Patients with a prolonged period of hypoglycemia may not respond to glucagon
- Alcoholics and chronically malnourished patients (such as homeless people) may need thiamine to properly metabolize dextrose



Warnings/Alerts:

- Do not administer oral glucose to patients that are not able to swallow or protect their own airway
- If the IV infiltrates while administering dextrose, stop dextrose administration immediately

OMD Notes:

-

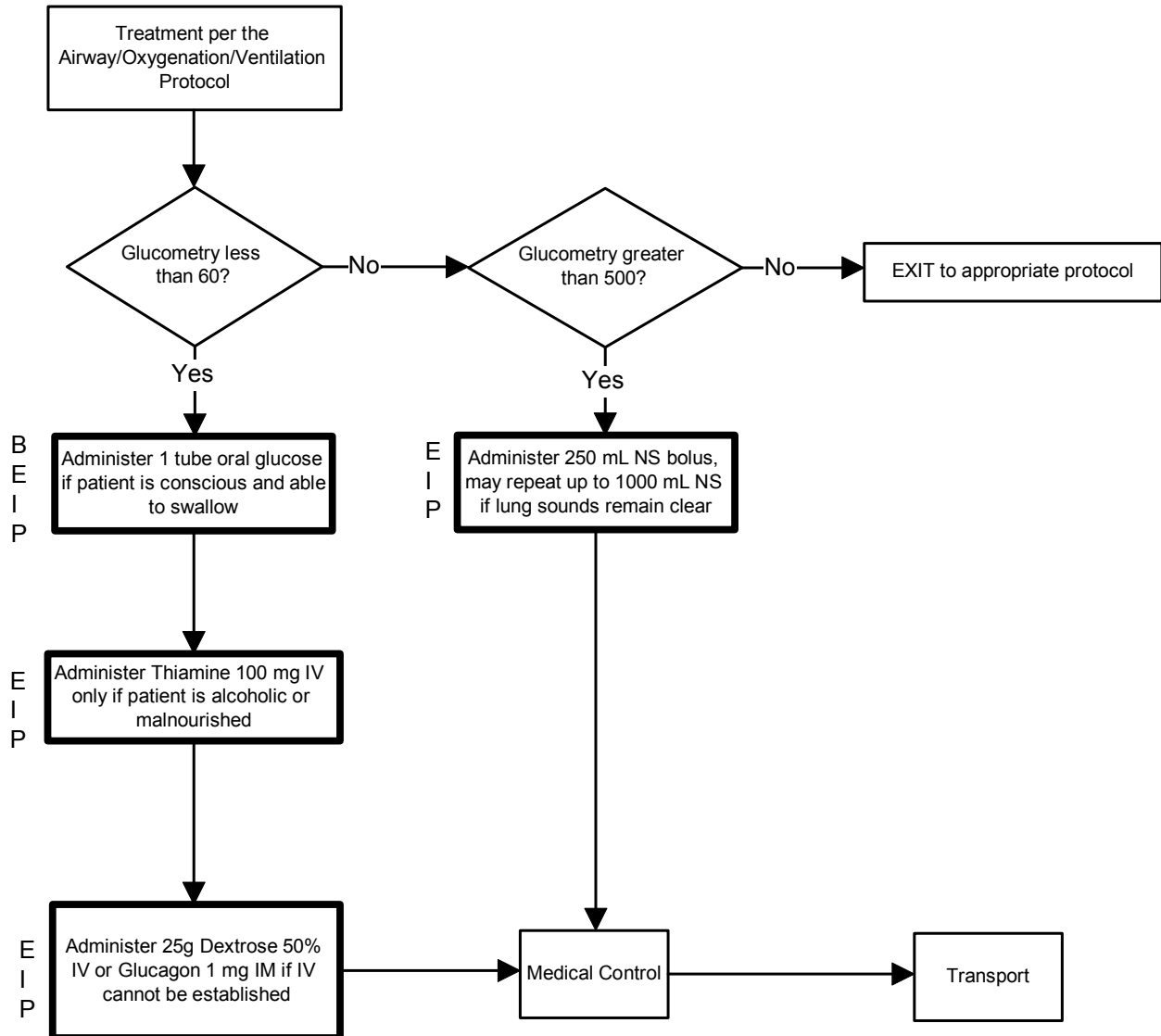
References:

AAOS Emergency Care & Transportation of the Sick and Injured 9th Edition pgs 350, 482-497
Mosby's Paramedic Textbook, Third Edition, 2007 pg 858-862

Performance Indicators:

Documented Cause (If Known) Treatment and Response to Treatment

Hyper/Hypoglycemia



Hyperthermia

Objectives:

- To assess and appropriately treat patients who are hyperthermic

General Information:

- Mild symptoms (heat cramps/heat exhaustion):
 - a Muscle cramps
 - b Nausea
 - c Headache
 - d Irritability
- Serious symptoms (heat stroke):
 - a Hypotension
 - b Loss of sweating (wipe away sweat to see if it reappears)
 - c Altered mental status
 - d Seizures
 - e Coma
- Mild hyperthermia
- Administer oral fluids – water or half-strength electrolyte solution
- Serious hyperthermia
 - a Transport rapidly
 - b Active cooling measures:
 - i Air moving across wet skin
 - ii Ice packs at axilla, groin, neck
 - iii Unit A/C on



Warnings/Alerts:

- Heat stroke is a life-threatening emergency. Do not delay transport

OMD Notes:

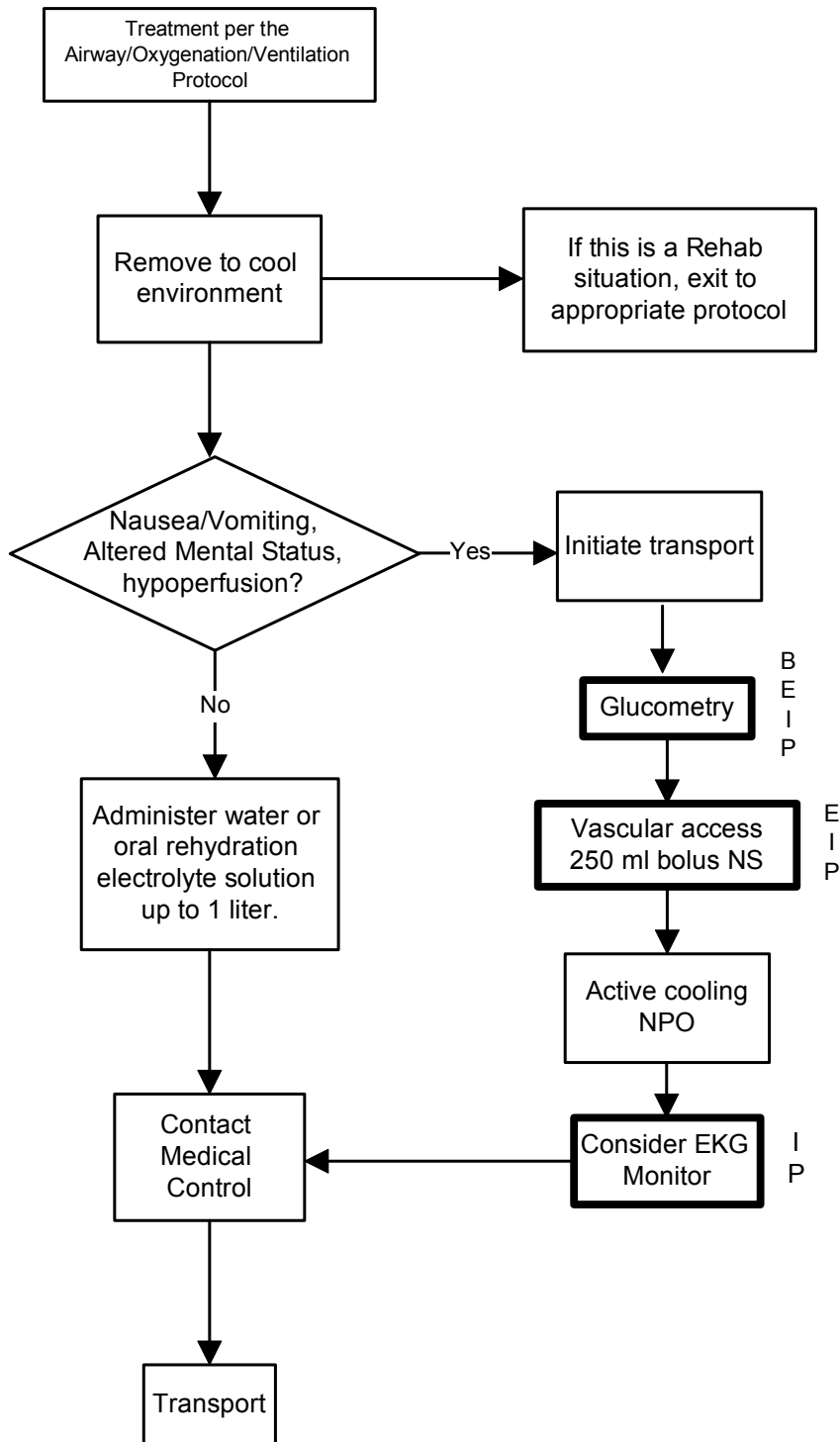
-

References:

Performance Indicators:

Time on Scene Patient Disposition Total Amount of Fluid Given PO/IV
Cooling Method Used

Hyperthermia



Hypothermia

Objectives:

- To assess and appropriately treat patients who are hypothermic

General Information:

- Mild hypothermia
 - a) Tachycardia
 - b) Lethargy
 - c) Shivering
 - d) Slurred speech
- Moderate hypothermia
 - a) Respiratory depression
 - b) Altered mental status
 - c) Bradycardia
- Severe hypothermia
 - a) Unconscious
 - b) Cyanosis
 - c) Rigid muscles
 - d) Pupils fixed and dilated
 - e) Cardiac arrest
- Management
 - a) Keep patients horizontal at all times
 - b) Count pulse and respirations for 60 seconds
 - c) Use passive rewarming measures only
 - i) Remove wet clothing
 - ii) Cover patient with blanket
 - iii) Turn up heat in unit
- Active rewarming is not advocated in the prehospital setting



Warnings/Alerts:

- Handle hypothermic patients gently to avoid spontaneous conversion into ventricular fibrillation
- Severely hypothermic patients can appear in rigor mortis. Providers should attempt resuscitation on hypothermic patients in cardiac arrest, unless there is clear evidence of irreversible death (ie. Decomposition, decapitation, etc.)

OMD Notes:

-

References:

Mosby's Paramedic Textbook, third edition, 2007 pg 977-979

Performance Indicators:

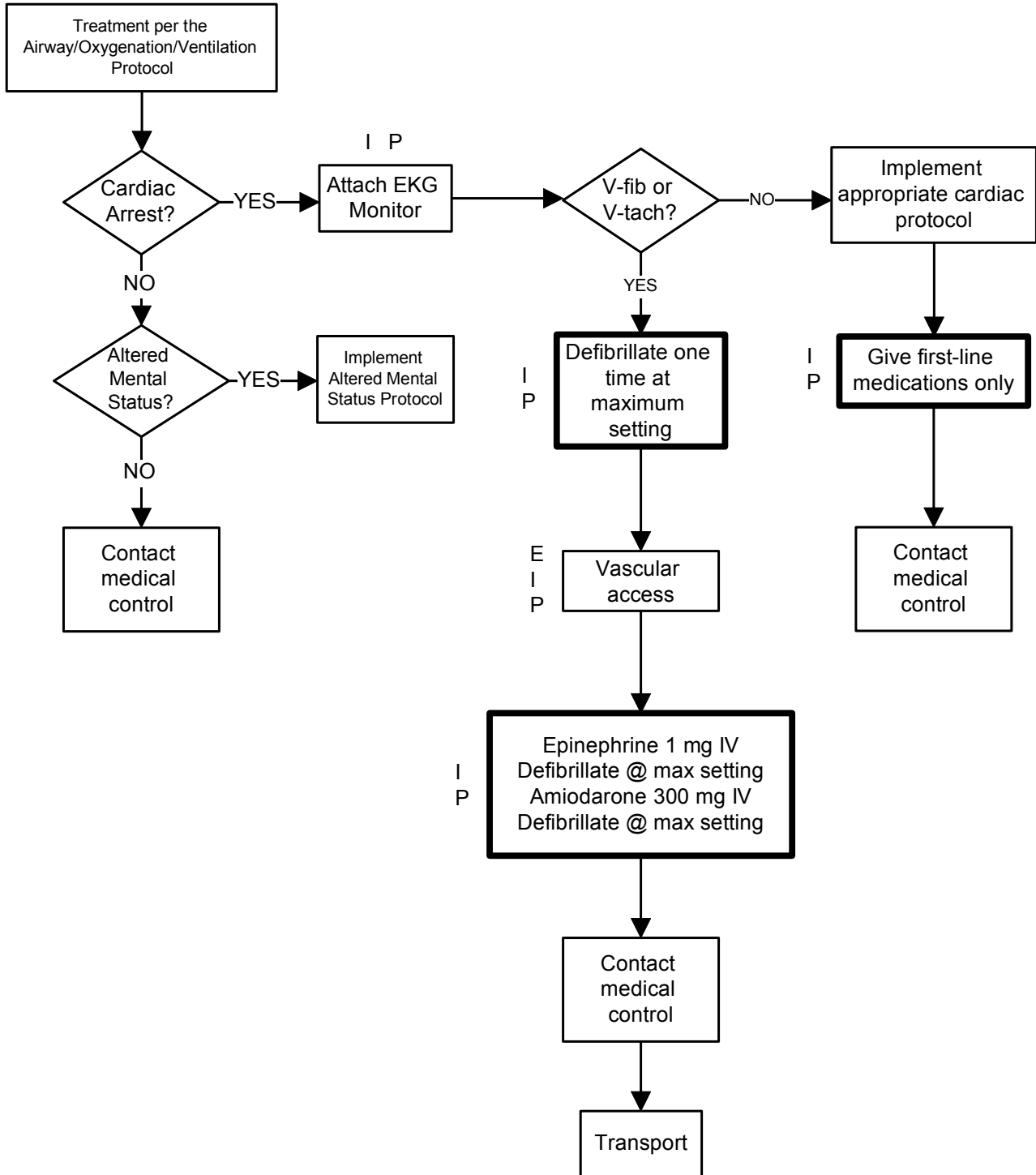
Time on Scene
Exposure Time

Volume Infused

Patient Disposition

Warming Methods

Hypothermia



Nausea/Vomiting

Objectives:

- To appropriately assess and treat patients who are profoundly nauseous or vomiting

General Information:

- Nausea and vomiting generally are not life-threatening conditions
- Suction should be readily available whenever a patient is nauseous or vomiting
- Zofran (ondansetron) may be administered when vomiting could produce an airway obstruction (for example, in backboarded patients) or for patient comfort when the patient is repeatedly vomiting
 - a) Dose: 4 mg slow IV push (over 2-5 minutes) or IM if IV is not available
 - b) Repeated doses generally are not effective; however, if the patient is still vomiting 20 minutes after the first dose, a repeat dose may be given
 - c) Pregnancy category B- providers should consult medical control before administering Zofran to a pregnant patient



Warnings/Alerts:

- Ventilating an unconscious vomiting patient will produce aspiration and airway obstruction- suctioning is essential
- Use caution when administering ondansetron with amiodorone or haloperidol due to an increased risk of arrhythmias from prolonged Q-T intervals

OMD Notes:

-

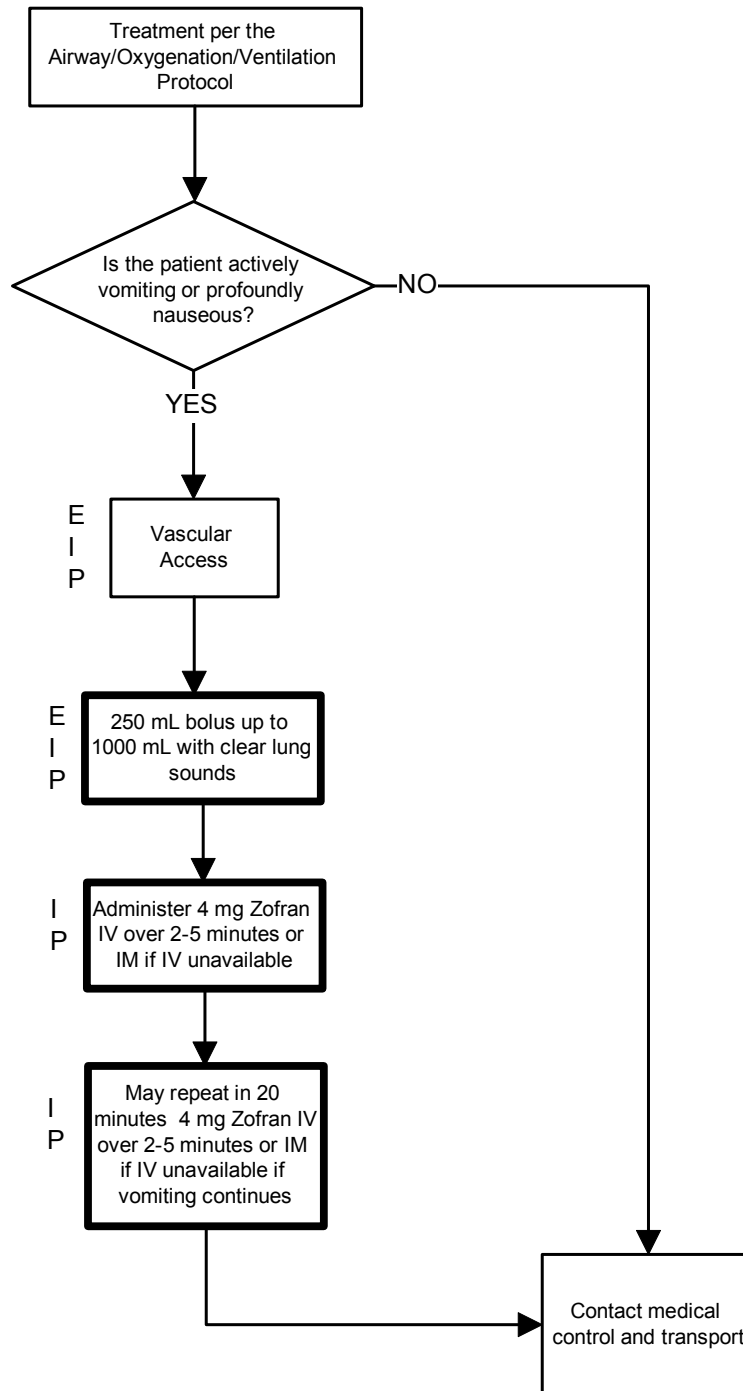
References:

- Epocrates.com
- Rxlist.com

Performance Indicators:

Document Cause (if Known) Type of Emesis Treatment and Response to Treatment

Nausea/Vomiting



OB/GYN- Pregnancy/Delivery/Vaginal Bleeding

Objectives:

- To appropriately assess and manage out-of-hospital births
- To appropriately assess and manage patients with vaginal bleeding
-

General Information:

- Obtain functional history:
 - a) Premature?
 - b) Multiple births?
 - c) Meconium?
 - d) Prenatal care?
 - e) Narcotic use?
- Transport pregnant patients in the left lateral recumbent position
- For patients with gestation greater than 20 weeks, transport patient to the closest facility with obstetrical capabilities. Medical control continues to serve as a resource in cases of uncertainty
- Patients will by-pass Sentara Leigh and Sentara Bayside to transport high risk pregnancies to Sentara Virginia Beach General or Sentara Norfolk General Hospital using the following criteria:
 - a) No prenatal care
 - b) Pre-term Labor - Gestational age \leq 34 weeks
 - c) Premature rupture of membranes (with or without labor) - Gestational age \leq 34 weeks
 - d) Major medical conditions (pre-eclampsia, diabetes, etc.) with gestational age \leq 34 weeks
 - e) Mild/Moderate vaginal bleeding at gestational age \leq 34 weeks
- Consider additional resources to care for the patient and the newly born
- Vaginal bleeding is considered moderate to severe if the patient has lost more than 500 ml of blood or if she is using 1 pad/hour or more
- If child is delivered, technician needs to fill out 2 PPCRs



Warnings/Alerts:

- Checking for cervical dilation is not within the scope of these protocols
- Do not assume that vaginal bleeding is due to normal menstruation
- Third-trimester bleeding is never normal and can be life-threatening to the mother and the fetus

OMD Notes:

-

References:

Mosby's Paramedic Textbook, Third Edition, 2007 pgs 1329-1330

Performance Indicators:

History of Pregnancy

Sex of Newborn

Amniotic Fluid Color

Treatment and Response to Treatment

Time of Delivery

Time of Placenta Delivery

Amount of Blood Loss

Delivery Complications

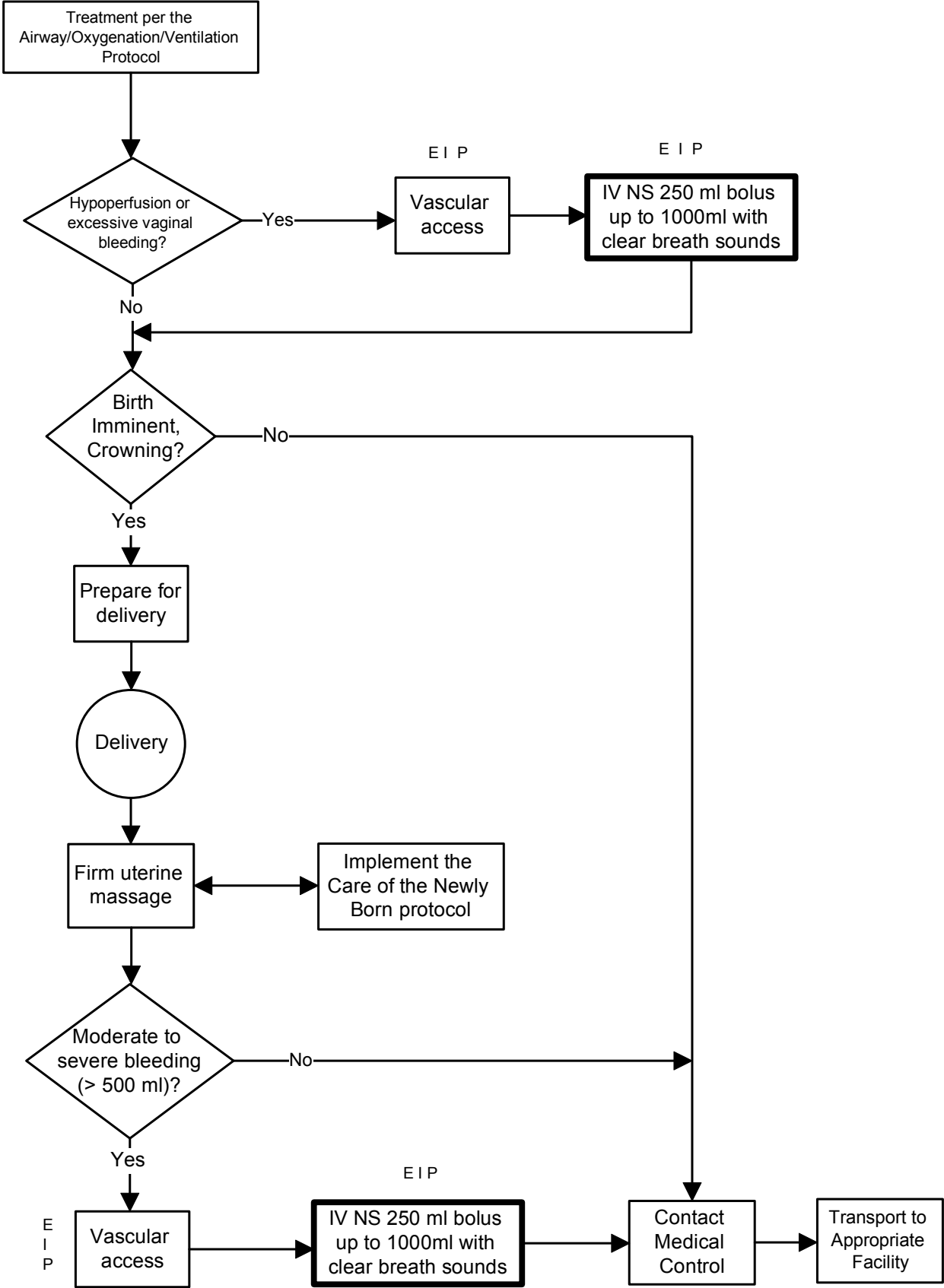
Presentation Position

Total Fluid Administered

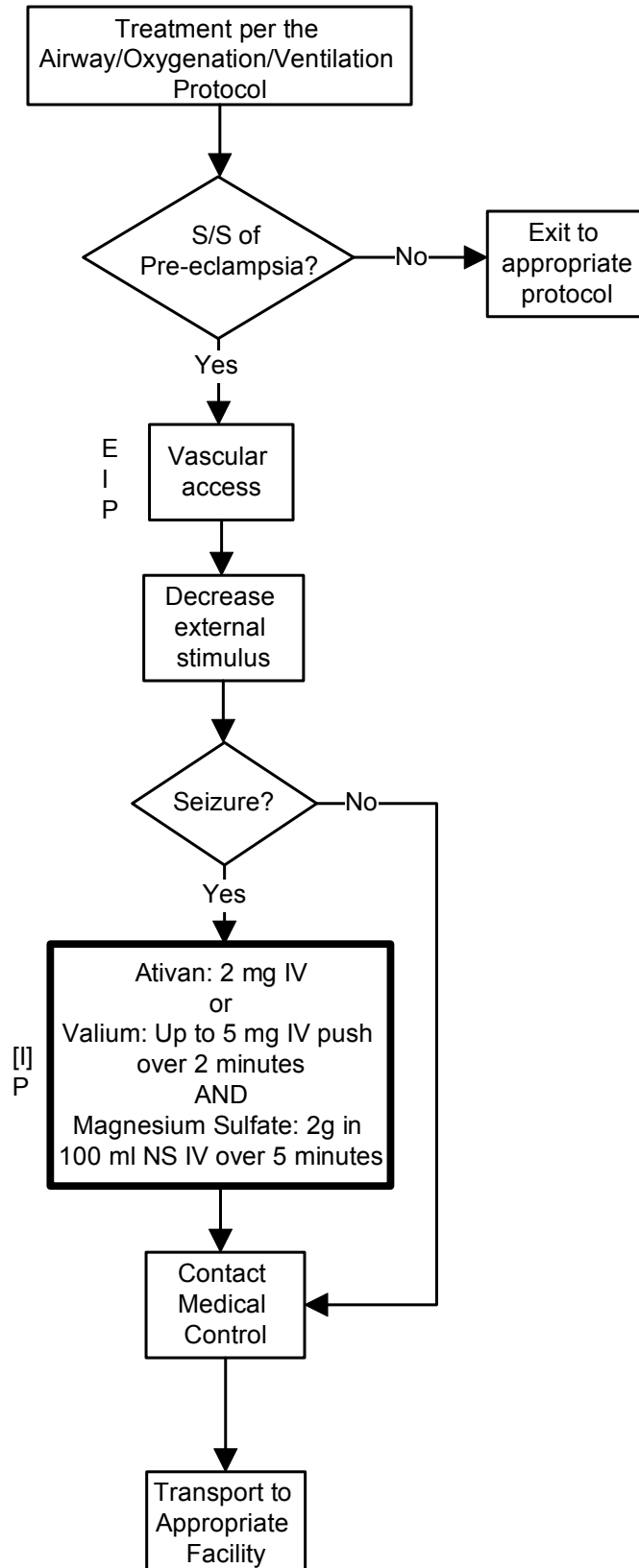
1 and 5 Minute APGAR

OB/GYN

Pregnancy/Delivery/Vaginal Bleeding



OB/GYN Pregnancy (Pre) Eclampsia



Pain Management Non-Cardiac

Objectives:

- To assess and appropriately treat non-cardiac pain in an effort to reduce patient's level of pain

General Information:

- Pain is an important indicator of disease or injury, but is generally under treated in EMS
- Physicians do not have to assess first hand a patient's pain level- document the patient's initial pain level in the PPCR
- Provide BLS pain control measures such as: position of comfort, splinting, ice, traction, etc.
- Morphine dose
 - a) 2 mg IV or IM with maximum total dose 10 mg
 - b) Morphine should be administered via slow IV push
 - c) Higher doses may be appropriate for patients with chronic pain after consulting medical control
- Conditions in which pain control may be appropriate
 - a) Isolated extremity injuries (standing orders for I/P)
 - b) Sickle cell crisis (physician order)
 - c) Kidney stones (physician order)
 - d) Cancer (physician order)
- Implement Nausea / Vomiting protocol as needed



Warnings/Alerts:

- Patients who receive morphine should also receive cardiac and SpO2 monitoring
- Monitor patient closely for respiratory depression and treat appropriately

OMD Notes:

-

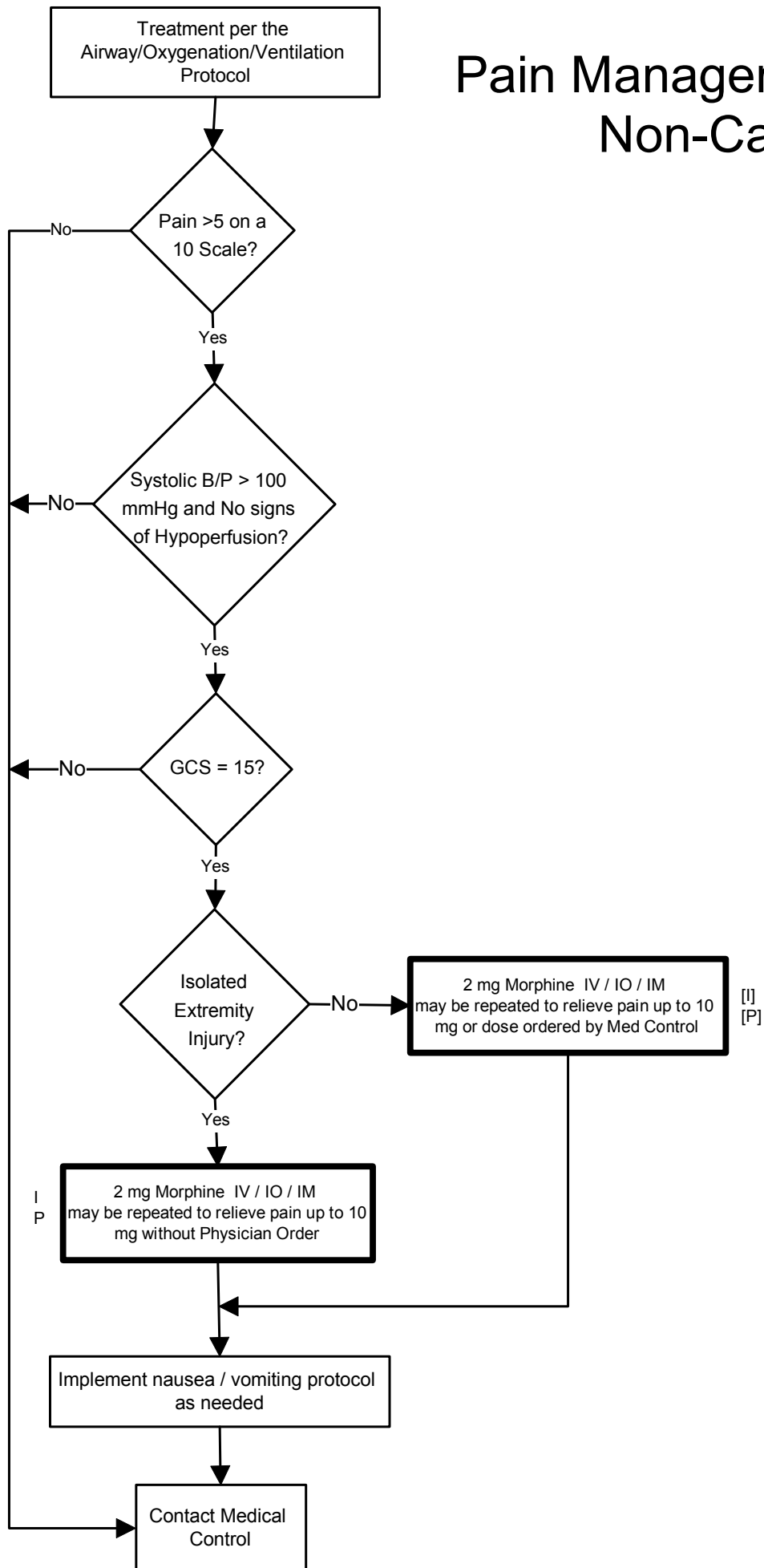
References:

Mosby's Paramedic Textbook, Third Edition, 2007 pg 1334

Performance Indicators:

Pain Scale Before and After Treatment Patient Mental Status Treatment and Response to Treatment

Pain Management: Non-Cardiac



Rehabilitation

Objectives:

- To assess and treat responders at working scenes

General Information:

- Rated Perceived Exertion (RPE) scale (NFPA 1584)
 - a) 1 No exertion
 - b) 2 Very light
 - c) 3 Light
 - d) 4
 - e) 5 Somewhat hard
 - f) 6
 - g) 7 Hard heavy
 - h) 8
 - i) 8.5 Very hard
 - j) 9
 - k) 9.5 Extremely hard
 - l) 10 Maximal exertion
- Active Cooling
 - a) Cooling vest, chair or other direct cooling devices
 - b) Place arms in ice water
 - c) Should take place in a shaded area
 - d) Allow patients to cool off gradually before moving them to an air conditioned environment
- Passive cooling
 - a) Remove protective gear
 - b) Rest in shaded and/or air conditioned environment
 - c) Cool water misters
- Rehydration should be with water or sports drink
 - a) Powdered sports drinks should be mixed at half-strength
 - b) Single serve sports drinks should be full strength
- Patients removed from the incident or transported to a medical facility warrant PPCR documentation
- Implement Hyperthermia protocol as necessary



Warnings/Alerts:

- Patients with signs/symptoms of heat stroke (see hyperthermia protocol) should be transported immediately with active cooling en route

OMD Notes:

▪

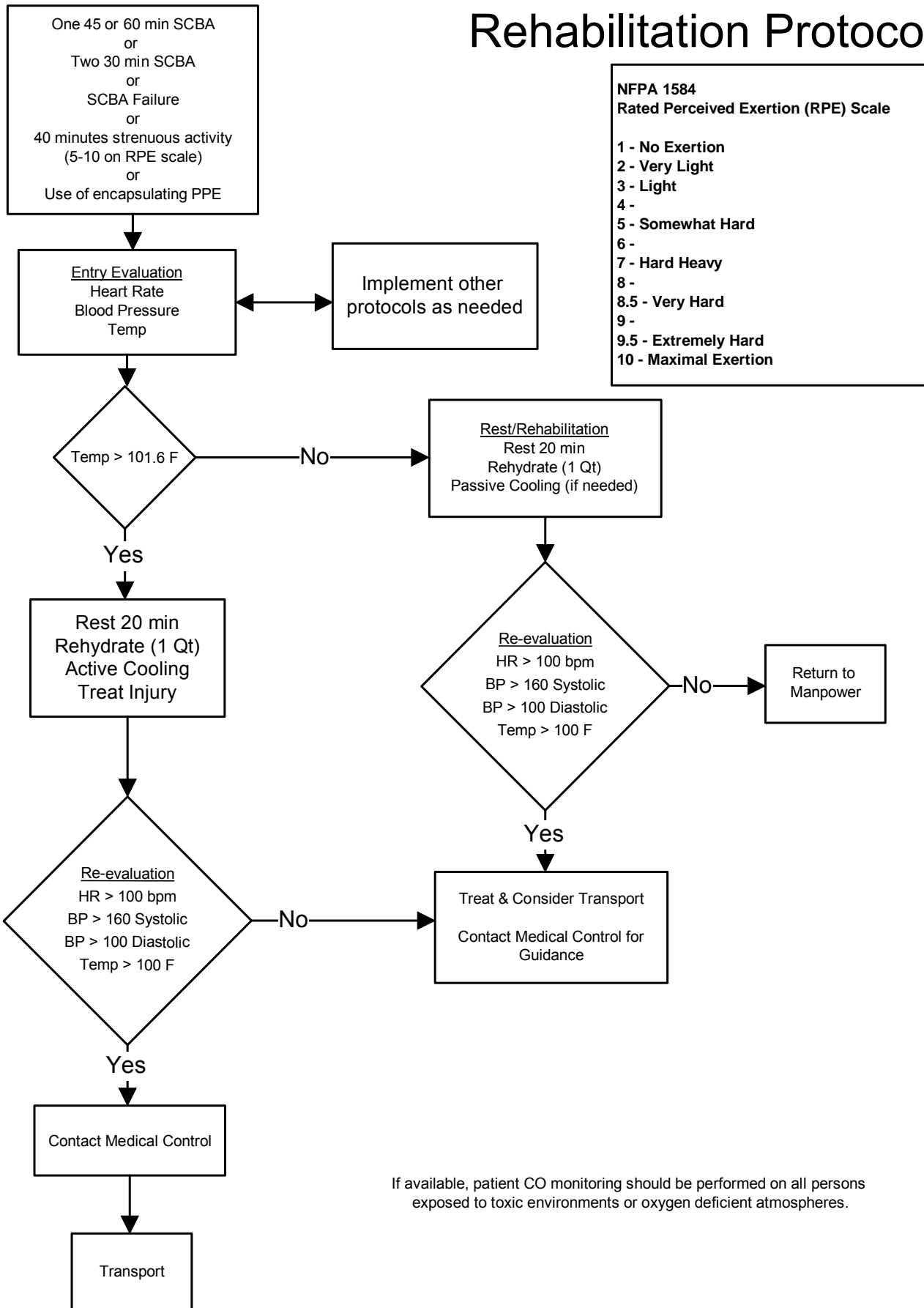
References:

NFPA 1584 2007
USFA 314, 2008 edition

Performance Indicators:

Activity Level RPE Scale Initial and Ongoing Vital Signs Ambient Temperature
Patient Temperature Cooling Method

Rehabilitation Protocol



Rapid Sequence Induction- Page 1 RSI

Objectives:

- To facilitate airway management through the use of sedatives and paralytics

General Information:

- Individual or agency use requires OMD approval and successful completion of the TEMS OMD committee approved Difficult Airway Management Course
- RSI is a Physician Order ONLY
- Pain control may be necessary
- Difficult airway characteristics
 - a) Small mouth opening (should be able to insert 2 fingers in mouth)
 - b) Protruding upper teeth
 - c) Large tongue
 - d) Immobility of the head, neck and jaw
 - e) Infections
 - f) Trauma
 - g) Obesity
 - h) Foreign body
 - i) Rheumatoid arthritis
 - j) Tumors
 - k) Congenital problems
 - l) Pregnancy
- Contraindications for Succinylcholine (Physician may order Vecuronium):
 - a) Succinylcholine allergy
 - b) Previous denervating injury or disease (MS, CVA)
 - c) Muscle Disorders (Muscular Dystrophy)
 - d) Abdominal Infections
 - e) Tetanus
 - f) Renal Failure / Renal Dialysis
 - g) Major trauma greater than 5 days old (ie crush, multisystem trauma, burns, spinal cord injury)
 - h) Penetrating eye injury
 - i) Epiglottitis



Warnings/Alerts:

- Use of end-tidal CO₂ monitors and SpO₂ monitoring is mandatory
- Paralyzed patients must be in full C-spine immobilization with extremities restrained
- It is not advisable to intubate in a moving vehicle due to the risk of damaging laryngeal tissues
- There must be at least one Paramedic and an additional ALS provider (released I or above) with the patient to implement this protocol
- Do Not Implement this protocol if patient has a history of malignant hyperthermia

OMD Notes:

-

References:

Tidewater EMS Difficult Airway Management & Rapid Sequence Induction Course

Performance Indicators:

Indication for RSI Difficult Airway Chart

Confirmation of Airway after Each Movement

Use of End-Tidal CO₂

Use of Secondary Airway

Treatment and Response to Treatment

Documented EKG Rhythm

Patient Packaging

Confirmation of ETT Placement

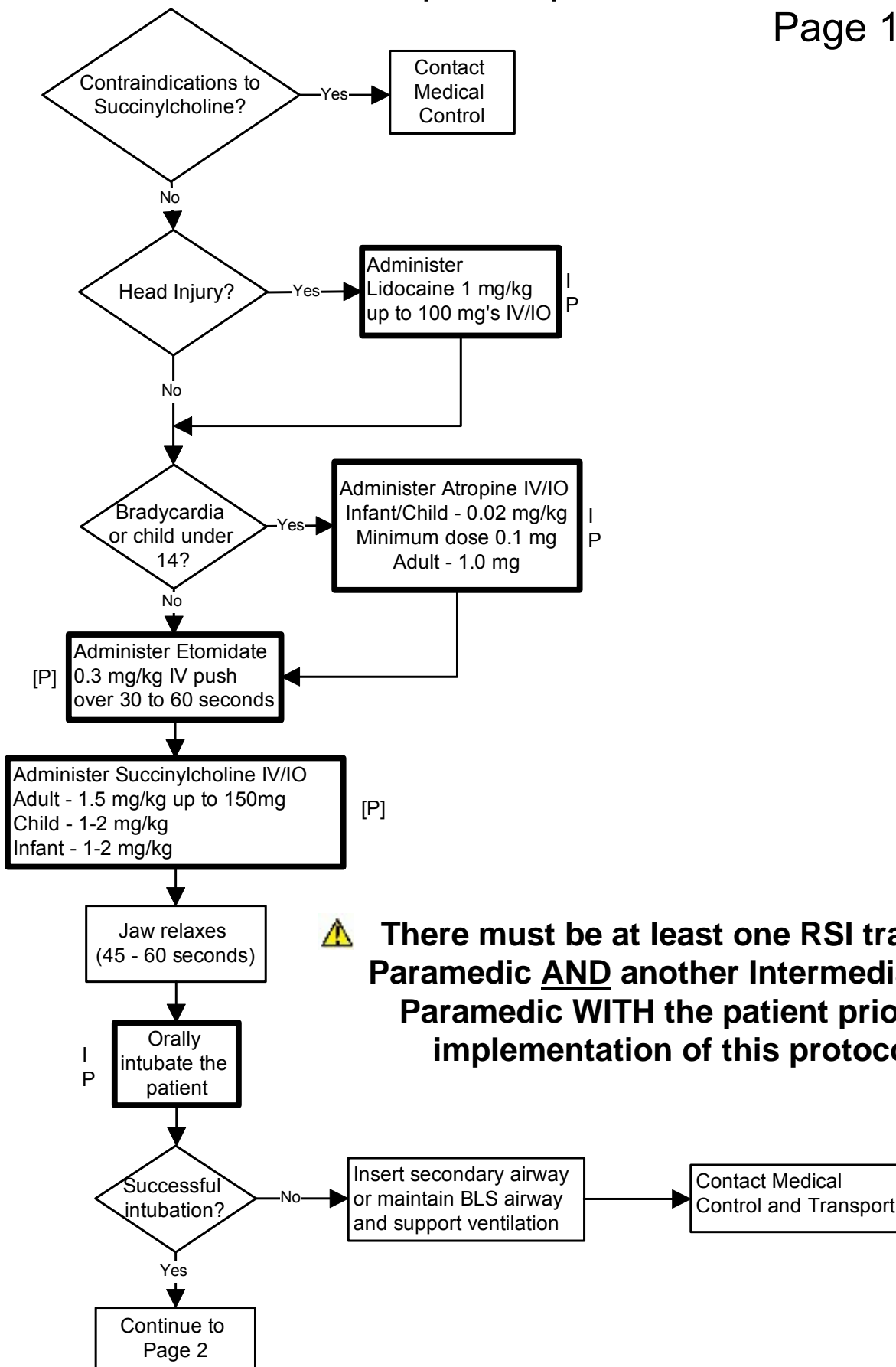
Online Medical Control

Number of Intubation Attempts

Post Intubation Sedation

Rapid Sequence Induction Protocol

Page 1 - RSI



Rapid Sequence Induction-Page 2 Post Intubation Care

Objectives:

- To appropriately care for the sedated/paralyzed patient including
 - a) Airway management
 - b) Patient packaging
 - c) Ensure safety and transport of the RSI patient

General Information:

- Patients may need additional sedative and paralytic medication during transport
- Vecuronium may be needed to maintain paralysis during transport (Physician Order ONLY)
- Signs and symptoms that the patient is not adequately sedated while paralyzed
 - a) Tachycardia
 - b) Tears from eyes
- Documentation (minimum)
 - a) GCS
 - b) Indication for RSI
 - c) Name of physician ordering RSI
 - d) Pre oxygenation
 - e) Cricoid pressure
 - f) Dosages of all medications given
 - g) Type of intubation or airway control
 - h) Number of attempts (successful and unsuccessful)
 - i) Compliance with Airway /Oxygenation/ Ventilation of the intubated patient guidelines
 - j) SpO2 and end-tidal CO2 monitoring
 - k) Reassessment of ET tube placement every 5 minutes and after each patient movement
 - l) Patient packaging techniques



Warnings/Alerts:

- Use of end-tidal CO2 monitors and SpO2 monitoring is mandatory
- Paralyzed patients must be in full C-spine immobilization with extremities restrained

OMD Notes:

-

References:

Tidewater EMS Difficult Airway Management & Rapid Sequence Induction Course

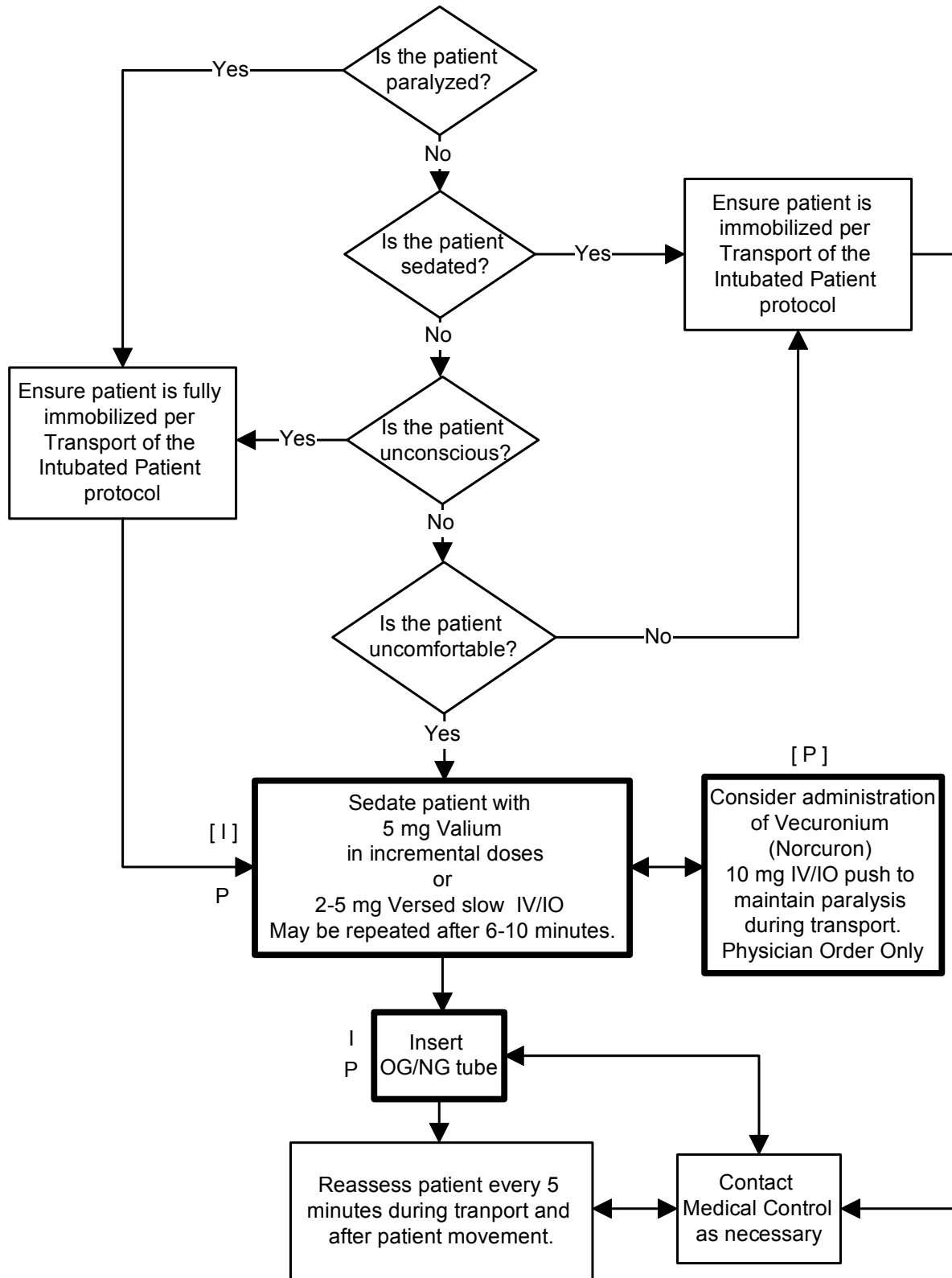
Performance Indicators:

Indication for RSI Difficult Airway Chart
Confirmation of Airway after Each Movement
Use of End-Tidal CO2 Documented EKG Rhythm
Use of Secondary Airway Patient Packaging
Treatment and Response to Treatment

Confirmation of ETT Placement
Online Medical Control
Number of Intubation Attempts
Post Intubation Sedation

Rapid Sequence Induction Protocol

Page 2 - Post Intubation Care



Seizures

Objectives:

- To assess and treat patients with seizures
- To protect the airway of the seizing patient

General Information:

- Ativan (lorazepam) is the preferred drug for seizures
- Ativan (lorazepam)
 - a) Dilute in an equal amount of NS for IV/IO administration
 - b) Dose 2 mg slow IV push (over 2 minutes)
 - c) May be administered IM if IV/IO access is not available. Do not dilute if administering IM
 - d) May repeat with physician order up to max dose of 8 mg
 - e) Medical control may order 1 mg for post seizure patients to prevent further seizures (I, P)
- Valium (diazepam)
 - a) Up to 5 mg slow IV push (over 2 minutes) titrate to desired effect; may repeat
 - b) May be administered IM if IV/IO access is not available
 - c) Reduce dose by 50% in elderly patients (age 65 or older)
- Versed (midazolam)
 - a) Dose 2 mg slow IV push (over 1 minute)
 - b) May be administered IM if IV/IO access is not available
- All patients receiving Valium, Versed or Ativan should have cardiac and SpO2 monitoring



Warnings/Alerts:

- Valium, Versed and Ativan all have potential to cause respiratory depression and bradycardia. For that reason, patients receiving these drugs should be on cardiac and SpO2 monitor with vital sign reassessment every 5 minutes
- Inadvertent arterial injection of Ativan may cause arteriospasm, resulting in gangrene and possible amputation
- Flush IV lines thoroughly after Valium administration. Valium is incompatible with most drugs and precipitation is likely to occur

OMD Notes:

-

References:

Mosby's Paramedic Textbook, 3rd edition (revised), pages 1313, 1329 and 1333

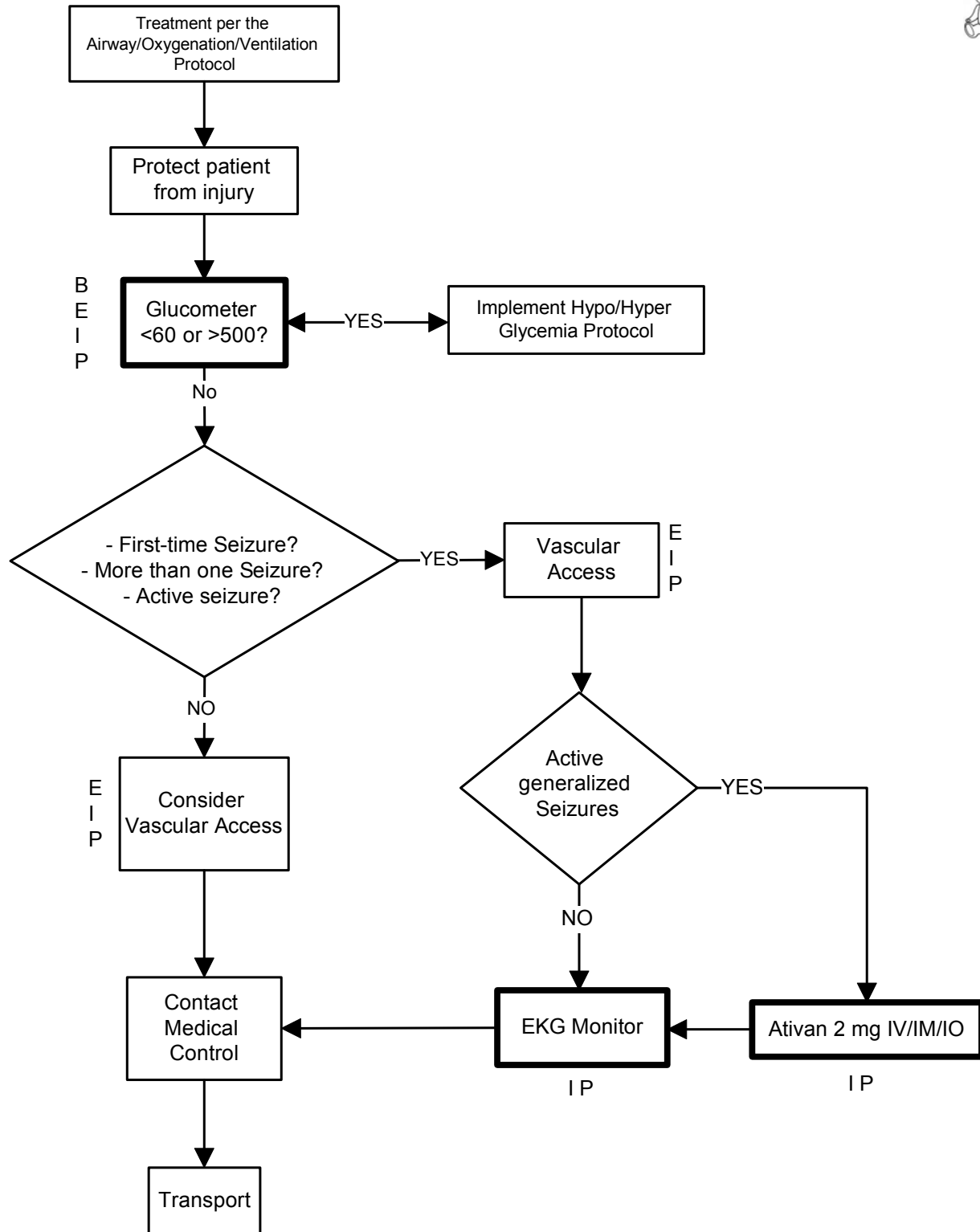
Performance Indicators:

Length and Frequency of Seizure

Blood Glucose Level

Treatment and Response to Treatment

Seizures



Shock/Non-Traumatic

Objectives:

- To assess and treat patients with shock

General Information:

- Hypoperfusion/shock signs and symptoms:
 - a) Hypotension
 - b) Diaphoresis
 - c) Tachycardia
 - d) Tachypnea/dyspnea
 - e) Altered mental status
- Types of Shock
 - a) Hypovolemic
 - i) Hemorrhage
 - * GI bleed, nose bleed
 - ii) Fluid loss
 - * Vomiting diarrhea, dehydration
 - b) Cardiogenic (pump failure)
 - i) Additional symptoms may include pulmonary edema, chest pain
 - ii) Implement Chest Pain/AMI and Breathing Difficulty protocols as necessary
 - iii) If no signs of pulmonary edema administer 250 ml bolus, may repeat up to 1000 ml if breath sounds remain clear
 - iv) Dopamine 2-20 mcg/kg/min titrated to systolic BP of 80-90 mmHg
 - c) Vasogenic shock (inappropriate vasodilation)
 - i) Examples: anaphylactic, neurogenic, septic
 - ii) Treat anaphylaxis per Allergic Reaction/ Anaphylaxis protocol
 - iii) Fluid boluses are frequently ineffective; vasopressors are often necessary
 - iv) Dopamine 2-20 mcg/kg/min titrated to systolic BP of 80-90 mmHg



Warnings/Alerts:

- Dopamine is contraindicated in a hypovolemic patient

OMD Notes:

-

References:

AAOS Pharmacology Applications Paramedic, 2009, page 479
Mosby's Paramedic Textbook, 3rd Edition (Revised), 2007

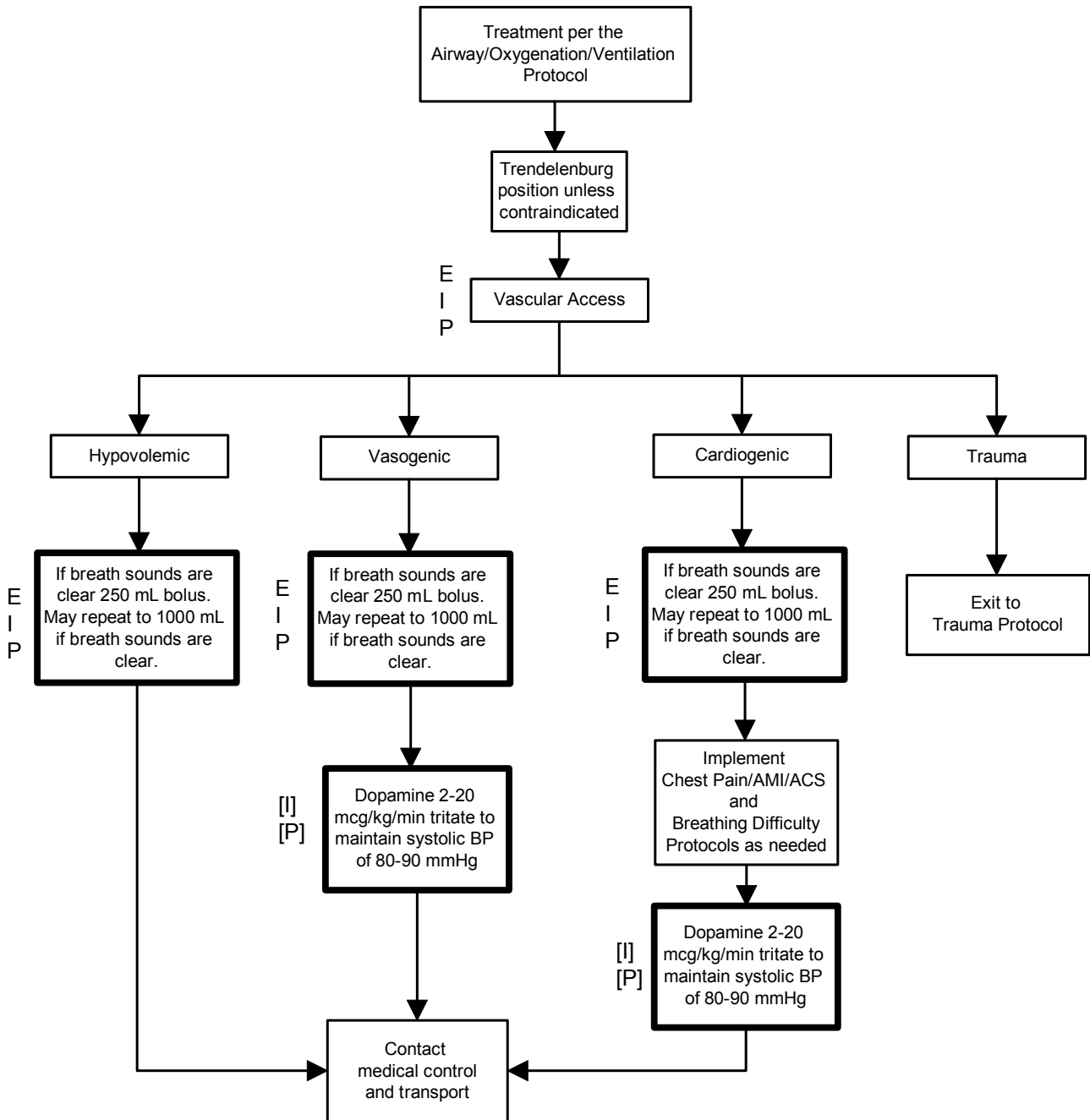
Performance Indicators:

Vital Signs every 5 Minutes

Treatment and Response to Treatment

Amount of Fluid Given

Shock / Non-Traumatic



Spinal Immobilization

Objectives:

- To provide guidelines for assessing and treating patients with possible spinal injuries

General Information:

- Positive mechanisms of injury that are high-risk for producing spinal injuries
 - a) High speed MVC
 - b) Falls > 3 times the patient's height
 - c) Axial load
 - d) Diving accidents
 - e) Penetrating wounds in or near the spinal column
 - f) Blunt trauma to or near the spinal column
 - g) Sports injuries to the head/neck
 - h) Unconscious trauma patient
- High-risk mechanisms are not the only mechanisms that can produce spinal injuries
 - a) Previous spinal surgery
 - b) Age extreme patients
- Medical patients are at risk for spinal injuries as well
 - a) Falls with unknown mechanism
 - b) Unable to determine if trauma occurred
- Low-risk mechanisms of injury can also produce spinal injuries that warrant immobilization
- Reliable patients are:
 - a) Calm
 - b) Cooperative
 - c) Not impaired by drugs, medications, alcohol or existing medical conditions
 - d) Awake, alert and oriented to person, place, time and event
 - e) Without distracting injuries



Warnings/Alerts:

- Manual spinal immobilization must be maintained until neurological exam is completed
- When in doubt, immobilize

OMD Notes:

-

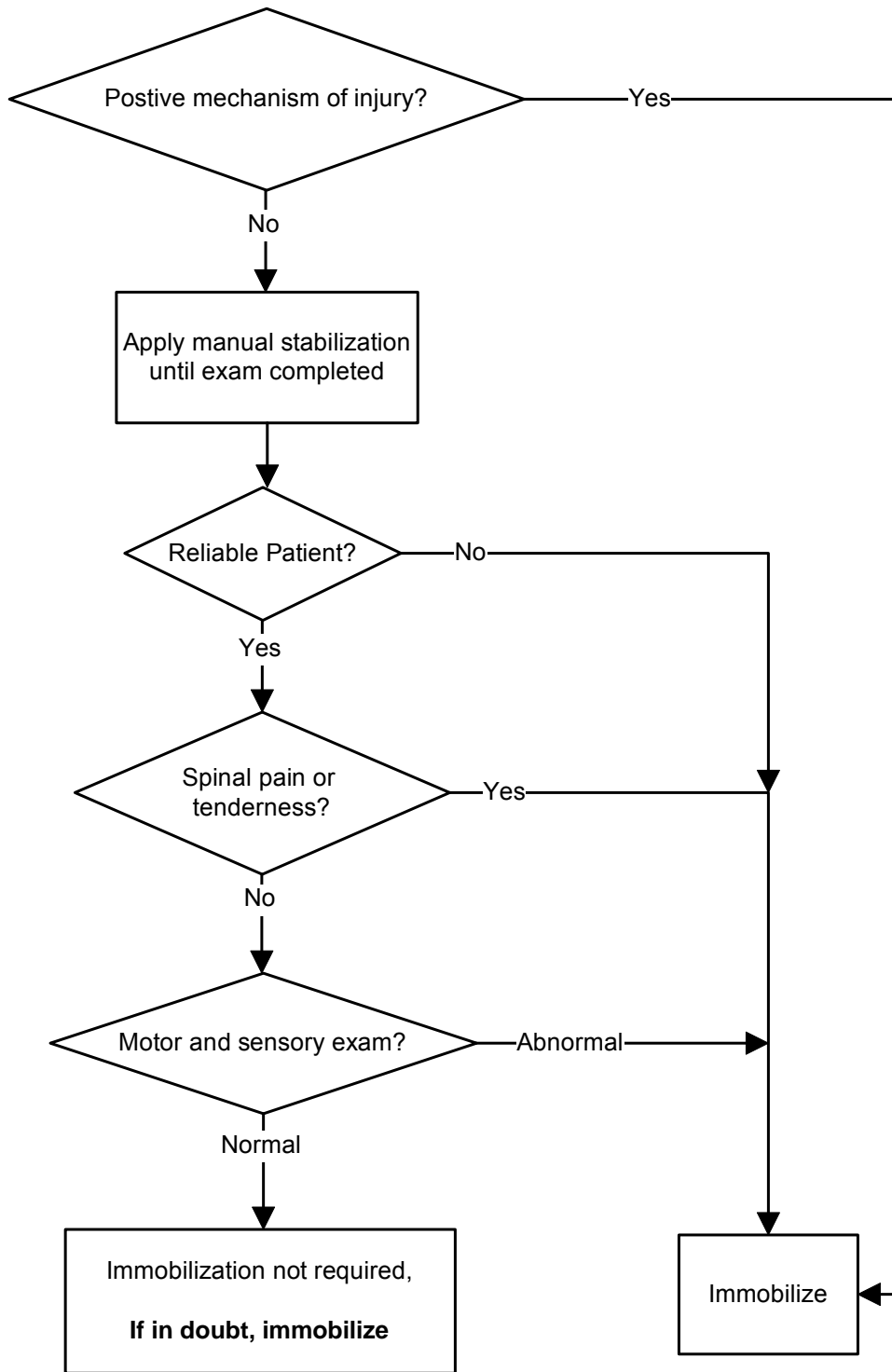
References:

ITLS 2008 pg 173-174, 185

Performance Indicators:

Index of Suspicion	Mechanism of Injury	Spinal Stabilization During Exam
Reliability Indicators	Sensory Exam Results	Patient Packaging

Spinal Immobilization Criteria



Toxicological Emergencies (Overdose)

Objectives:

- To assess and treat patients who have a toxicological medical emergency

General Information:

- Do not act upon advice from poison control center; contact medical control for instructions
- CNS depressants (symptoms may include: respiratory depression, pinpoint pupils, bradycardia, hypotension)
 - a) Examples: Opiates (heroin, methadone, fentanyl, morphine, codeine, Ultram, oxycodone); benzodiazepines (Valium, Versed, Xanax, Librium, Ativan); Barbiturates (Nembutal, Secoanal, Amytal); Anesthetics (GHB, Ketamine); ethyl alcohol (EtOH)
 - b) Support patient's respirations as necessary with an OPA/NPA and BVM
 - c) Administer Narcan before attempting intubation
- Hallucinogens (symptoms may include: hallucinations, hypertension, tachycardia,)
 - a) Examples: LSD, Cannabis (marijuana), mescaline (peyote), PCP, mushrooms, Ecstasy, Jimson Weed, nutmeg, morning glory seeds
- CNS stimulants (symptoms may include: hypertension, tachycardia, dysrhythmias)
 - a) Examples: Cocaine (including crack), amphetamines (speed, diet pills); methamphetamines (crystal meth, ice, Ecstasy); Dexedrine; caffeine; club or designer drugs; ephedra and ephedrine
- Tricyclic Antidepressants (symptoms may include: altered mental status, seizure, depressed respirations, coma)
 - a) Examples: Amitriptyline (Elavil); Amoxapine (Asendin); Clomipramine (Anafranil); Doxepin (Sinequin, Adepin); Imipramine (Trofanil); Nortriptyline (Aventyl, Pamelor);
 - b) Flexeril (Cyclobenzaprine) is closely related to TCAs and should be treated the same



Warnings/Alerts:

- Narcan can precipitate seizures in patients with a seizure history or in long term narcotic addicts
- Narcan can precipitate dysrhythmias in patients with cardiac disease, including ventricular fibrillation or ventricular tachycardia
- The goal of Narcan administration is to establish an adequate respiratory rate, not to return the patient to full consciousness

OMD Notes:

-

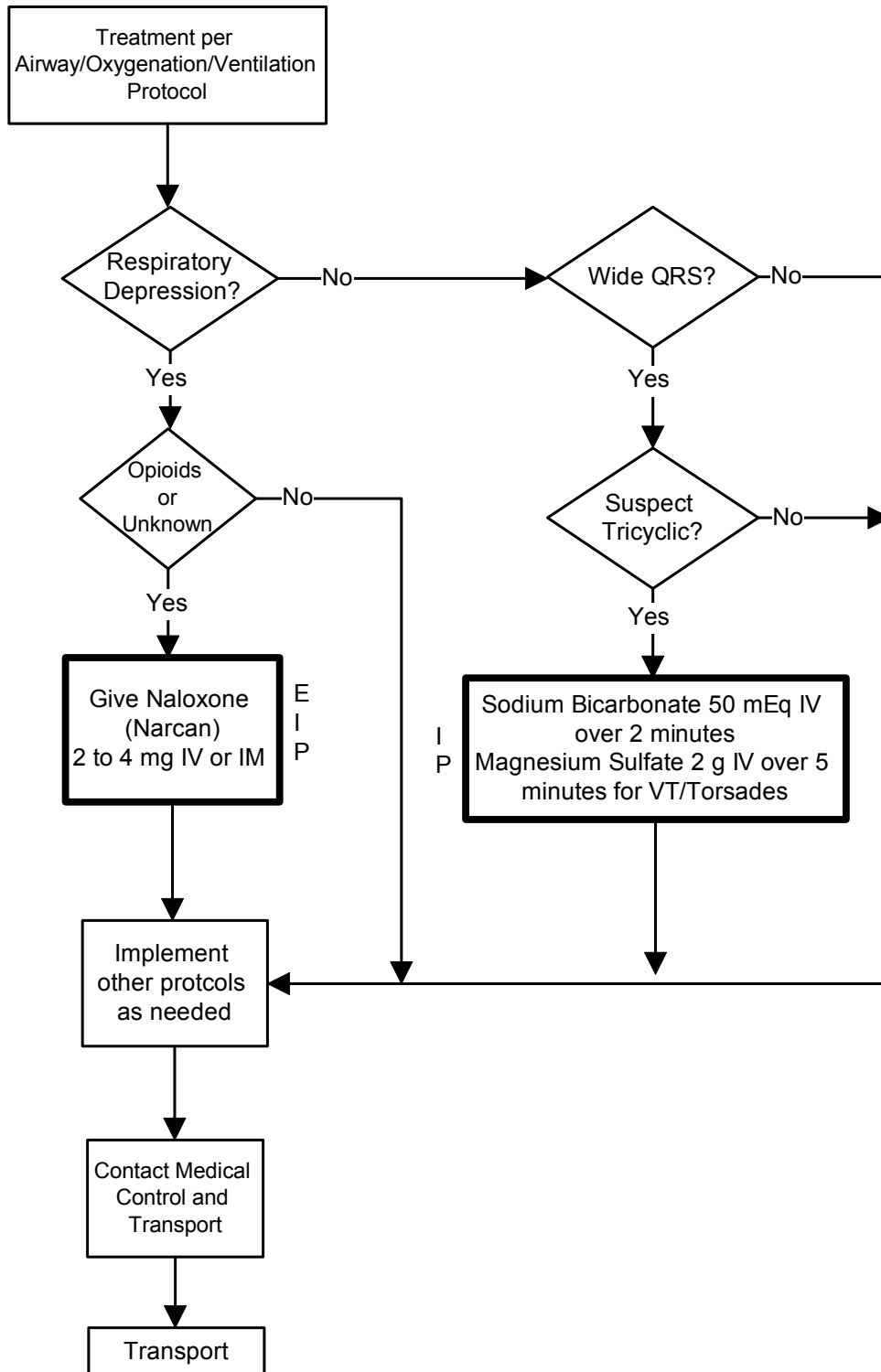
References:

Performance Indicators:

Initial Evaluation Appropriate receiving facility Documentation of substance taken (if known)
Treatment and Response to Treatment

Toxicological Emergencies

(Overdose)



Trauma: Crush Syndrome

Objectives:

- To assess and manage patients with crush injuries

General Information:

- Consider crush syndrome if trapped extremity or torso with compression and compromise of vascular supply
- Perform interventions simultaneously – crush syndrome development before prophylactic treatment may require volume load along with medications
- Apply EKG monitor early
- Coordinate medication administration with extrication efforts. Medications must be given before compression mechanism is released
- For prolonged extrication or high level compression, consider calling a physician to the scene to bring Insulin, calcium gluconate and for more efficient medical direction
- Sodium bicarbonate
 - a) Helps reverse acidosis
 - b) 1-2 mEq/kg IV (may be mixed in 1000 ml NS)
- Continuous Albuterol
 - a) Helps drive potassium back into the cells
- Calcium chloride
 - a) Temporarily stabilizes the cell membranes
 - b) 1 gm over 3 minutes
 - c) Calcium gluconate is preferred
- Insulin
 - a) 10 units IV
 - b) Dextrose 25 g must be given simultaneously
 - c) Helps drive potassium back into the cells



Warnings/Alerts:

- Do not delay transport to provide non-life-saving ALS interventions on scene

OMD Notes:

-

References:

Performance Indicators:

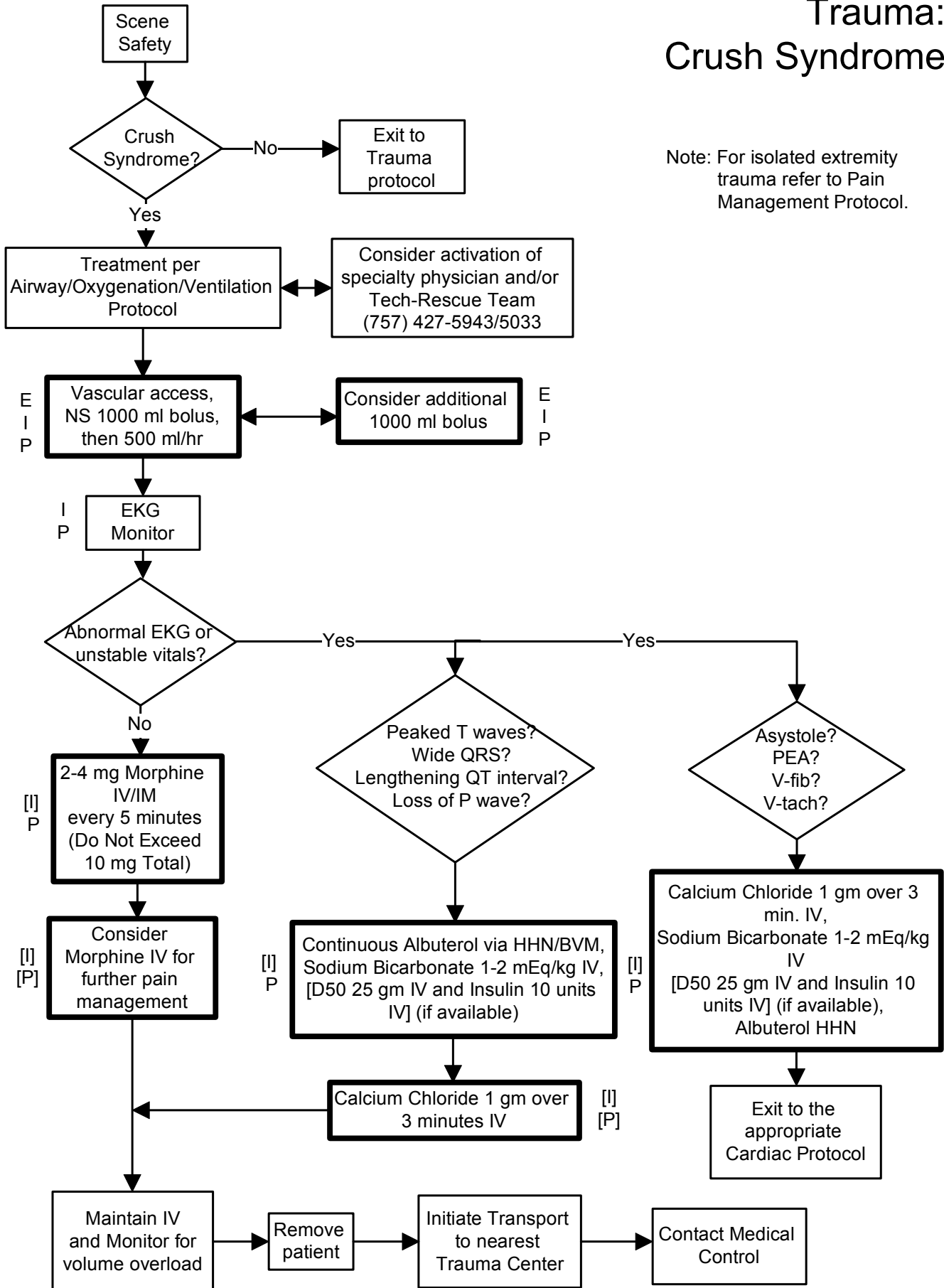
Cause and Onset of Injury
Patient Packaging

Appropriate Transport Destination
Total Volume Infused

Confirmation of Airway
Vital Signs Every 5 Minutes

Trauma: Crush Syndrome

Note: For isolated extremity trauma refer to Pain Management Protocol.



Trauma

Objectives:

- To appropriately assess and treat patients who have sustained traumatic injuries

General Information:

- External bleeding control
 - a) Direct pressure (may require firm fingertip pressure at site)
 - b) Elevation
 - c) Pressure points
 - d) Tourniquet
 - i) Apply to the extremity proximal to the wound
 - ii) IV tourniquets are not effective for bleeding control
- Some patients should be transported directly to a trauma center – it is not necessary to contact the closest facility for a diversion order. This includes patients who have:
 - a) Respirations < 8 or > 30
 - b) Assisted ventilations
 - c) Airway obstruction
 - d) Intubation
 - e) Unconscious/unresponsive
 - f) Do not follow commands
 - g) Unable to move extremities
 - h) Amputation of extremity
 - i) BP < 90 mmHg with signs/symptoms of shock
 - j) Heart rate > 120 with signs/symptoms of shock
 - k) Uncontrolled bleeding
 - l) No pulse in extremity
 - m) Penetrating injury of the head, neck, chest or abdomen
- If a patient airway cannot be established or CPR is in progress, transport the patient to the closest facility
- Some patients may need care at a trauma center, even if their injuries do not fit the criteria above. Those patients include:
 - a) Pregnancy > 24 weeks gestation
 - b) Geriatric
 - c) Pediatric
 - d) Bariatric
 - e) Special needs
- The goal of IV fluid administration is to maintain a systolic BP of 80-90 mmHg
- For patients with head injuries and a GCS < 8, the goal of IV fluid administration is to maintain a systolic blood pressure of 110 mmHg
- Resuscitation Criteria
 - a) Resuscitation should be withheld or discontinued in cases of:
 - i) Injuries incompatible with life (ie. decapitation)
 - ii) Trauma with evidence of significant time lapse (rigor mortis, dependent lividity, etc.)
 - b) Consider withholding resuscitation (Contact medical control if guidance is needed) for blunt or penetrating trauma with no breathing, pulse, pupillary response or organized EKG rhythm
 - c) Does not apply to situations involving hypothermia, electrical injuries or submersion injuries



Warnings/Alerts:

- Do not delay transport to perform non-lifesaving ALS interventions on scene

OMD Notes:

-

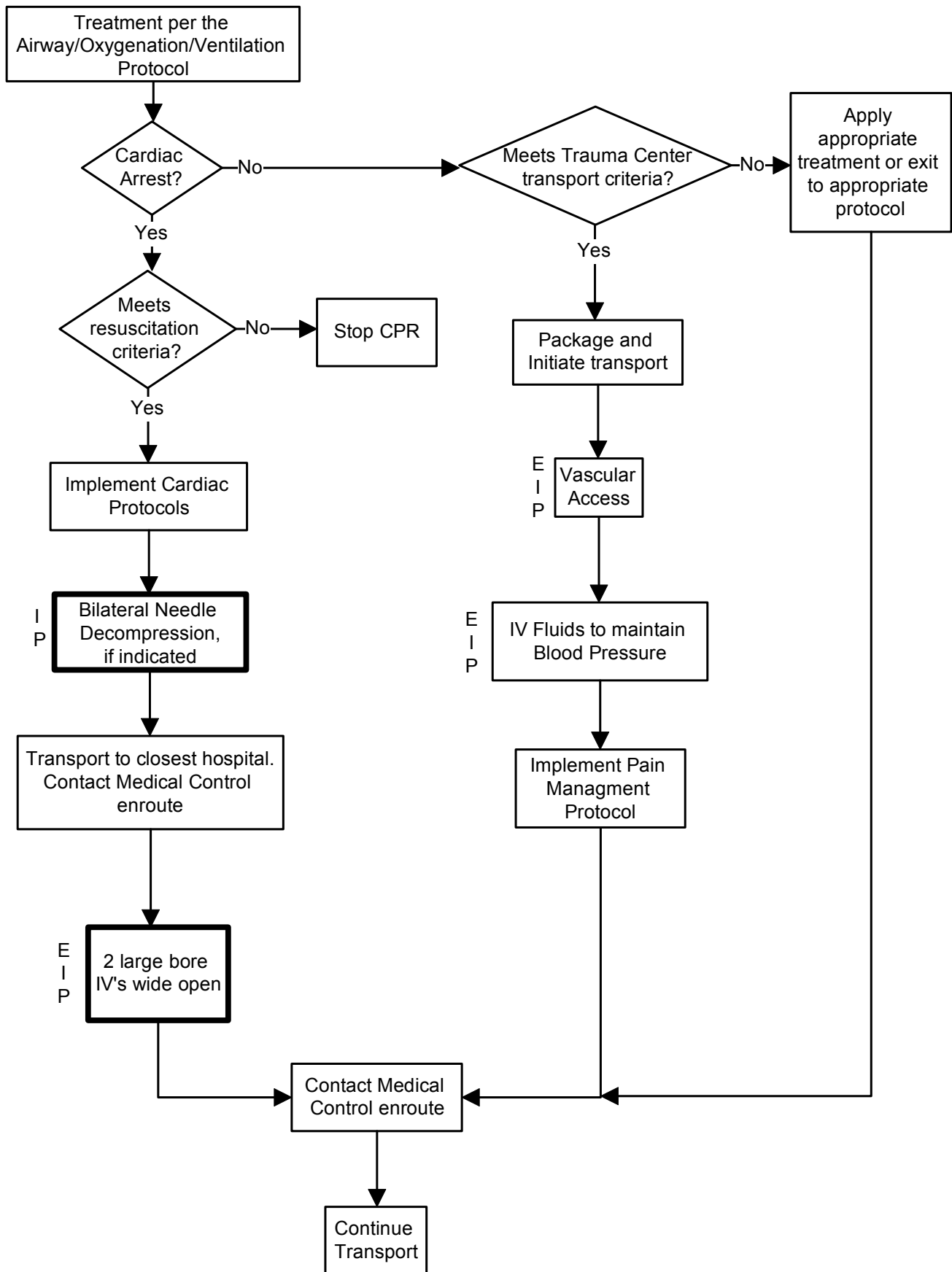
References:

Brady International Trauma Life Support, 6th Edition, Dr. John Emory Campbell, 2008

Performance Indicators:

Onset of injury	Condition of airway	Patient packaging	Online medical control
Treatment and Response to Treatment		Scene time	Patient disposition
Total Amount of Fluid Given			

Trauma



Vascular Access

Objectives:

- To provide guidance for how and when prehospital providers should obtain vascular access

General Information:

- Fluid management standing orders for hypoperfusion
 - a) Adults: 250 mL bolus with reassessment up to 1,000 mL
 - b) Infant/child: 20 mL/kg
 - c) Newly born: 10 mL/kg within 20 minutes using syringe/stop-cock technique
- All bolus medications should be followed by an appropriate flush, 20-30 mL for adults and 5-10 mL for pediatrics
- Use antecubital site for patients in cardiac arrest or when peripheral vascular collapse is present
- Indications for intraosseus access:
 - a) Cardiac arrest
 - b) Profound hypovolemia with altered mental status
 - c) Patient with immediate need for medications and/or fluids
- Contraindications for IO:
 - a) Inability to locate landmarks (consider alternate sites)
 - b) Fractures or previous orthopedic procedures near insertion sites (consider alternate sites)
 - c) Infection at insertion site (consider alternate sites)
 - d) Severe osteoporosis or other degenerative bone conditions
- Approved intraosseus access sites:
 - a) Proximal tibia preferred (standing orders for I and P)
 - b) Humeral head secondary
 - c) Distal tibia tertiary
- IOs must be flushed before attempting medication or fluid administration, and may require pressure infusers to administer fluid
- Lidocaine may be used for pain management of IO standing order for conscious patient
 - a) 20-40 mg for adults
 - b) 0.5 mg/kg for pediatrics



Warnings/Alerts:

- Do not use a 14g needle for IV access
- Intraosseus access is inappropriate for prophylactic access
- Intraosseus access is inappropriate for suspected narcotic overdose or suspected hypoglycemic patients. Consider IM medications instead

OMD Notes:

- The 14g catheters in the IV box are intended for chest decompressions only

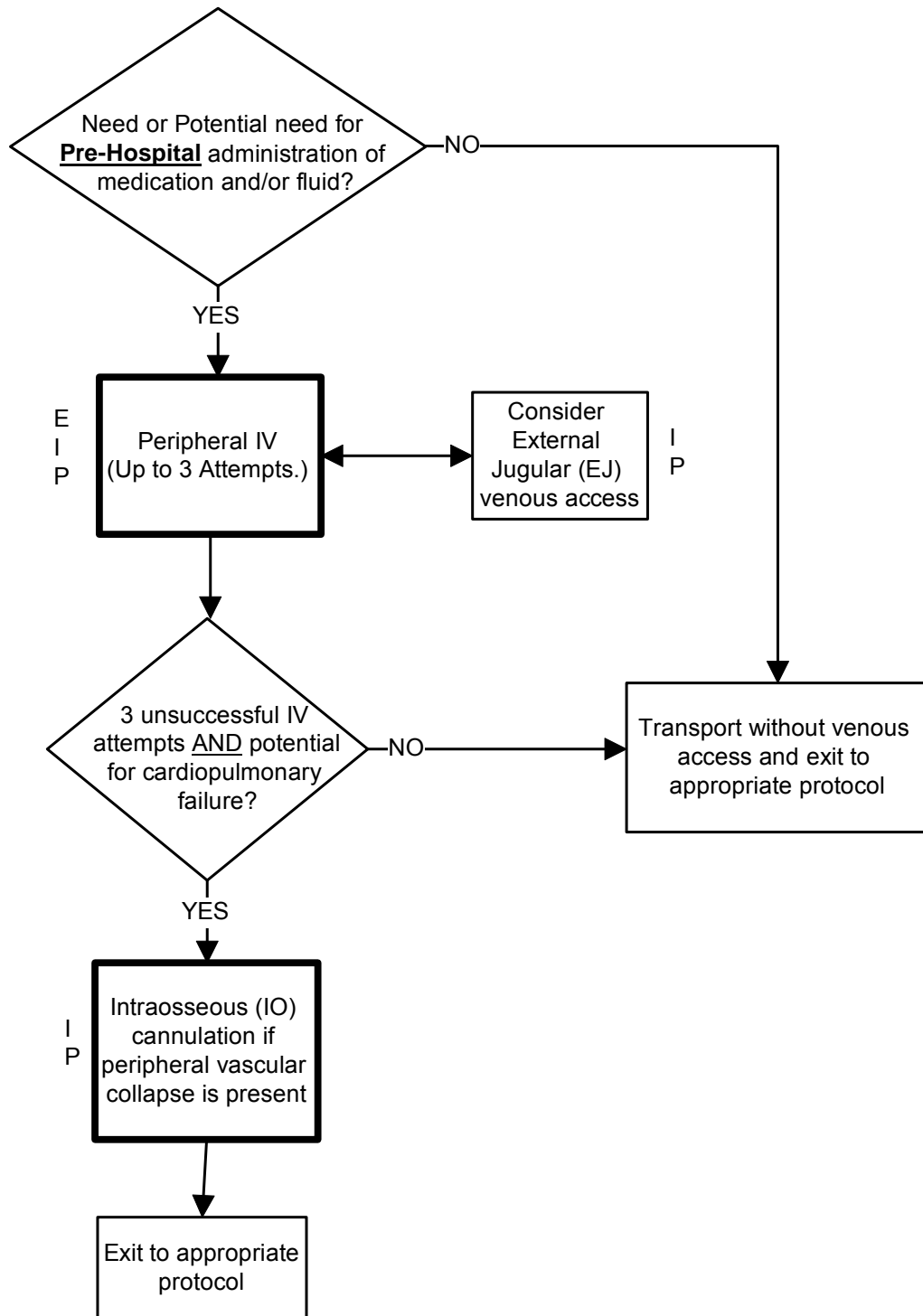
References:

Performance Indicators:

Location and Type of Access Treatment and Response to Treatment Number of Attempts

Vascular Access

NOTE: Intraosseous access is inappropriate for prophylactic access!



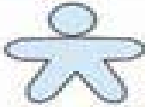








Notes

Pediatric References

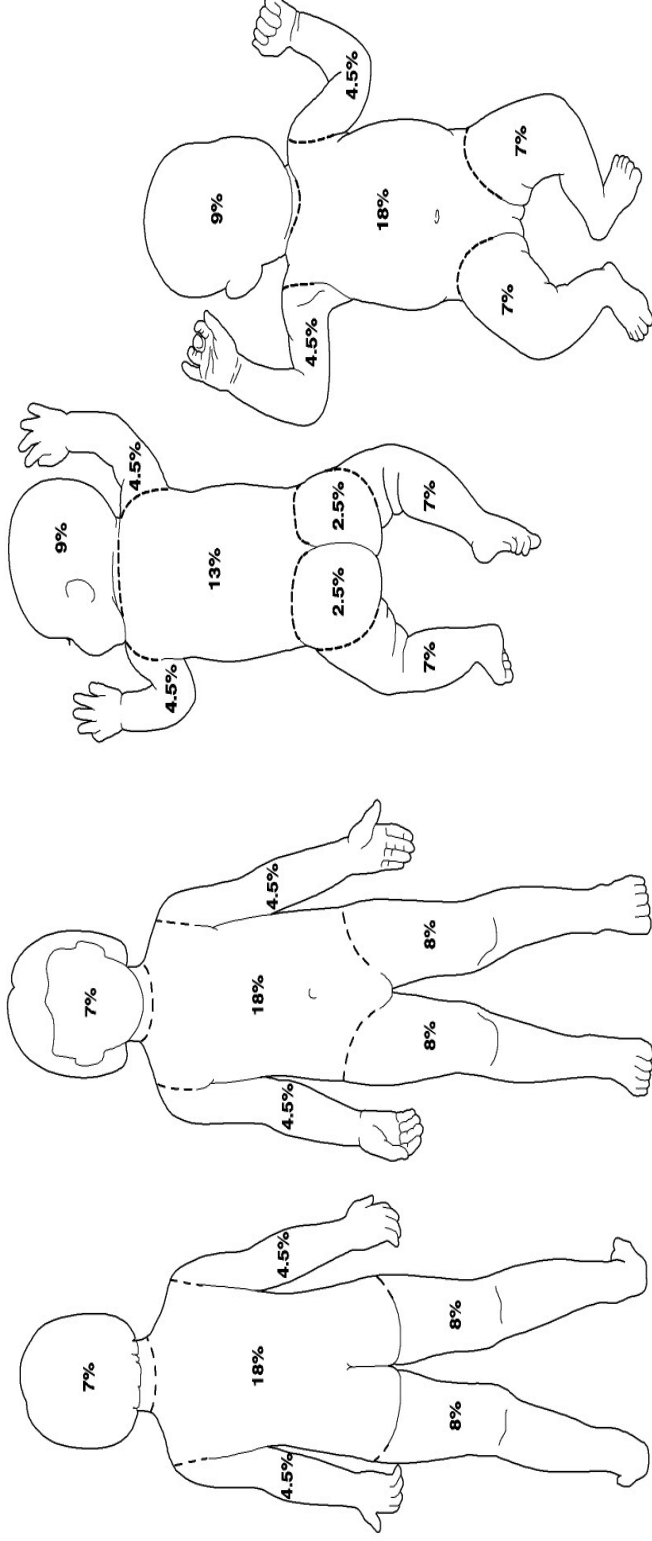
Pediatric Quick Reference Chart

Age	Heart Rate	Respiratory Rate	Systolic BP	Weight (kg)	Laryngoscope Blade	ET Tube	Suction Catheter
Newborn (to 30 days) & Infant (to 1 year)	100 – 160	30 -60	Minimum 60	Newborn 3-5 kg	0-1 straight	3.0-3.5 uncuffed	6-8 Fr
				Infant 6-8 kg	1 straight	3.5 uncuffed	8 Fr
Toddler (1 – 3 years)	90 – 150	24 – 40	Minimum 70	Toddler 10-11 kg	1 straight	4.0 uncuffed	8-10 Fr
Preschooler (3 – 5 years)	80 – 140	22 – 34	Minimum 75	Small Child 12-14 kg	2 straight	4.5 uncuffed	10 Fr
				Child 15-18 kg	2 straight or curved	5.0 uncuffed	10 Fr
School Age (6 – 10 years)	70 - 120	18 – 30	Minimum 80	Child 19-22 kg	2 straight or curved	5.5 uncuffed	10 Fr
				Large Child 24-30 kg	2-3 straight or curved	6.0 uncuffed	10 Fr
Adolescent (11 – 18 years)	60 - 100	12 - 16	Minimum 90	*Adult* Greater than or equal to 32 kg	3 straight or curved	6.5 cuffed	12 Fr

APGAR Score					
Sign	0 Points	1 Point	2 Points	1 Minute	5 Minute
Activity (Muscle Tone)	Limp/Absent	Some Flexion - Arms & legs extended	Active Motion with flexed arms & legs		
Pulse (Heart Rate)	Absent	Below 100 bpm	Above 100 bpm		
Grimace (Reflex Irritability)	No Response	Facial Grimace	Good Cry, Sneeze, Cough, Pulls Away		
Appearance (Skin Color)	Blue-gray, pale all over	Pink body and blue extremities	Normal over entire body Completely pink		
Respiration (Breathing)	Absent	Slow, irregular	Good, crying		
Total Score					

	Score 0	Score 1	Score 2
Appearance			
Pulse	No pulse	<100/min.	>100/min.
Grimace			
Activity			
Respirations	No respirations	Weak, slow	Strong cry

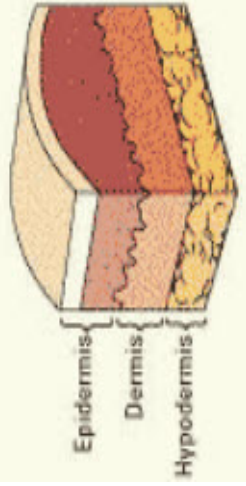
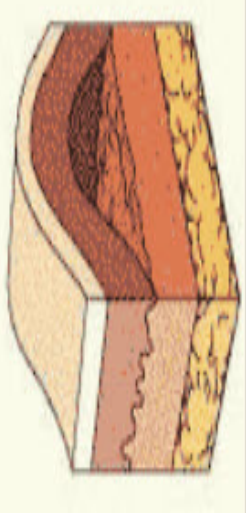
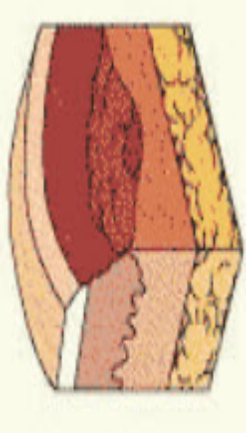
Pediatric Burn Chart/Reference



Palm Method:

The palm method is a tool whereby the size of the patients palm is used as an indicator for specific percentage of TBSA. The surface area of a patients palm equals approximately 1% of TBSA.

This method is particularly useful where the burn has an irregular shape or has a scattered distribution.

First-Degree	Second-Degree	Third-Degree
 <p>Epidermis Dermis Hypodermis</p>		
<p>Damage to the outer layer of skin {epidermis}, causing pain, redness and swelling.</p>	<p>Damage to both outer skin and underlying tissue layers {epidermis and dermis} causing pain, redness, swelling and blistering.</p>	<p>Damage extends deeper into tissues {epidermis, dermis and hypodermis} causing extensive tissue destruction. The skin may feel numb.</p>

Glasgow Coma Score

The GCS is scored between 3 and 15, 3 being the worst, and 15 the best. It is composed of three parameters: Best Eye Response, Best Verbal Response, and Best Motor Response, as given below:

Glasgow Coma Score Eye Opening (E) Verbal Response (V) Motor Response (M)

Best Eye Response. (E)	Best Verbal Response. (V)	Best Motor Response. (M)
<ol style="list-style-type: none"> 1. No eye opening. 2. Eye opening to pain. 3. Eye opening to verbal command. 4. Eyes open spontaneously. 	<ol style="list-style-type: none"> 1. No verbal response 2. Incomprehensible sounds. 3. Inappropriate words. 4. Confused 5. Orientated 	<ol style="list-style-type: none"> 1. No motor response. 2. Extension to pain. 3. Flexion to pain. 4. Withdrawal from pain. 5. Localizing pain. 6. Obeys Commands.
<p>Note that the phrase 'GCS of 11' is essentially meaningless, and it is important to break the figure down into its components, such as Total = E+V+M Displayed as = E3V3M5 = GCS 11.</p>		
<p>A Coma Score of 13 or higher correlates with a mild brain injury, 9 to 12 is a moderate injury and 8 or less a severe brain injury.</p>		

The Glasgow Coma Scale is the most widely used scoring system used in quantifying level of consciousness following traumatic brain injury. It is used primarily because it is simple, has a relatively high degree of interobserver reliability and because it correlates well with outcome following severe brain injury.

It is easy to use, particularly if a form is used with a table similar to the one above. One determines the best eye opening response, the best verbal response, and the best motor response. The score represents the sum of the numeric scores of each of the categories. There are limitations to its use. If the patient has an endotracheal tube in place, they cannot talk. For this reason, many prefer to document the score by its individual components; so a patient with a Glasgow Coma Score of 15 would be documented as follows: E4 V5 M6. An intubated patient would be scored as E4 V-intubated M6. Of these individual factors, the best motor response is probably the most significant.

Other factors which alter the patient's level of consciousness interfere with the scale's ability to accurately reflect the severity of a traumatic brain injury. So, shock, hypoxemia, drug use, alcohol intoxication, metabolic disturbances may alter the GCS independently of the brain injury. Obviously, a patient with a spinal cord injury will make the motor scale invalid, and severe orbital trauma may make eye opening impossible to assess. The GCS also has limited utility in children, particularly those less than 36 months. In spite of these limitations, it is quite useful and is far and away the most widely used scoring system used today to assess patients with traumatic brain injury.

Pain Rating Scale

In assessing any patient complaining of pain, utilize the **Wong-Baker FACES Pain Rating Scale** as shown below. This is extremely useful in the pediatric population, as well as any patient that there may be a communication barrier.

Wong-Baker FACES Pain Rating Scale



Brief Instructions: Point to each face using the words to describe pain intensity. Ask the patient to choose face that best describes own pain and document the appropriate number on your PPCR.

Original instructions: Explain to the person that each face is for a person who feels happy because he has no pain (hurt) or sad because he has some or a lot of pain. **Face 0-1** is very happy because he doesn't hurt at all. **Face 2-3** hurts just a little bit. **Face 4-5** hurts a little more. **Face 6-7** hurts even more. **Face 8-9** hurts a whole lot. **Face 10** hurts more than you can imagine, although you don't have to be crying to feel this bad. Ask the person to choose which face that best describes how he is feeling.

From Hockenberry MJ, Wilson D, Winkelstein ML: Wong's Essentials of Pediatric Nursing, ed. 7, St. Louis, 2005, p. 1259. Used with permission. Copyright Mosby.

Trauma - Transport Criteria Pediatric

Prehospital Transport Criteria Of Pediatric Trauma Patients To A Designated Trauma Center ***

Respiratory

- Requires constant observation for patency
- Oxygen administration or assisted ventilations
- Partial or complete airway obstruction
- Unable to establish or maintain airway *
- Intubation

Central Nervous System

- Unconscious or unresponsive
- Unable to move extremities

Hemodynamics *

- < 10 Kg or 22 lbs
 - Systolic BP < 50 mmHg
- 11 to 20 Kg or 22 to 44 lbs
 - Systolic BP < 70 mmHg
- > 20 Kg or 44 lbs
 - Systolic BP < 90 mmHg
- Poor peripheral pulses
- Poor perfusion
- Uncontrolled bleeding
- Extremities with uncontrolled bleeding, loss of pulse, amputation

Penetrating Injury

- Head
- Neck
- Chest
- Abdomen

Special Considerations

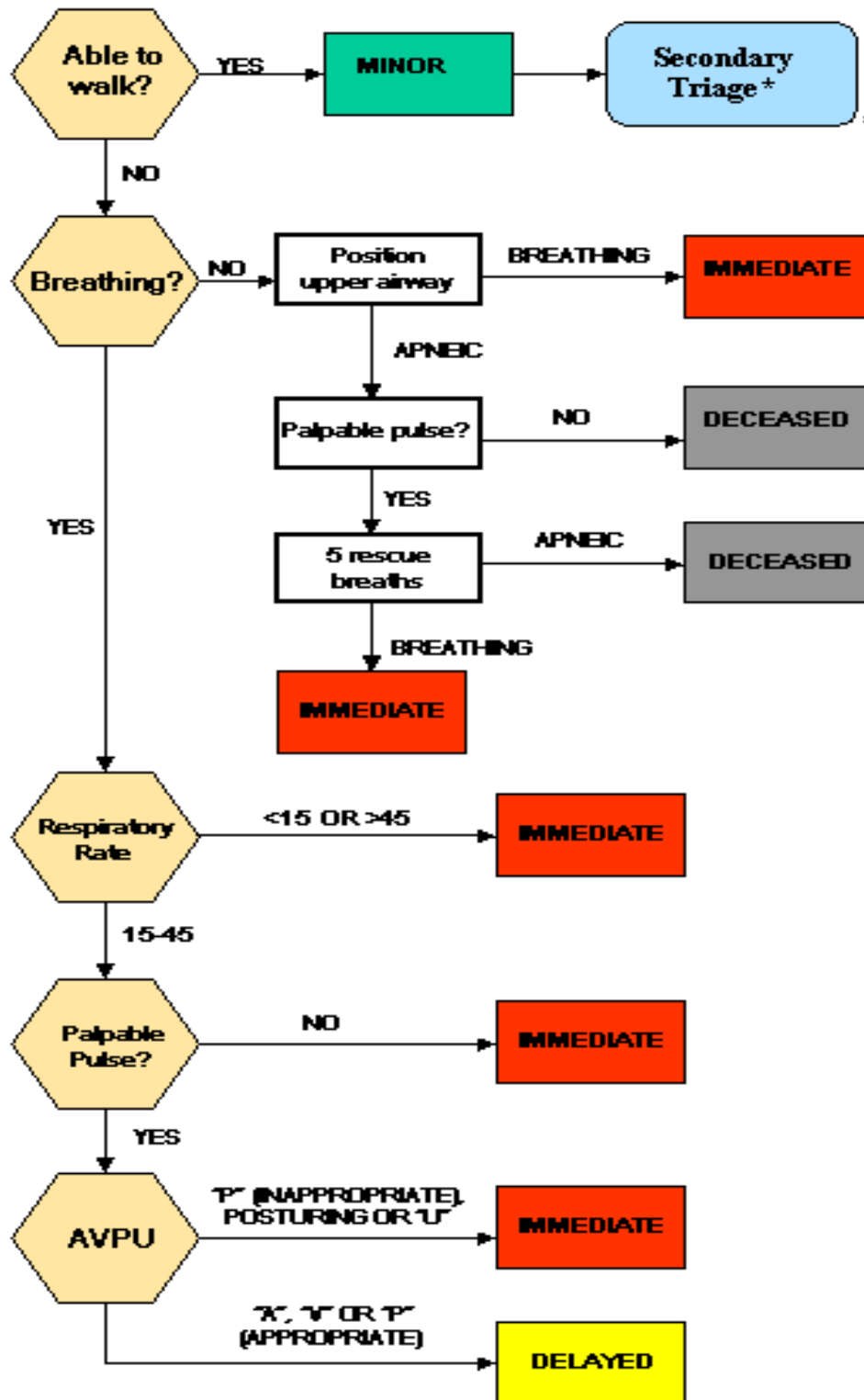
- Bariatric patients
- Special needs patients

* Consider transporting patients with an uncontrollable and compromised airway to the closest hospital emergency department.

** Patients with CPR initiated at the scene should be transported to the closest hospital emergency department.

*** Children's Hospital of the King's Daughters is not a designated trauma center.

JumpSTART Pediatric MCI Triage®



* Evaluate infants first in secondary triage using the entire JS algorithm

Notes

Notes

Pediatric Cardiac Protocols

Pediatric Emergency Cardiac Care

Objectives:

- Early recognition and appropriate intervention for pediatric patients in cardiac arrest

General Information:

- During CPR
 - a) Push hard, push fast (100/min)
 - b) Ensure full chest recoil
 - c) Minimize interruptions in compressions
 - d) One person CPR: 30 compressions: 2 breaths, two minutes = 5 cycles
 - e) Two person CPR: 15 compressions: 2 breaths, two minutes = 10 cycles
 - f) Avoid hyperventilation
 - g) After an advanced airway is in place, rescuers no longer deliver “cycles” of CPR. Give continuous compressions without pauses for breaths (8-10 breaths per minute)
 - h) Check rhythm every two minutes
 - i) A two-thumb encircling technique is preferred for infants
- A BLS airway is an adequate airway. A brief attempt at an advanced airway by an experienced provider is appropriate
- AED use
 - a) Pediatric AEDs are preferred for children 1-8 years old; currently there is insufficient evidence to recommend for or against the use of an AED for children < 1 year old
 - b) If a child is in cardiac arrest and a device with pediatric capabilities is not available, an adult AED should be used
 - c) Adult AEDs should be used on children 8 years old or older
 - d) Defibrillation pads should not touch. Use pediatric-sized pads if available for children 1-8 years old; use a front-back placement if needed
 - e) Contraindications:
 - i) Rigor mortis
 - ii) Dependent lividity
 - iii) Injuries incompatible with life
 - iv) “No code”/ DNR



Warnings/Alerts:

- CPR may still be required in the presence of an organized cardiac rhythm
- Perform CPR if the heart rate is less than 60 with poor perfusion despite oxygenation and ventilation
- Do not administer amiodarone endotracheally
- It is the responsibility of the provider delivering the shock to ensure that no one is touching the patient prior to the shock delivery
- Failure to stop a moving vehicle during AED analysis may lead to inappropriate defibrillation
- The following conditions need to be addressed prior to defibrillation:
 - a) Patients in standing water
 - b) Patients with transdermal medication

OMD Notes:

References:

AHA Pediatric Advanced Life Support Provider Manual, 2006, p. 153-184

Performance Indicators:

Onset of Arrest Time

Time of Initial Defibrillation

Patient Packaging

Initial Rhythm

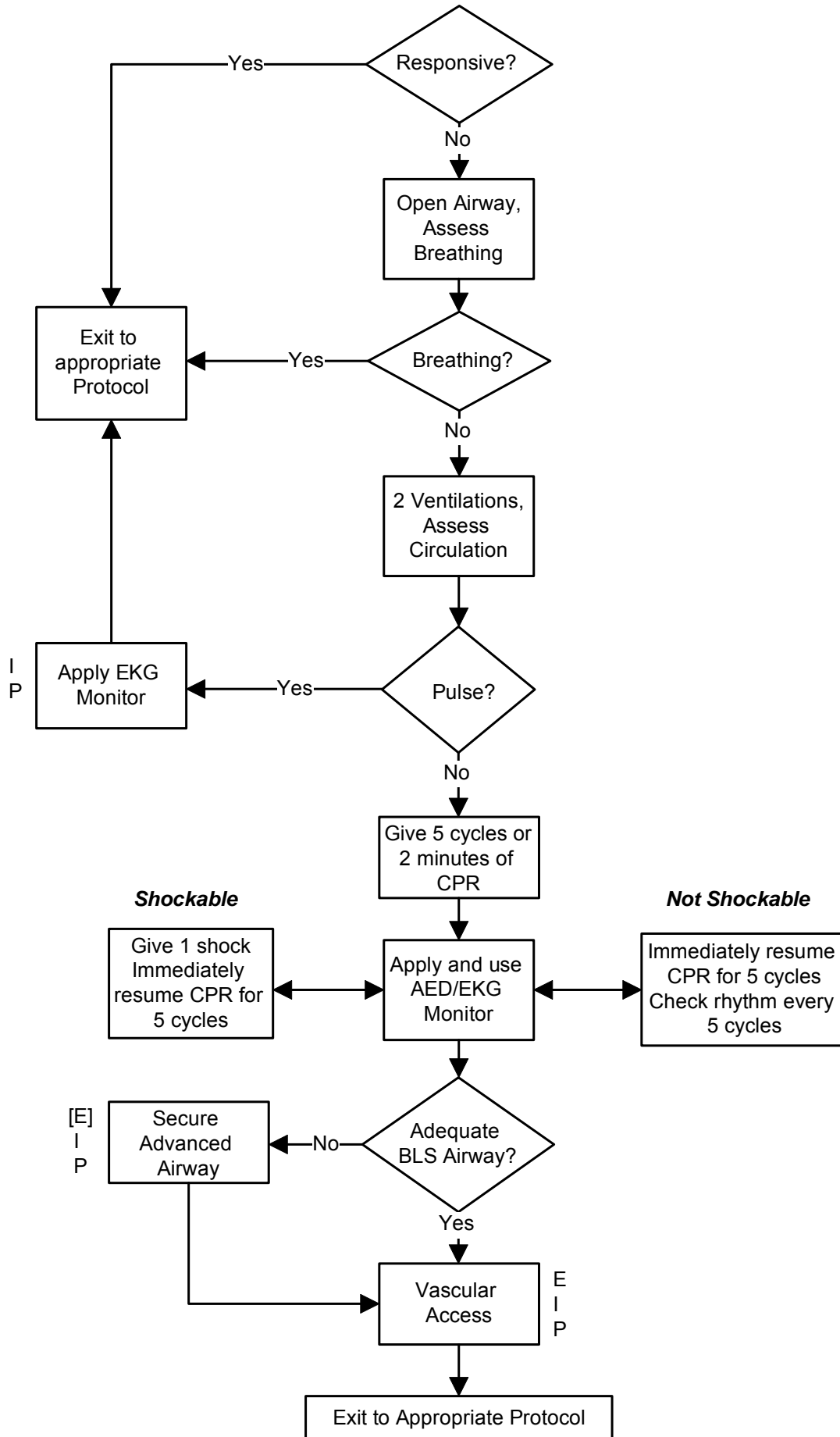
Consistency of CPR

Patient Disposition

Bystander/FR CPR/AED

Changes in EKG Rhythm

Pediatric Emergency Cardiac Care



Pediatric Asystole & Pulseless Electrical Activity

Objectives:

- Early recognition and appropriate intervention for pediatric patients in asystole or PEA

General Information:

- During CPR
 - a) Push hard, push fast (100/min)
 - b) Ensure full chest recoil
 - c) Minimize interruptions in compressions
 - d) One person CPR: 30 compressions: 2 breaths, two minutes = 5 cycles
 - e) Two person CPR: 15 compressions: 2 breaths, two minutes = 10 cycles
 - f) Avoid hyperventilation
 - g) After an advanced airway is in place, rescuers no longer deliver “cycles” of CPR. Give continuous compressions without pauses for breaths (Give 8-10 breaths per minute)
 - h) Check rhythm every two minutes
 - i) A two-thumb encircling technique is preferred for infants
- Epinephrine
 - a) IV/IO 0.01 mg/kg (1:10,000 0.1ml/kg) every 3-5 minutes
 - b) ETT 0.1 mg/kg (1:1000 0.1 ml/kg added to 2-5 ml NS max of 10 ml of fluid)
- Atropine is not routinely used for pediatric asystole/PEA
- Endotracheal administration of medications should be used ONLY when IV/IO access is not available
- A BLS airway is an adequate airway. A brief attempt at an advanced airway by an experienced provider is appropriate
- Search for and treat possible contributing factors:
 - a) Hypovolemia
 - b) Hypoxia
 - c) Hydrogen ion (acidosis)
 - d) Hypoglycemia
 - e) Hypo-/hyperkalemia
 - f) Hypo-/hyperthermia
 - g) Tension pneumothorax
 - h) Toxins
 - i) Tamponade, cardiac
 - j) Thrombosis (coronary or pulmonary)
 - k) Trauma



Warnings/Alerts:

- CPR may still be required in the presence of an organized rhythm

OMD Notes:

-

References:

AHA Pediatric Advanced Life Support Provider Manual, 2006, p. 166-168

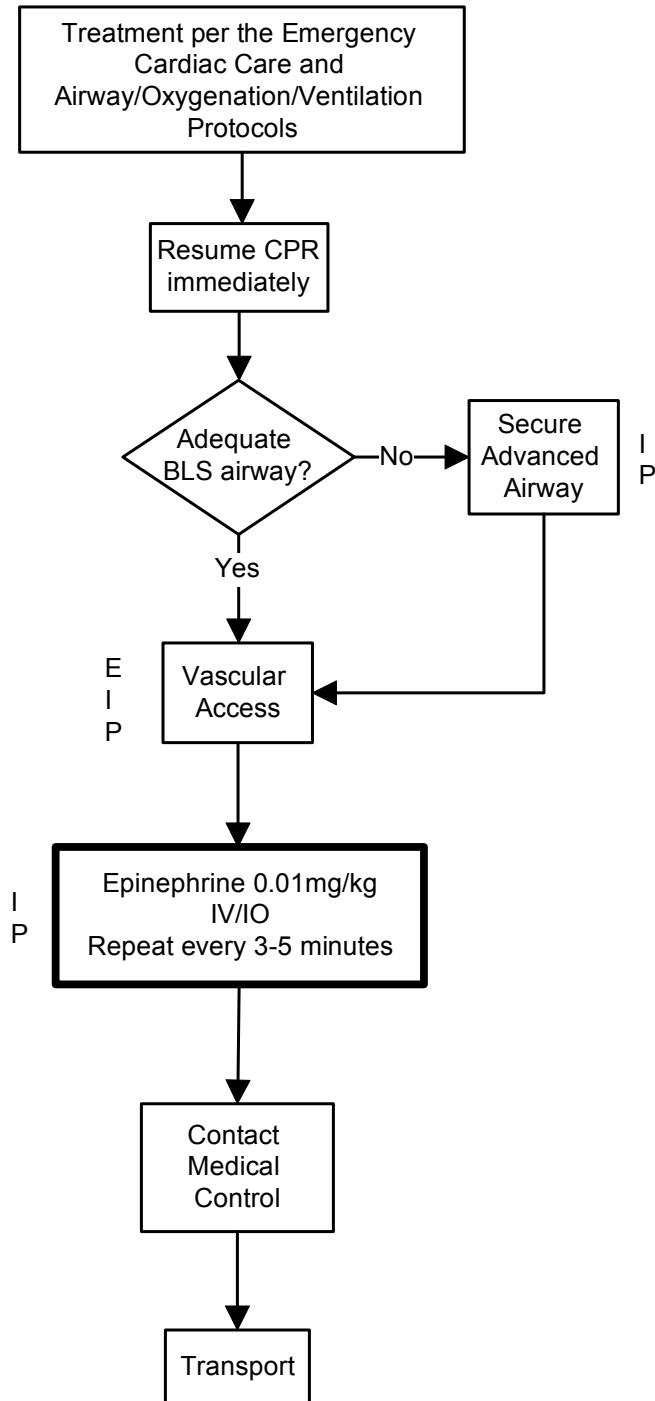
Performance Indicators:

Onset of Arrest Time
Time of Initial Treatment
Consistency of CPR

Initial Rhythm
Changes in EKG Rhythm
Patient Packaging

Bystander/FR CPR/AED
Confirmation of Airway
Patient Disposition

Pediatric Asystole & Pulseless Electrical Activity



Pediatric Bradycardia

Objectives:

- Early recognition and management of pediatric bradycardia

General Information:

- Signs and symptoms of cardiorespiratory compromise
 - a) Increased work of breathing
 - b) Altered mental status
 - c) Cyanosis
 - d) Poor perfusion and loss of peripheral pulses
- Consider and treat possible causes:
 - a) Hypovolemia
 - b) Hypoxia
 - c) Acidosis (Hydrogen ions)
 - d) Hypo/hyperglycemia
 - e) Hypo/hyperkalemia
 - f) Hypo/hyperthermia
 - g) Tension pneumothorax
 - h) Toxins
 - i) Tamponade
 - j) Thrombosis (coronary or pulmonary)
 - k) Trauma
- Epinephrine:
 - a) IV/IO 0.01 mg/kg (1:10,000 0.1ml/kg) every 3-5 minutes
 - b) ETT 0.1 mg/kg (1:1000 0.1 ml/kg added to 2-5 ml NS max of 10 ml of fluid)
- Atropine
 - a) 0.02 mg/kg IV/IO, minimum dose 0.1 mg, max dose 0.5 mg
 - b) May be repeated once on standing order
- Pacing
 - a) Set rate to 100 bpm
 - b) Increase milliamps until electrical capture; final mA setting should be slightly above where electrical capture is obtained to prevent loss of capture
 - c) Verify mechanical capture



Warnings/Alerts:

- Too small doses of atropine produce a paradoxical bradycardia; therefore, a minimum dose of 0.1 mg is recommended.
- Atropine and pacing are preferred over epinephrine if the patient has existing heart disease (cardiomyopathy or myocarditis, for example) – contact medical control for guidance.

OMD Notes:

References:

AHA Pediatric Advanced Life Support Provider Manual, 2006, p. 123-125

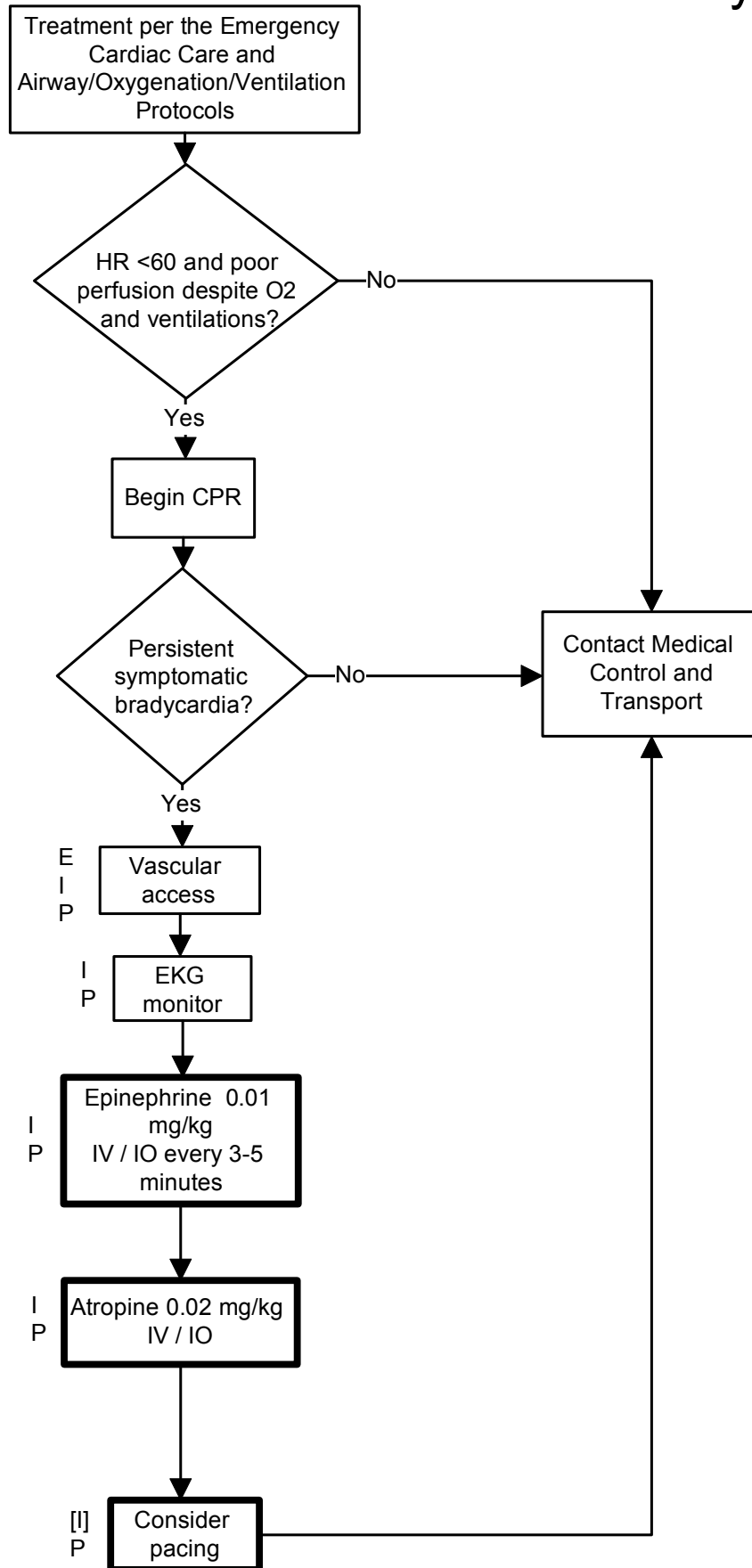
Performance Indicators:

Onset of Symptoms (time)
LOC

Treatment and Response
Pacing Parameters

Vital Signs – 2 set minimum

Pediatric Bradycardia



Pediatric Tachycardia – Narrow Complex

Objectives:

- Early recognition and management of pediatric narrow-complex tachycardia

General Information:

- A key component to treatment of pediatric tachycardia is distinguishing between sinus tachycardia and SVT
 - a) Sinus tachycardia:
 - i) HR < 180 in children, 220 in infants
 - ii) Rate variable with stress or activity
 - iii) P waves may be visible
 - iv) Gradual onset
 - v) Signs of underlying cause (ie fever, dehydration, hemorrhage, pain)
 - b) Supraventricular tachycardia
 - i) HR > 180 in children, 220 in infants
 - ii) Rate not variable
 - iii) P waves absent or inverted
 - iv) Sudden onset
 - v) Infants may present with CHF symptoms
- Signs and Symptoms of a hemodynamically unstable patient include:
 - a) Altered mental status
 - b) Poor perfusion
 - i) Mottling
 - ii) Pallor
 - iii) Cyanosis
 - iv) Diminished peripheral pulses
 - c) Ongoing chest discomfort
 - d) Shortness of breath
 - e) Hypotension
 - f) Shock
- Vagal maneuvers
 - a) Apply ice to the forehead, eyes and bridge of nose of infants
 - b) Older children:
 - i) Blow through obstructed straw
 - ii) Bear down as if having a bowel movement
 - iii) Hold breath while ice is applied to forehead, eyes and bridge of nose
- Adenosine:
 - a) First dose: 0.1 mg/kg rapid IV/IO push, max dose 6 mg
 - b) Second dose: 0.2 mg/kg rapid IV/IO push, max dose 12 mg



Warnings/Alerts:

- Do not obstruct infant's airway while performing vagal maneuvers
- Do not use ocular pressure or carotid massage as a vagal maneuver
- If the patient has SVT with altered mental status and other signs of hemodynamic instability, do not delay cardioversion to administer sedation

OMD Notes:

- Younger children may require proportionately higher doses of medication due to their faster metabolism
- Adenosine should be given in the stable patient with physician order only
- Stable patients should receive supportive care and transport to the ED

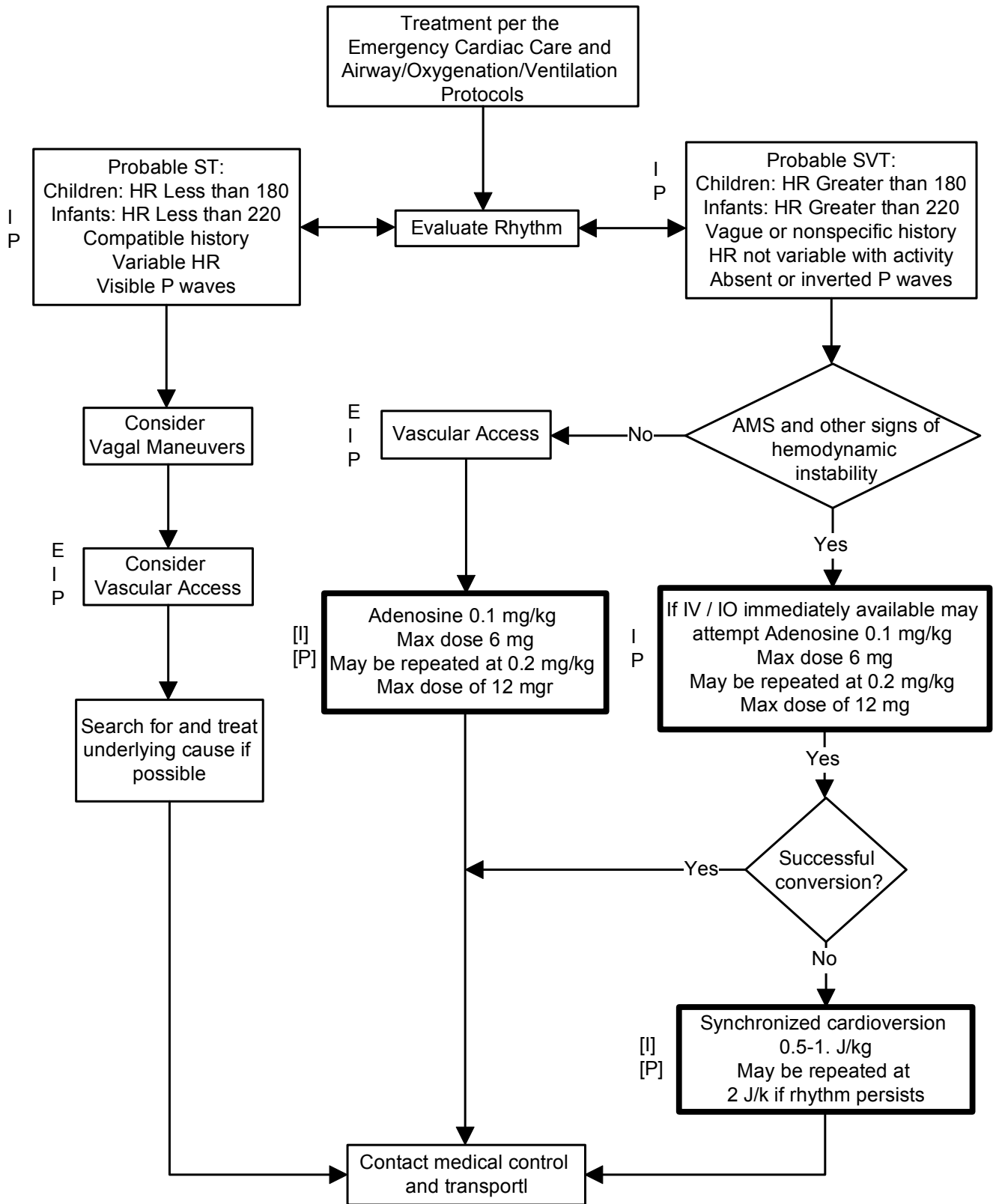
References:

AHA Pediatric Advanced Life Support Provider Manual, 2006, p. 126-147

Performance Indicators:

Vital Signs before Intervention	Vital Signs after Intervention	Stable or Unstable Patient
Response to Therapy	Initial Rhythm	LOC
Onset of Symptoms		

Pediatric Tachycardia - Narrow Complex



Pediatric Tachycardia – Wide Complex

Objectives:

- Early recognition and management of pediatric wide-complex tachycardia

General Information:

- Signs and Symptoms of a hemodynamically unstable patient include:
 - a) Altered mental status
 - b) Poor perfusion
 - i) Mottling
 - ii) Pallor
 - iii) Cyanosis
 - iv) Diminished peripheral pulses
 - c) Ongoing chest discomfort
 - d) Shortness of breath
 - e) Hypotension
 - f) Shock
- Consider causes such as the following and contact medical control for guidance:
 - a) Congenital cardiac conditions
 - b) Drug toxicity (tricyclic antidepressants, cocaine, calcium channel blockers)
- Amiodarone
 - a) 5 mg/kg over 20 minutes
- Medical control may order adenosine if SVT with aberrant conduction is suspected
 - a) First dose: 0.1 mg/kg rapid IV/IO push, max dose 6 mg
 - b) Second dose: 0.2 mg/kg rapid IV/IO push, max dose 12 mg



Warnings/Alerts:

- Polymorphic VT can deteriorate quickly to VF – cardiovert ASAP
- If unable to obtain synchronization, deliver unsynchronized shock at defibrillation energy (manufacturer recommendations)
- If the patient has VT with altered mental status and other signs of hemodynamic instability, do not delay cardioversion to administer sedation

OMD Notes:

- Younger children may require proportionately higher doses of medication due to their faster metabolism.

References:

AHA Pediatric Advanced Life Support Provider Manual, 2006, p. 126-147

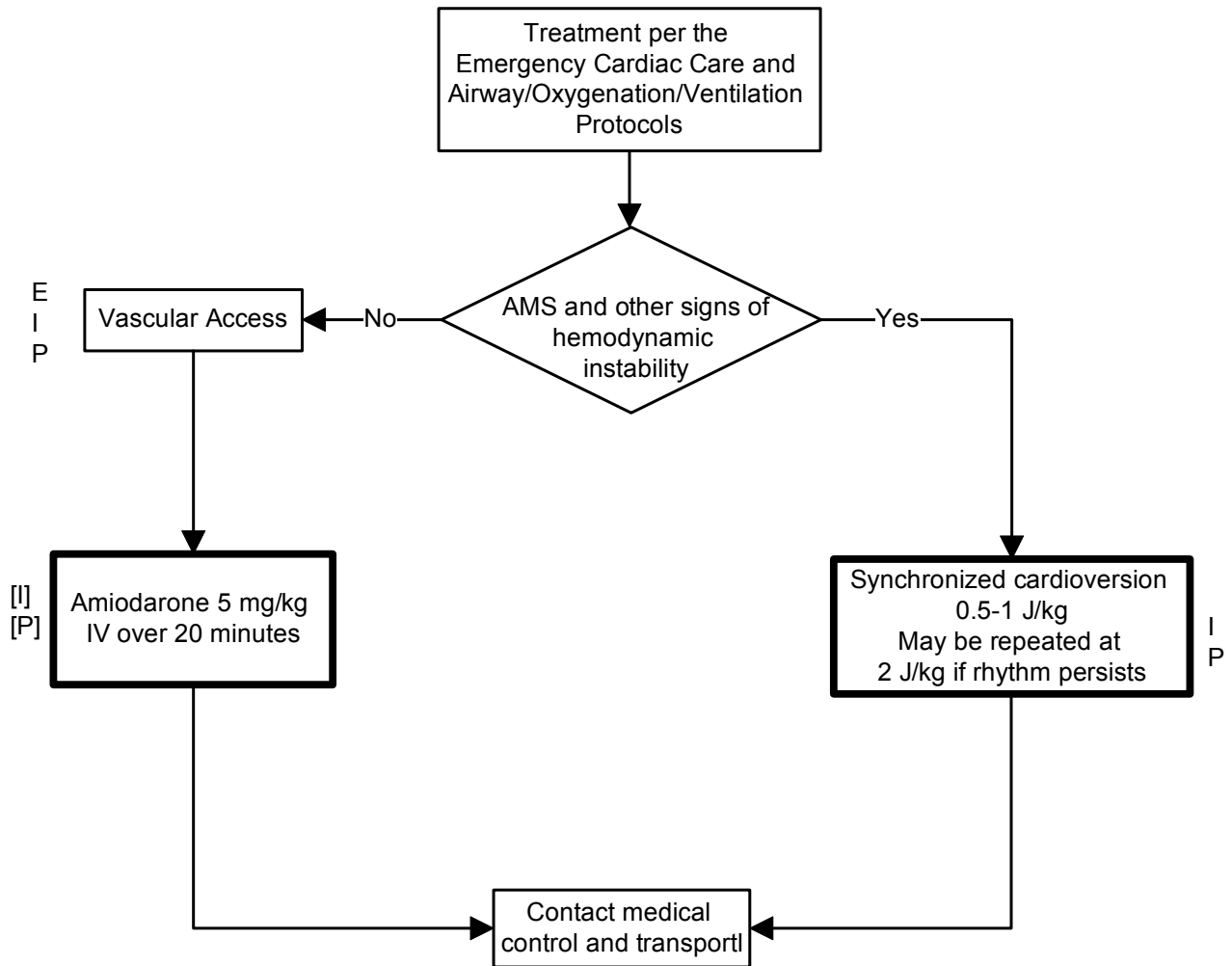
Performance Indicators:

Vital Signs before Intervention
Response to Therapy
Onset of Symptoms

Vital Signs after Intervention
Initial Rhythm

Stable or Unstable Patient
LOC

Pediatric Tachycardia - Wide Complex



Pediatric Ventricular Fibrillation & Pulseless Ventricular Tachycardia

Objectives:

- Early recognition and appropriate intervention for pediatric patients in VF or pulseless VT

General Information:

- During CPR
 - a) Push hard, push fast (100/min)
 - b) Ensure full chest recoil
 - c) Minimize interruptions in compressions
 - d) One person CPR: 30 compressions: 2 breaths, two minutes = 5 cycles
 - e) Two person CPR: 15 compressions: 2 breaths, two minutes = 10 cycles
 - f) Avoid hyperventilation
 - g) After an advanced airway is in place, rescuers no longer deliver “cycles” of CPR. Give continuous compressions without pauses for breaths (8-10 breaths per minute)
 - h) Check rhythm every two minutes
 - i) A two-thumb encircling technique is preferred for infants
- Epinephrine
 - a) IV/IO 0.01 mg/kg (0.1 mL/kg 1:10,000) every 3-5 minutes
 - b) ETT 0.1 mg/kg (0.1 mL/kg 1:1000 added to 2-5 ml NS max of 10 mL of fluid)
- Endotracheal administration of medications should be used ONLY when IV/IO access is not available
- A BLS airway is an adequate airway. A brief attempt at an advanced airway by an experienced provider is appropriate
- AED use
 - a) Pediatric AEDs are preferred for children 1-8 years old; currently there is insufficient evidence to recommend for or against the use of an AED for children < 1 year old
 - b) If a child is in cardiac arrest and a device with pediatric capabilities is not available, an adult AED should be used
 - c) Adult AEDs should be used on children 8 years old or older
 - d) Defibrillation pads should not touch. Use pediatric-sized pads if available for children 1-8 years old; use a front-back placement if needed
 - e) Contraindications:
 - i) Rigor mortis
 - ii) Dependent lividity
 - iii) Injuries incompatible with life
 - iv) “No code”/ DNR
- If unsuccessful IV/IO access Lidocaine may be given via endotracheal tube
- Medical Control may order magnesium sulfate for torsades de pointes
 - a) Dose: 25-50 mg/kg in 10 mL NS, IV push



Warnings/Alerts:

- CPR may still be required in the presence of an organized cardiac rhythm
- Do not administer amiodarone endotracheally
- It is the responsibility of the provider delivering the shock to ensure that no one is touching the patient prior to the shock delivery
- Failure to stop a moving vehicle during AED analysis may lead to inappropriate defibrillation
- The following conditions need to be addressed prior to defibrillation:
 - a) Patients in standing water
 - b) Patients with transdermal medication
 - c) Avoid placing pads over implanted defibrillator/pacemaker

OMD Notes:

- With a patient in cardiac arrest, providers need to contact medical control as early as possible

References:

AHA Pediatric Advanced Life Support Provider Manual, 2006, p. 168-178

Performance Indicators:

Onset of arrest time

Time of Initial Defibrillation

Patient Packaging

Initial rhythm

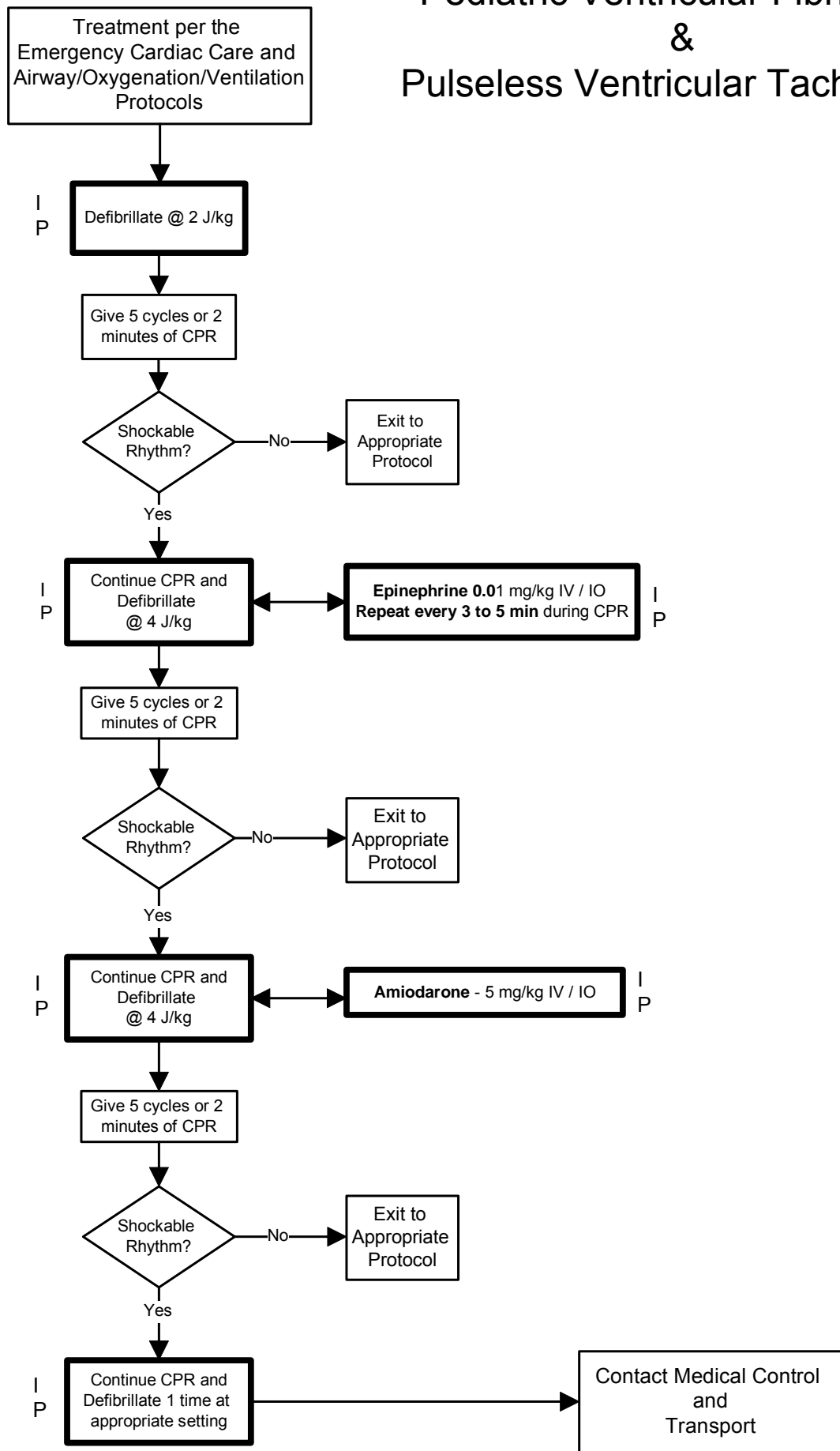
Confirmation of Airway

Patient Disposition

Bystander/FR CPR/AED

Consistency of CPR

Pediatric Ventricular Fibrillation & Pulseless Ventricular Tachycardia



Notes

Pediatric General Protocols

Pediatric Airway/Oxygenation/Ventilation

Objectives:

- Ensure patency of airway
- Provide proper oxygenation therapy
- Support the patient's breathing as needed

General Information:

- Oxygen therapy for patients with altered mental status, hypoperfusion, cardiac chest pain, trauma, carbon monoxide exposure, Dyspnea or sickle cell patient in pain crisis regardless of SPO2 reading
- When possible, a room air pulse oximetry reading should be obtained and documented
- Oxygen therapy
 - a) The goal is to maintain SPO2 \geq 95% but may not be achievable due to various conditions (eg patient history, device limitations)
 - i) SpO2 90-94% - Nasal Cannula at 1 – 6 lpm
 - ii) SpO2 <90% - Non-Rebreather at 10 – 15 lpm
 - b) The pulse oximetry reading should not be the sole factor to determine if the patient needs oxygen
- A BLS airway is adequate for most pediatric patients. However, a brief attempt at oral intubation by an experienced provider is appropriate.
- Assisted Ventilations
 - a) BLS Airway
 - i) The ventilation rate for pediatric patients is 12-20 bpm, or once every 3-5 seconds without CPR
 - ii) Attempts should be made to use 2 providers to ensure adequate BVM ventilations using "E-C" technique
 - iii) Cricoid pressure should be maintained until an advanced airway is in place
 - b) ALS (Advanced) Airway 8 -10 breaths per minute, or once every 6-8 seconds with CPR
 - i) Select tube size using one of the following methods:
 - * Size indicated on the length based resuscitation tape
 - * (16 + age) divided by 4 or (Age divided by 4) + 4
 - ii) Cardiac Monitor and Pulse Oximetry are required
 - iii) Consider OG/NG tube when using BVM or after endotracheal intubation
 - iv) Unconscious Intubated Patients
 - * Verify tube placement
 - * Secure with commercial device
 - * Package on a long board with Cervical Spine immobilization with CID
 - * Reassess tube placement every 5 minute, during transport or after movement of the patient



Warnings/Alerts:

- Failure to use end-tidal CO2 monitoring increases the risk of an unrecognized misplaced tube
- Failure to confirm tube placement prior to securing or following patient movement may lead to unrecognized tube displacement
- Apnea is an absolute contraindication to nasal intubation

OMD Notes:

- Needle cricothyrotomy may be used in children 3-12 years old if the cricothyroid membrane can be palpated
- Consider oxygen therapy for sickle cell patients in pain crisis as they may benefit from this therapy

References:

2005 AHA PALS Provider Manual pg 161
2005 AHA ACLS

Brady SLAM: Street Level Airway Management pg 219
EMT-B Curriculum

Performance Indicators:

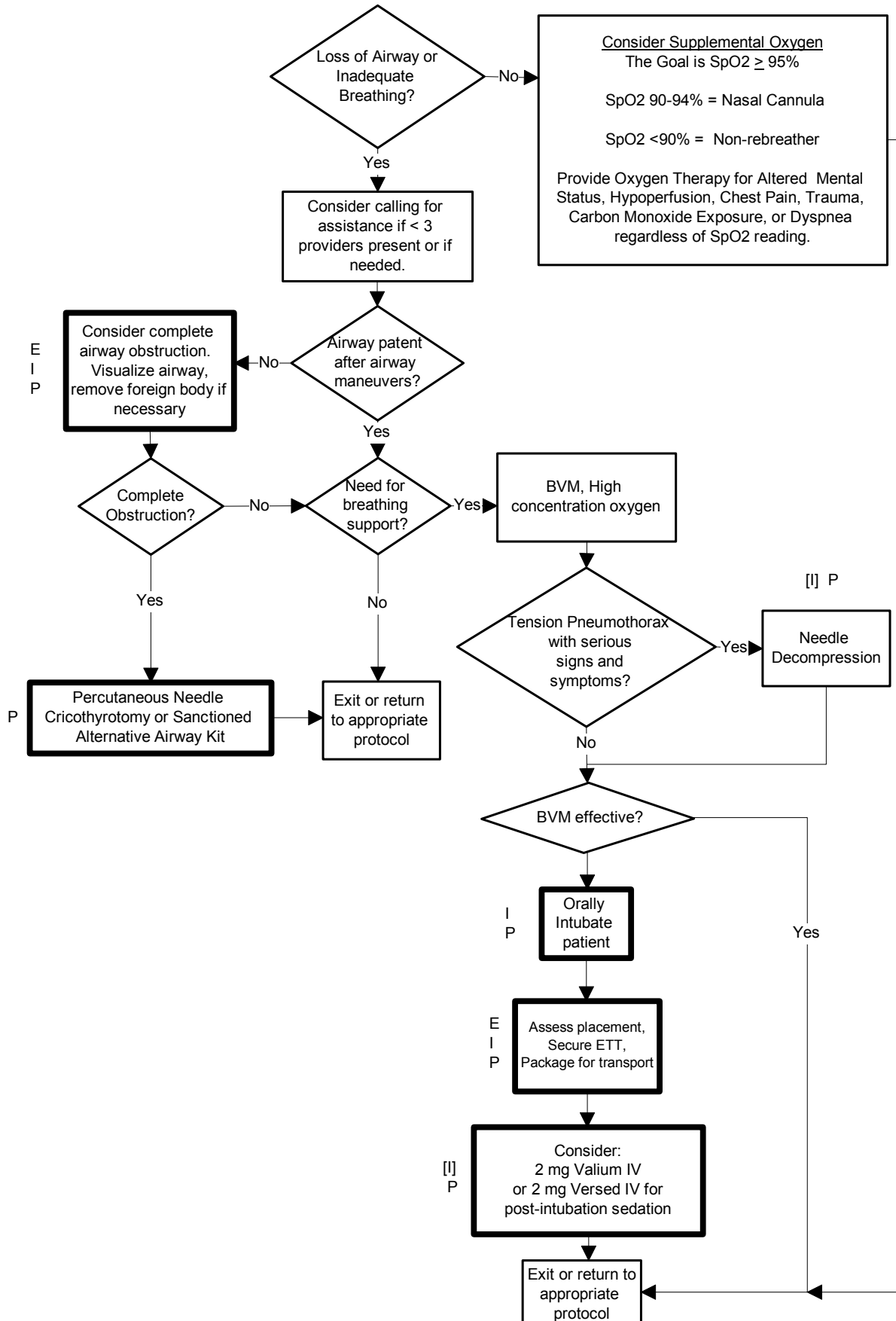
Initial and Ongoing SpO2
Application of Oxygen

Confirmation of ETT
Use of Secondary Airway

Documentation of Breath Sounds
Patient Packaging

Pediatric Airway/Oxygenation/Ventilation

Note: This protocol is to be used in conjunction with existing protocols in a complementary manner.



Pediatric Allergic/Anaphylactic Reaction

Objectives:

- To assess and appropriately treat pediatric patients with allergic reactions and/or anaphylaxis
- To differentiate between an allergic reaction and anaphylaxis

General Information:

- Signs and Symptoms of allergic reaction may include:
 - a) Itching
 - b) Hives
 - c) Flushing (red skin)
 - d) Mild swelling of face (especially the eyes and lips), neck, hands, feet or tongue
- Signs and Symptoms of anaphylaxis may include all of the above; but must include one of the following:
 - a) Respiratory distress
 - i) Labored breathing (ie. Stridor, wheezing, hoarseness, cough)
 - b) Hemodynamic instability
 - i) Hypotension
 - ii) Weak or absent distal pulses
 - iii) Excessive Sweating (Diaphoresis)
- Rapidly progressing signs and symptoms should be treated as anaphylaxis
- EMT-Bs may use patient's Epi-Pen and MDI only
- In severe anaphylaxis with hypotension and/or severe airway obstruction, medical control may order Epinephrine 1:10,000 IV
- In hemodynamic instability Epinephrine 1:1,000 IM is the preferred route of administration instead of SQ
- Solu-Medrol should be avoided in the pediatric population



Warnings/Alerts:

- Epinephrine 1:1,000 should not be given IV
- Contact medical control before administering Epinephrine to patients with a cardiac history
- Administration of Epinephrine may cause lethal dysrhythmias; providers must be prepared for emergent intervention

OMD Notes:

- Maximum dose of epinephrine is 0.5 mg
- The use of albuterol is encouraged if the patient exhibits wheezing or diminished aeration

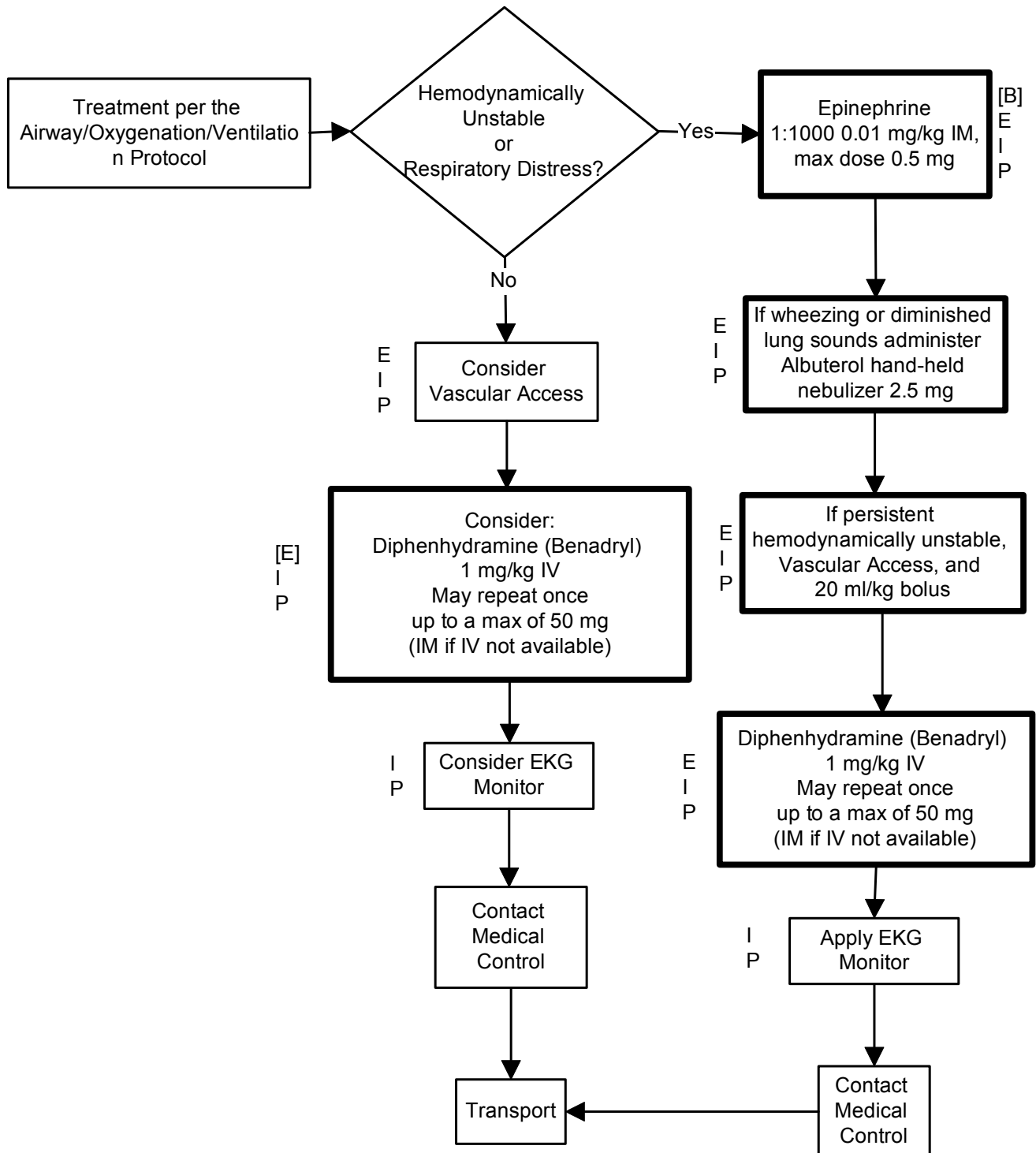
References:

Mosby's Paramedic Textbook, 3rd Edition, 2007 pg 873-875
Brady Emergency Care, 10th Edition, 2005 pg 447

Performance Indicators:

Documented Cause (If Known) Application of Oxygen Treatment Provided Response to Treatment
Use of Patient Epi-Pen

Pediatric Allergic/Anaphylactic Reaction



Pediatric Altered Mental Status

Objectives:

- To assess and appropriately treat pediatric patients with altered mental status
- To determine the underlying cause of altered mental status in the pediatric patient

General Information:

- Causes of Altered Mental Status may be remembered with the acronym AEIOU-TIPS
 - a) Alcohol or acidosis
 - b) Epilepsy (seizure), Electrolytes
 - c) Infection
 - d) Overdose
 - e) Uremia
 - f) Trauma, Temperature (hypo/hyperthermia, fever)
 - g) Insulin (hypo/hyperglycemia)
 - h) Psychosis, Poison
 - i) Shock (hypoperfusion), Stroke (CVA), Subarachnoid Hemorrhage
- Left lateral recumbent or semi-fowler's position is preferred for transport if spinal injury is not suspected
- Some conditions that can cause Altered Mental Status cannot be treated in the field. If providers cannot quickly identify a condition that can be treated pre-hospital, they should contact medical control and transport the patient urgently
- Children with a history of sickle cell disease have a higher risk of stroke



Warnings/Alerts:

- Patients with Altered Level of Consciousness are at high risk for airway compromise
 - a) Example: vomiting, gurgling, drooling, snoring, change in breathing pattern, change in head position
- The airway should be continuously monitored for patency

OMD Notes:

-

References:

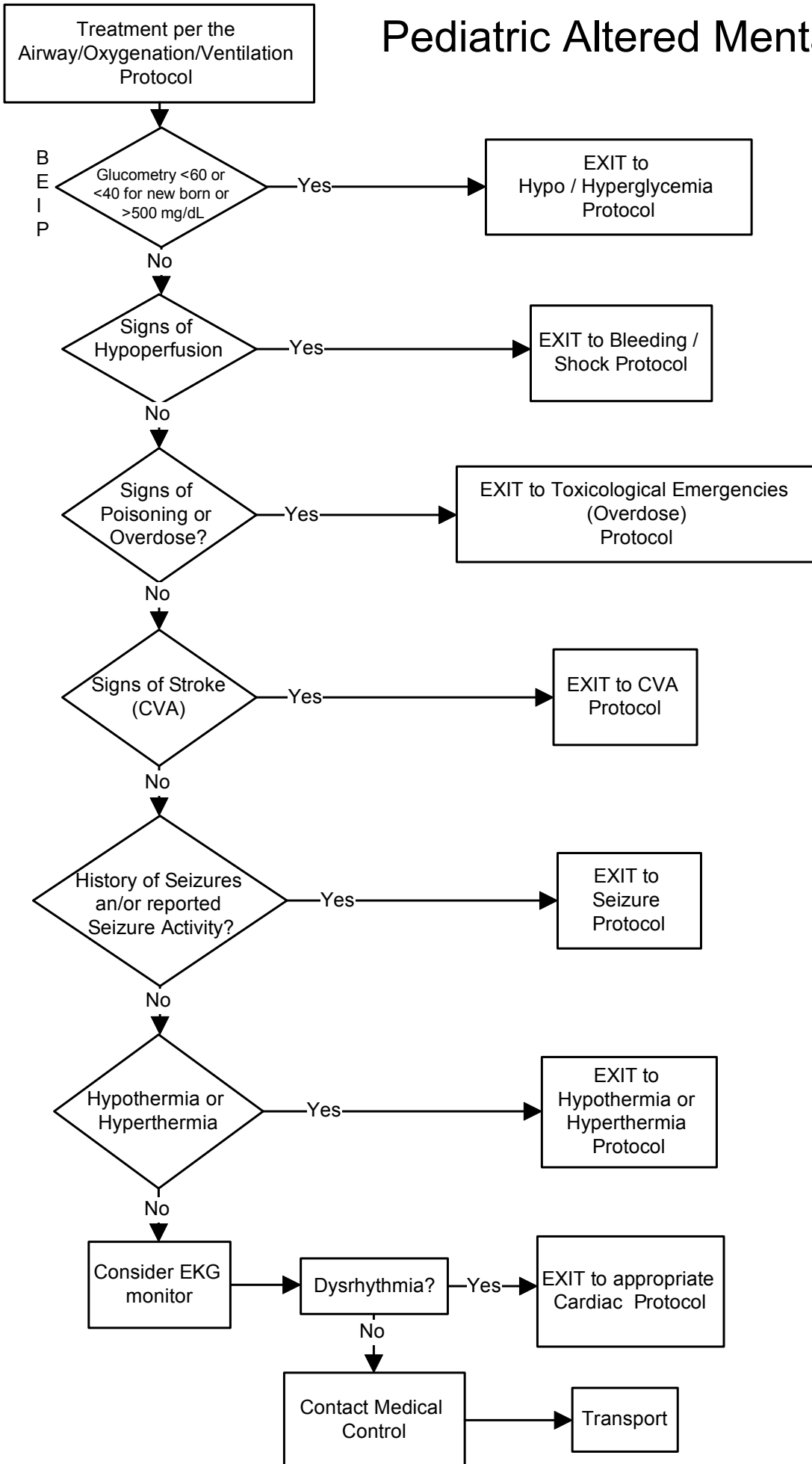
- Mosby's Paramedic Textbook, 3rd Edition, 2007 pg 284, 452
- American Stroke Association

Performance Indicators:

Documented Cause (if known) Treatment Provided
Glucometer Reading

Response to Treatment

Pediatric Altered Mental Status



Pediatric Breathing Difficulty

Objectives:

To appropriately manage breathing difficulty in pediatric patients

General Information:

- In the patient with stridor, drooling, and forward posture, let the patient maintain a position of comfort if they are maintaining their own airway
- In severe asthma, wheezing may not be present due to insufficient tidal volume
- For **severe asthma**, medical control may order other medications:
 - a) Magnesium sulfate
 - i) 50 mg/kg (max dose 2 g) IV/IO drip
 - ii) Mix in 250 mL NS administer over 10-15 minutes
 - b) Epinephrine 1:1,000
 - i) 0.01 mg/kg SQ or IM, max dose 0.5 mg
- Solu-medrol should not be routinely administered to pediatric patients; however, it may be considered for extended transports (physician order only)
 - a) Dose: 2 mg/kg (max dose 125 mg)
- Overdoses on drugs such as beta-blockers, tricyclic antidepressants and calcium-channel blockers may produce pulmonary edema



Warnings/Alerts:

OMD Notes:

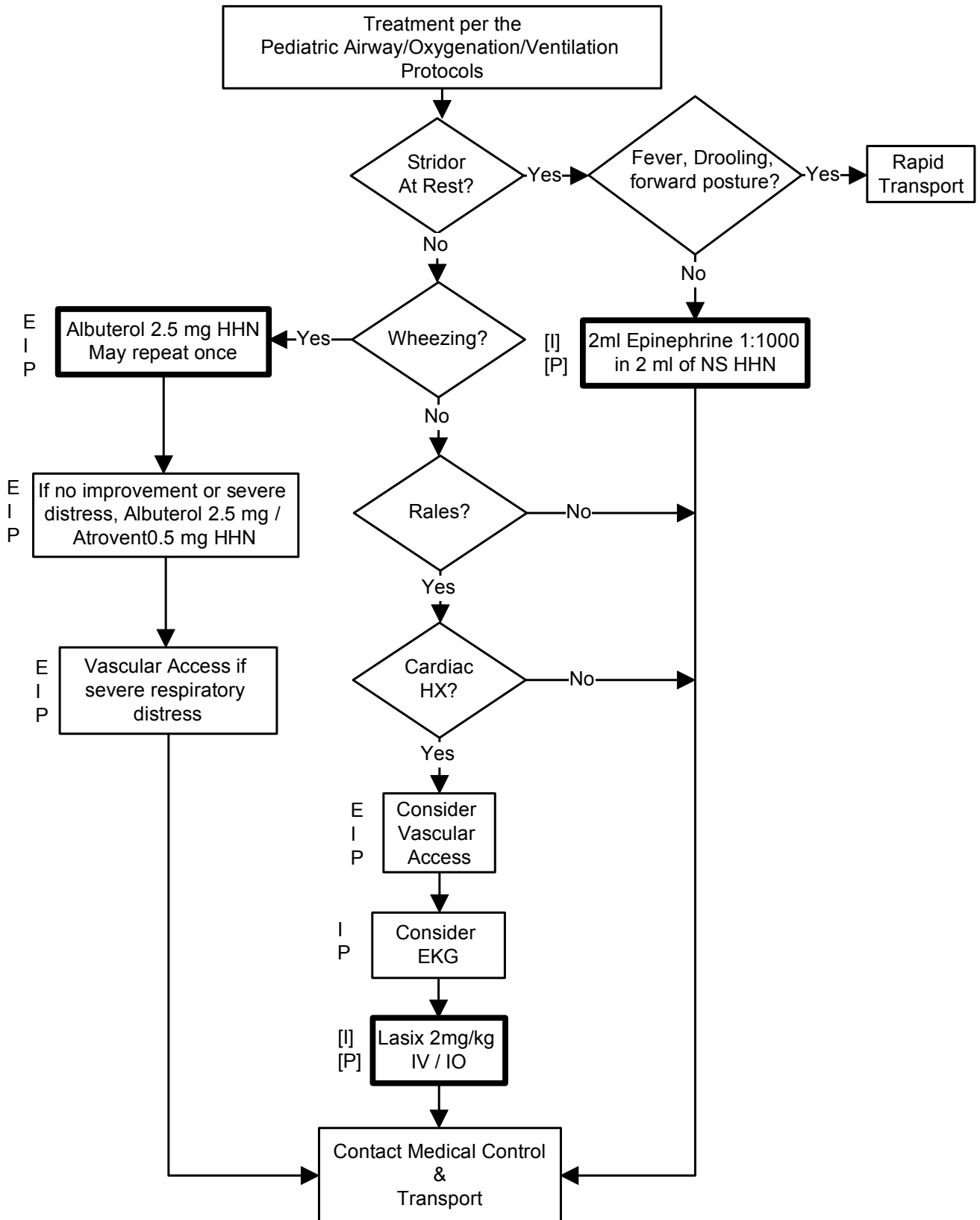
References:

Performance Indicators:

Breath Sounds Before and After Treatment
Treatment and Response to Treatment

Initial and Ongoing SpO2

Pediatric Breathing Difficulty



Pediatric Burns

Objectives:

- To assess and appropriately treat pediatric patients with burn injuries
- To determine the extent and severity of burn injuries of the pediatric patient

General Information:

- Stop the burning process. Cool burned area(s) until pain is lessened or up to 30 minutes if patient can maintain normal body temperature
- Remove clothing around burned area carefully. If clothing is stuck to skin, cut the clothing instead of pulling it away
- Small burned areas may be covered with a moist dressing for patient comfort; large burned areas should be covered with dry, sterile dressings.
- Criteria for direct transport to a regional Burn/Trauma center:
 - a) > 10% BSA full-thickness burns
 - b) > 20% BSA partial-thickness burns
 - c) > 15% BSA partial and full-thickness burns
 - d) Burns to genitals, hands, feet, face or surface area over joints
 - e) Geriatric or pediatric patients
 - f) Inhalation, electrical injury or chemical burns
 - g) Associated traumatic injuries
- Sentara Norfolk General and CHKD have an agreement where some burn patients may be transported to CHKD, this includes the following patients:
 - a) Significant burns to the face, neck and/or upper chest that could potentially compromise the airway should go to Sentara Norfolk General
 - b) A mechanism, such as a house fire where inhalation burn and potential rapid loss of control of the airway is a possibility, should go to Sentara Norfolk General
 - c) If the provider is unsure whether to transport to Sentara Norfolk General or CHKD, they can call either facility for destination decision



Warnings/Alerts:

- Do not delay transport to start IVs or perform other non-life-saving ALS interventions for non critical burn patients; not all burn patients need an IV
- Use caution when cooling patients to avoid hypothermia
- Inhalation burns with impending airway compromise should be treated with aggressive airway management

OMD Notes:

-

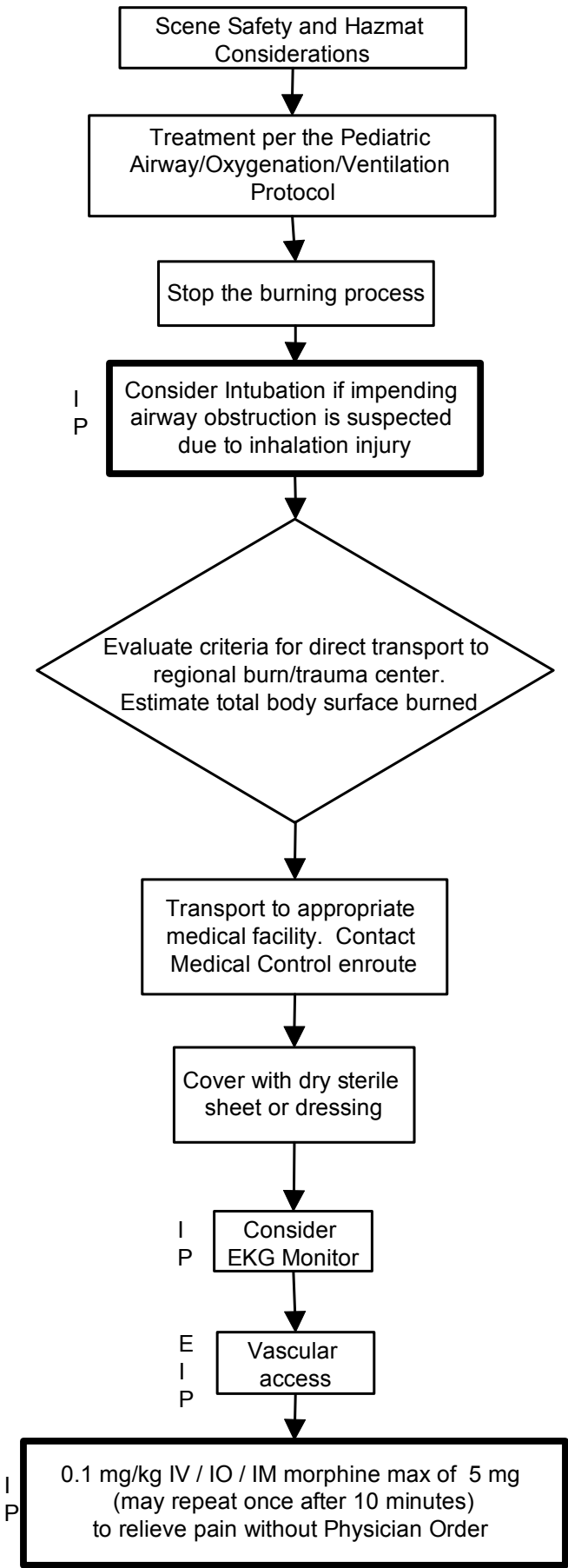
References:

Mosby Paramedic Textbook, 3rd Edition, 2007, pg 568

Performance Indicators:

Time on Scene Initial SpO2 Estimated Body Surface Burned
Initial and Ongoing Vital Signs Dressing Type

Pediatric Burns



Care of the Newly Born

Objectives:

- To provide appropriate resuscitation for the newly born

General Information:

- Vascular access is generally not needed in resuscitation of the newly born
- Resuscitation should focus on airway management and breathing
- Meconium aspiration
 - a) Without respiratory distress: normal oral and nasal suctioning
 - b) With respiratory distress or lack of vigor: aggressive suctioning of the mouth, nose and trachea
- Suctioning of meconium in a distressed newly born should not preclude oxygenation and ventilation
- Umbilical vein cannulation should not routinely be utilized in the newly born
- Utilization of the EZ IO may be indicated and may require less pressure during insertion than insertion in adult patients
- APGAR scoring should be documented at 1 minute and repeated at 5 minutes
- The depressed newly born or prematurely born infant is at risk for hypoglycemia
 - a) Check blood sugar
 - i) When a patient has a sudden change in responsiveness or perfusion
 - ii) Patient is cold stressed
 - iii) Patients large for gestational age
 - iv) Patients born to diabetic mothers
 - v) When transport time is greater than 30 minutes
 - b) Implement pediatric hypo/hyperglycemic protocol as needed



Warnings/Alerts:

- Avoiding hypothermia is an important part of newly born management. Before delivery, make the room or ambulance as warm as possible
- Narcan is contraindicated for neonates of narcotic-addicted or methadone-dependent mothers

OMD Notes:

-

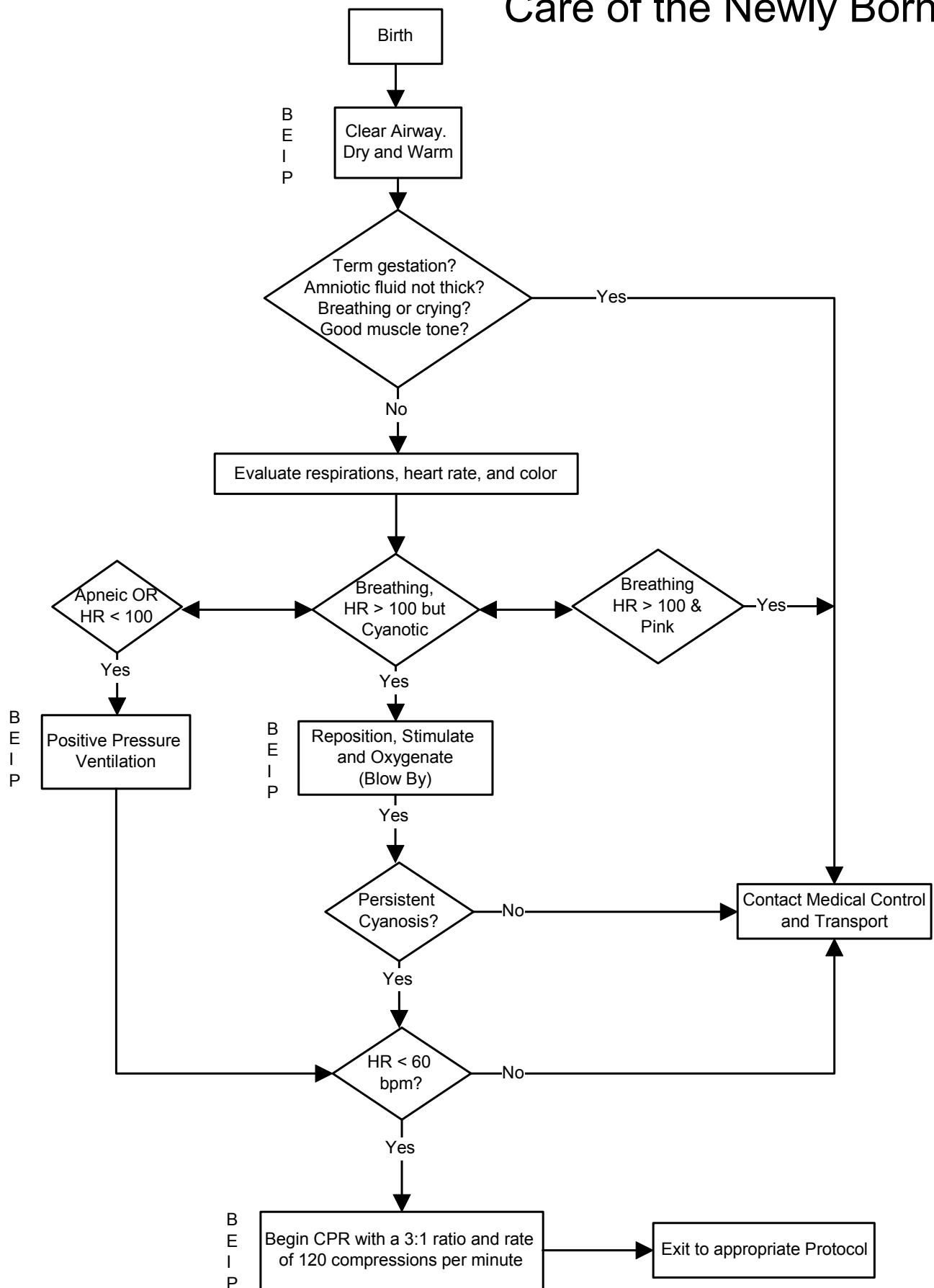
References:

- PEPP Provider Manual 2nd Edition, pgs 199-205
- Brady Essentials of Prehospital maternity care, pg238, 367

Performance Indicators:

APGAR Score Initial and Ongoing Vital Signs Meconium Aspiration Suctioning of Airway

Care of the Newly Born



Pediatric Hyper/Hypoglycemia

Objectives:

- To assess and appropriately treat pediatric patients with hypo- or hyperglycemia

General Information:

- Oral glucose may be administered by EMT-Bs and above providers on standing orders, provided the patient meets the following criteria:
 - a) Glucometry < 60 mg/dL
 - b) Known or suspected history of diabetes
 - c) Conscious and able to swallow
 - d) Able to maintain own airway
- Dextrose 50% may be administered rectally with physician order
 - a) Dose 0.5 mg/kg
- Dextrose administration requires a patent flowing IV line, not a saline lock
 - a) To make Dextrose 25% expel 25 ml of the preloaded syringe and draw up 25 ml of NS
 - b) To make Dextrose 10% expel 40 ml of the preloaded syringe and draw up 40 ml of NS
- Patients with a prolonged period of hypoglycemia may not respond to glucagon



Warnings/Alerts:

- Do not administer oral glucose to patients that are not able to swallow or protect their own airway
- If the IV infiltrates while administering dextrose, stop dextrose administration immediately

OMD Notes:

- Hypoglycemia is very dangerous, much more than hyperglycemia

References:

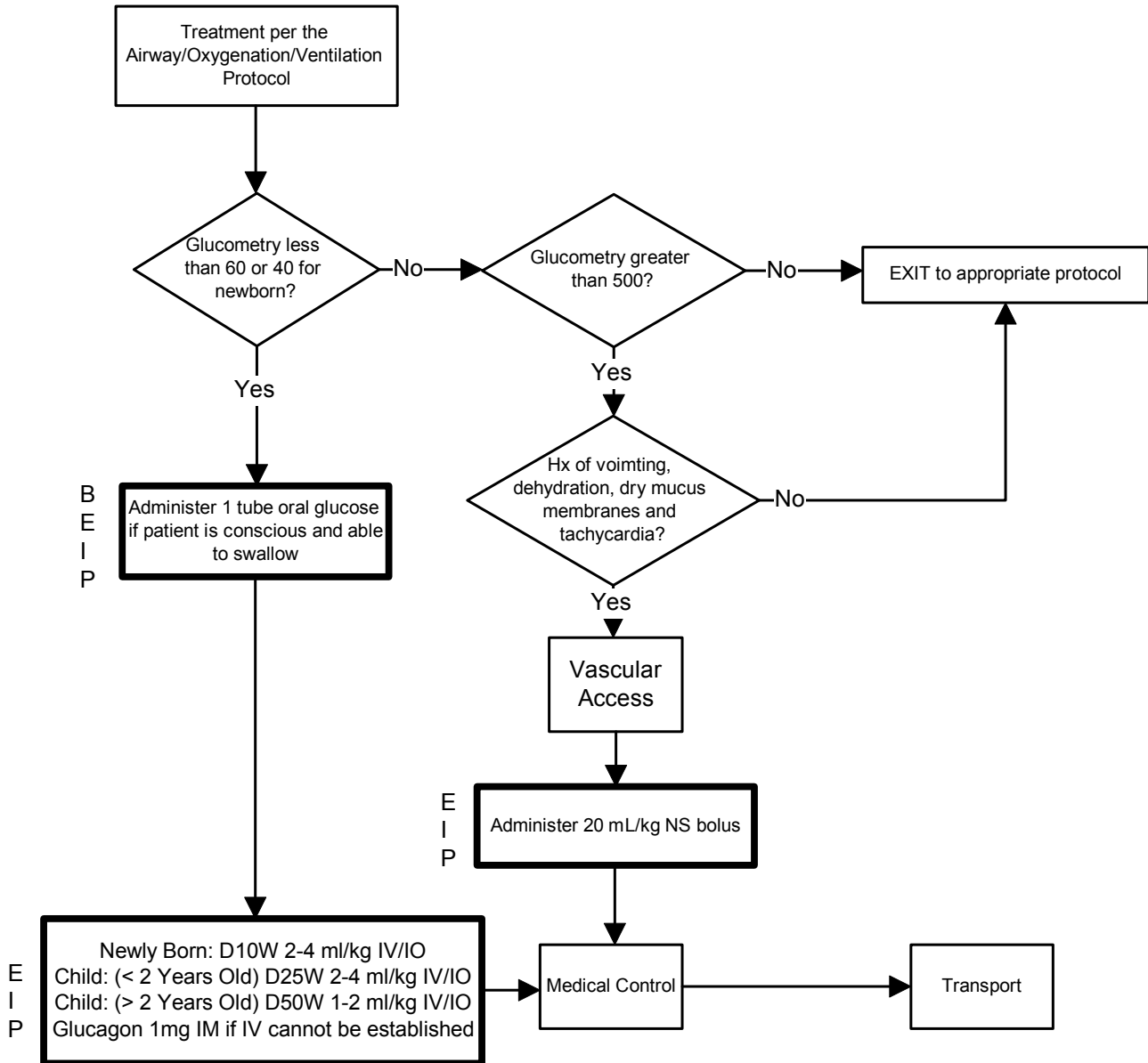
AAOS Emergency Care & Transportation of the Sick and Injured 9th Edition pgs 350, 482-497
Mosby's Paramedic Textbook, Third Edition, 2007 pg 858-862
Brady Prehospital Emergency Pharmacology 6th Edition, pg 499

Performance Indicators:

Documented Cause (If Known)

Treatment and Response to Treatment

Pediatric Hyper/Hypoglycemia



Pediatric Nausea/Vomiting

Objectives:

- To appropriately assess and treat pediatric patients who are profoundly nauseous or vomiting

General Information:

- Nausea and vomiting generally are not life-threatening conditions
- Suction should be readily available whenever a patient is nauseous or vomiting
- Zofran (ondansetron) may be administered when vomiting could produce an airway obstruction (for example, in backboarded patients) or for patient comfort when the patient is repeatedly vomiting
 - a) Dose: 0.15 mg/kg up to total dose of 4 mg slow IV push (over 2-5 minutes) or IM if IV is not available, may be repeated at same dose in 20 minutes
 - b) Repeated doses generally are not effective; however, if the patient is still vomiting 20 minutes after the first dose, a repeat dose may be given
 - c) Pregnancy category B medication- providers should consult medical control before administering Zofran to a pregnant patient



Warnings/Alerts:

- Ventilating an unconscious vomiting patient will produce aspiration and airway obstruction- suctioning is essential
- Use caution when administering ondansetron with amiodorone or haloperidol due to an increased risk of arrhythmias from prolonged Q-T intervals
- Fluid bolus should be given cautiously in the pediatric population

OMD Notes:

- There are conditions that cause vomiting in which a fluid bolus might increase intracranial pressure and cause a rapid deterioration, such as intracranial lesions, tumors, acute bleeding, malfunctioning VP shunts

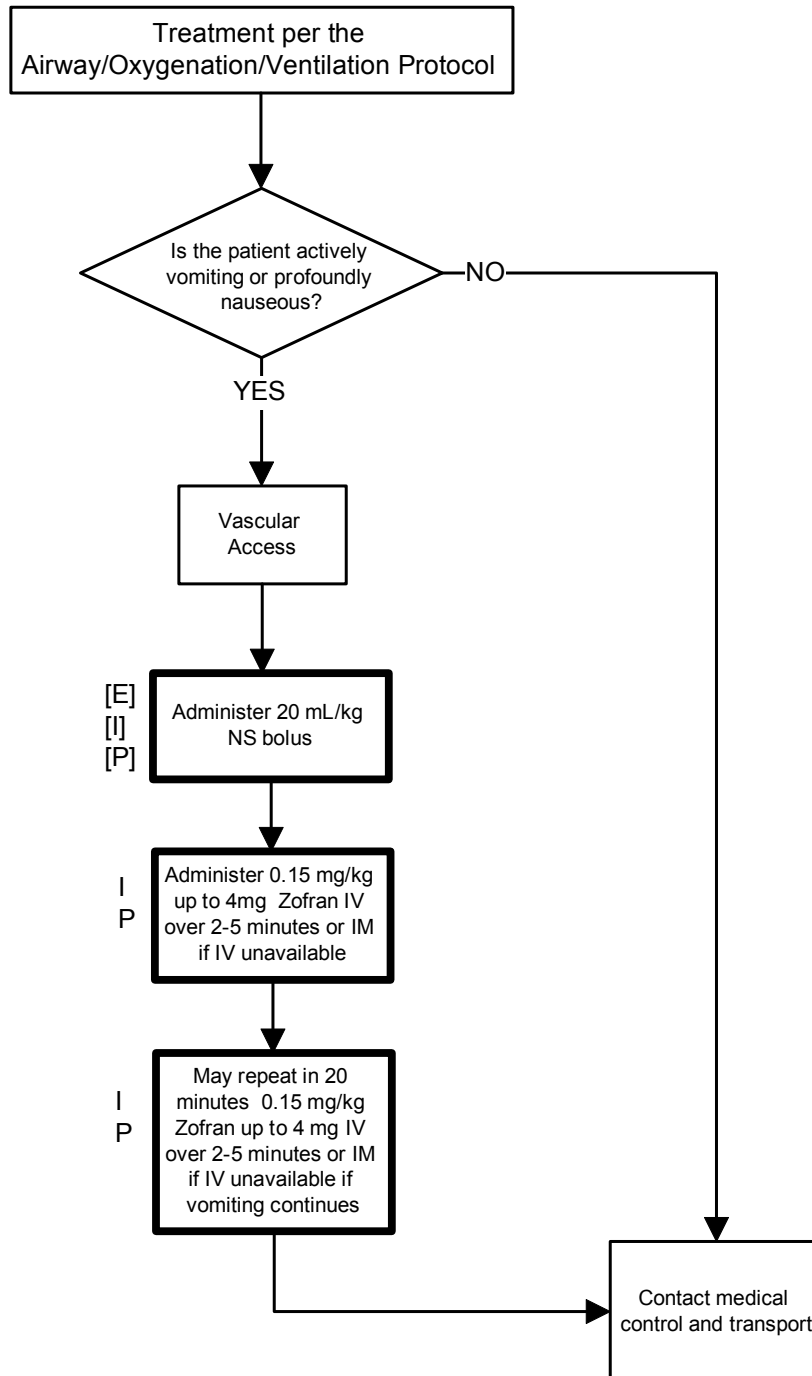
References:

- Epocrates.com
- Rxlist.com

Performance Indicators:

Document Cause (if Known) Type of Emesis Treatment and Response to Treatment

Pediatric Nausea/Vomiting



Pediatric Pain Management Non-Cardiac

Objectives:

- To assess and appropriately treat non-cardiac pain in an effort to reduce the pediatric patient's level of pain

General Information:

- Pain is an important indicator of disease or injury, but is generally under treated in EMS
- Physicians do not have to assess first hand a patient's pain level- document the patient's initial pain level in the PPCR
- Provide BLS pain control measures such as: position of comfort, splinting, ice, traction, etc.
- Morphine dose
 - a) 0.1 mg/kg IV/IM/IO, any single dose should not exceed 5 mg
 - b) Morphine should be administered via slow IV push
 - c) Higher doses may be appropriate for patients with chronic pain after consulting medical control
- Conditions in which pain control may be appropriate
 - a) Isolated extremity injuries (standing orders for I/P)
 - b) Sickle cell crisis (physician order)
 - c) Kidney stones (physician order)
 - d) Cancer (physician order)
- Implement Nausea / Vomiting protocol as needed



Warnings/Alerts:

- Patients who receive morphine should also receive cardiac and SpO2 monitoring
- Monitor patient closely for respiratory depression and treat appropriately

OMD Notes:

-

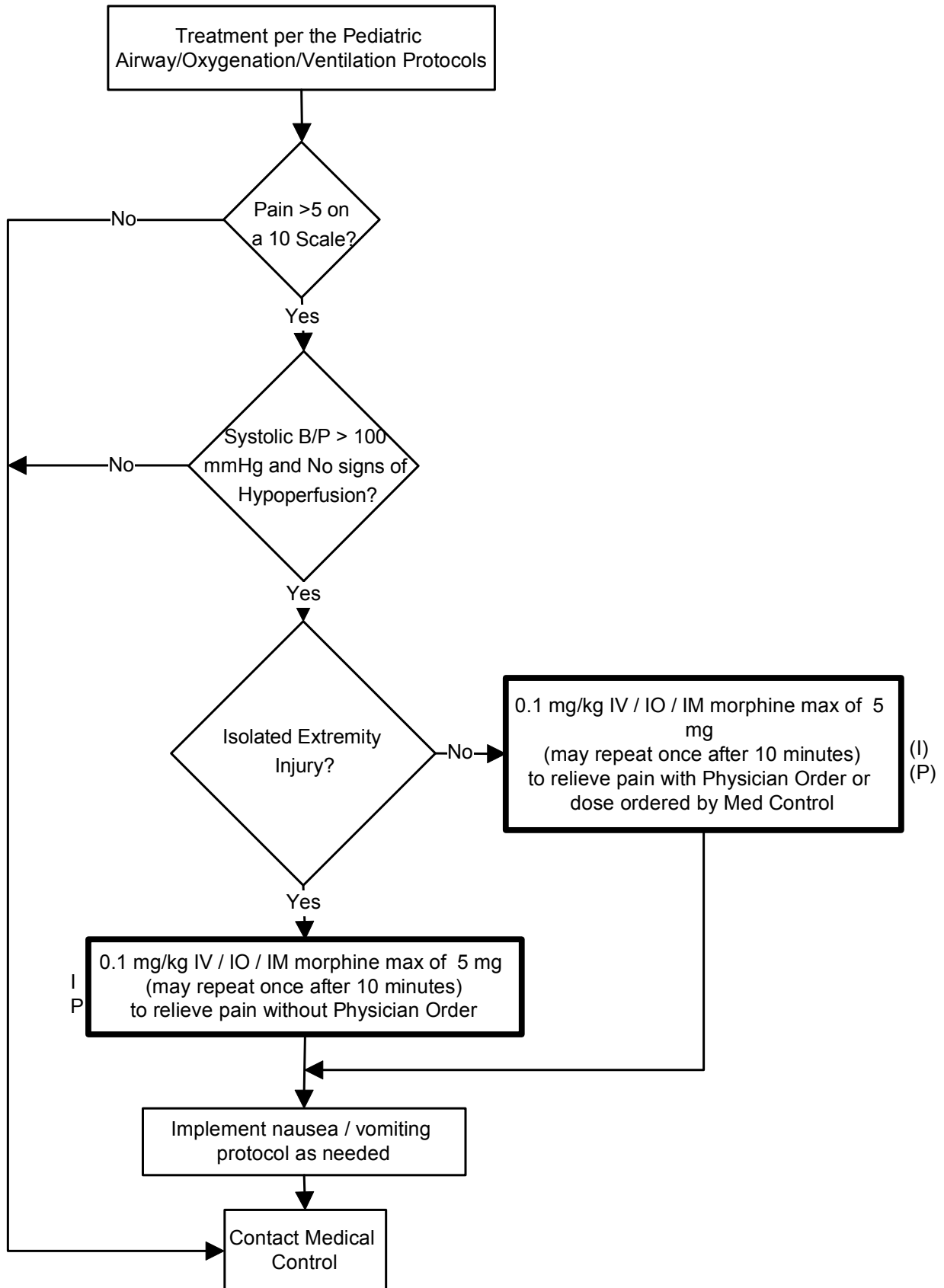
References:

Mosby's Paramedic Textbook, Third Edition, 2007 pg 1334

Performance Indicators:

Pain Scale Before and After Treatment Initial and Ongoing Vital Signs Patient Mental Status
Response to Treatment Patient Disposition

Pediatric Pain Management: Non-Cardiac



Pediatric Seizures

Objectives:

- To assess and treat pediatric patients with seizures
- To protect the airway of the seizing pediatric patient

General Information:

- Ativan (lorazepam) is the preferred drug for seizures
- If no vascular access administer rectal Valium (diazepam) 0.4 mg/kg
- Ativan (lorazepam)
 - a) Dilute in an equal amount of NS for IV/IO administration
 - b) Dose 0.1 mg/kg up to total dose of 2 mg given IV/IO push (over 2 minutes)
 - c) May be administered IM if IV/IO access is not available. Do not dilute if administering IM
 - d) May repeat with physician order up to max dose of 8 mg
 - e) Medical control may order 1 mg for post seizure patients to prevent further seizures (I, P)
- Valium (diazepam)
 - a) Valium (diazepam) 0.1 mg/kg (Max 4 mg) IV push (over 2 minutes) titrate to desired effect; may repeat
 - b) May be administered IM if IV/IO access is not available
- Versed (midazolam)
 - a) Dose 0.1 mg/kg (Max 2 mg) slow IV push (over 1 minute)
 - b) May be administered IM if IV/IO access is not available
- All patients receiving Valium (diazepam), Versed (midazolam) or Ativan (lorazepam) should have cardiac and SpO2 monitoring



Warnings/Alerts:

- Valium, Versed and Ativan all have potential to cause respiratory depression and bradycardia. For that reason, patients receiving these drugs should be on cardiac and SpO2 monitor with vital sign reassessment every 5 minutes. Administer slow IVP to avoid apnea
- Inadvertent arterial injection of Ativan may cause arteriospasm, resulting in gangrene and possible amputation
- Flush IV lines thoroughly after Valium administration. Valium is incompatible with most drugs and precipitation is likely to occur

OMD Notes:

-

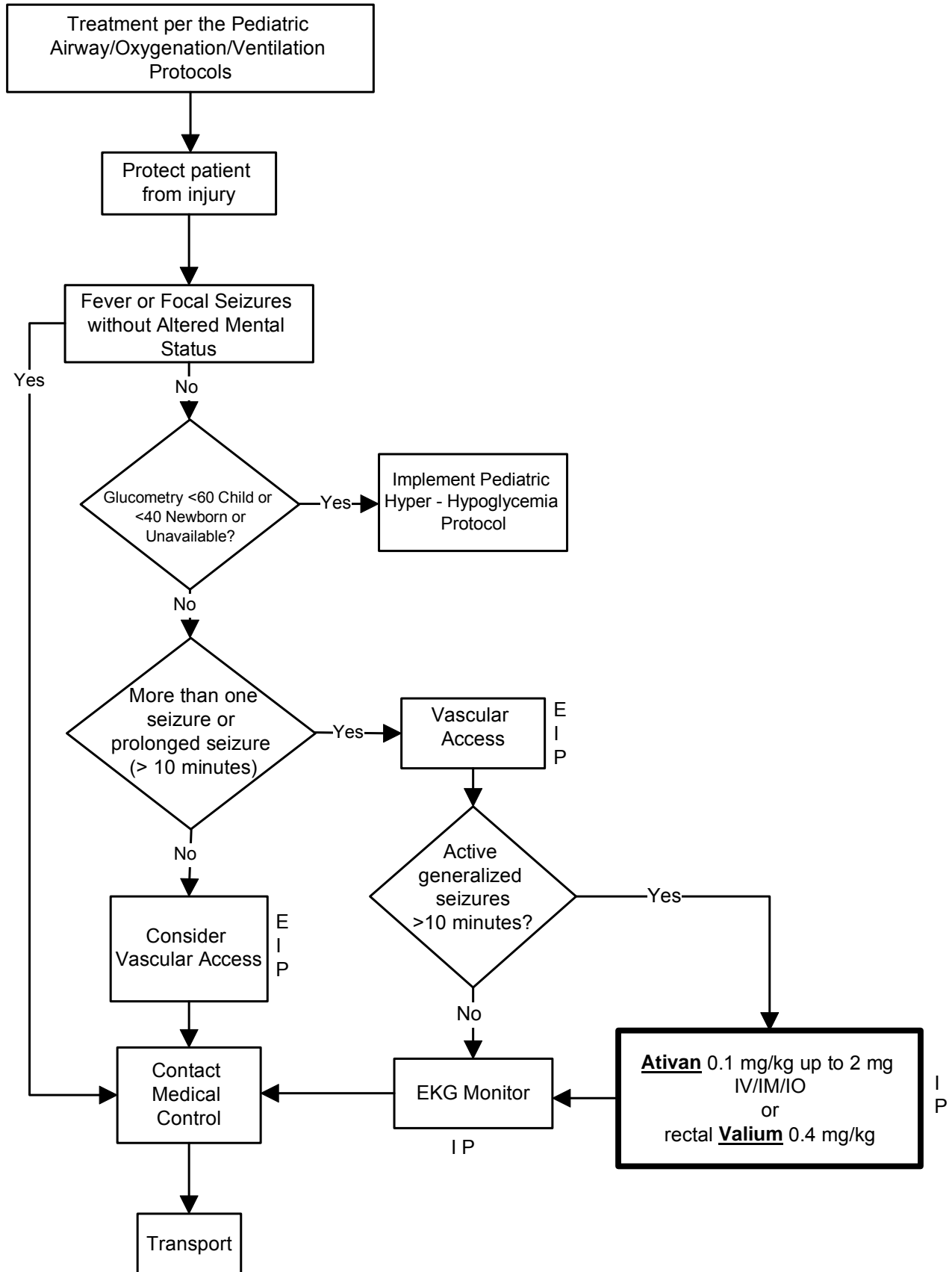
References:

- Mosby's Paramedic Textbook, 3rd edition (revised), pages 1313, 1329 and 1333
- Brady Prehospital Emergency Pharmacology pg 499

Performance Indicators:

Length and Onset of Seizure Glucometer Reading Treatment and Response to Treatment

Pediatric Seizures



Notes

