

Harrison County Hospital EMS

Clinical Operating Guidelines 2014

Version 2.2

(Revised 7/2022)



Harrison County Hospital EMS

Introduction

This document describes the Standing Orders and Protocols by which Harrison County Hospital EMS will continue to provide the highest quality pre-hospital patient care available. We have incorporated evidence-based guidelines with historically proven practices to produce this document. While it is impossible to address every possible variation of disease or traumatic injury, these policies, protocols and procedures do provide a foundation for treating the vast majority of patients we encounter. Our education, experience, and clinical judgment will assist us as we provide patient care. Additionally, on-line medical control is available for those patient presentations that do not fall within the scope of this document.

The protocols are designed to be used interchangeably between emergency responses, inter-facility, routine transfers and critical care transports. Entry into each protocol is with the “Universal Patient Care Protocol”. This protocol contains such processes as scene safety, PPE, basic ABC’s, etc. All of the protocols are intended for each certification level, except those specifically for the EMT and Advanced EMT. Each EMS professional is responsible to know their scope of practice. So, as you are working down a protocol and you come to an intervention that is outside your scope of practice, you will stop there. All references to certification and licensure levels have been changed to match the Indiana EMS Commission approved curriculum, the National EMS Scope of Practice Model and the National EMS Education Standards.

The protocols are designed to show where Medical Control Contact must be made. Remember, all verbal orders must come from Harrison County Hospital Emergency Physicians. If your destination hospital is other than Harrison County Hospital and you don’t need physician orders, you would contact the destination hospital to give a patient report, instead of contacting Harrison County Hospital. As in the past, if you are unable to contact Medical Control, you may proceed through the protocol, however, you must attempt all available methods to contact Medical Control and you must document your attempts in the PCR.

You will notice this document is divided into Standing Orders, Protocols, Policies, Procedures, and Appendices.

Standing Orders indicate “scope of practice”. It defines which certification levels may perform which procedures and can give which medications. If a medication or procedure does not appear in the Standing Orders, the pre-hospital care provider cannot give that medication or perform that procedure.

The Protocols are in a traditional algorithm or flow chart format. Protocols indicate the order of treatment, medical control contact and transport.

Policies are longer documents that explain special circumstances and how these situations are to be handled.

Procedures are a collection of many of the procedures we perform and how they should be performed. This section is not all inclusive.

The Appendices are a collection of items you might find helpful, such as dosing charts, and a drug list all medication we carry and a collection of critical care transport medications.

Many protocols will have various notes along the margins of the page. These notes are designed to give you guidance and help you remember specific things.

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Acknowledgements and Medical Director Approval

This document was prepared using a variety of resources. Specific resources are listed in alphabetical order:

1. American Heart Association: 2010 Guidelines for CPR and ECC.
2. American Medical Response: Evansville, Indiana Standing Orders and Protocols, 2006.
3. Commonwealth of Kentucky Patient Care Protocols, version 4.41.
4. Critical Care Nursing: Diagnosis and Management. Elsevier.
5. Critical Care Paramedic. Brady.
6. Harrison County Hospital Emergency Physicians.
7. Mosby's Paramedic Textbook, Revised Third Edition. Elsevier.
8. Paramedic Practice Today: Above and Beyond, First Edition. Elsevier.
9. Wake County North Carolina EMS System. Clinical Operating Guidelines 2010.

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This document defines scope of practice, i.e. what levels of certification can perform various procedures and give medications. Refer to specific protocols, policies or procedures for the order of treatment or when to contact Medical Control.

Fluid / Procedure / Drug	Situation	Discretion
Fluids		
IV 0.9% NaCl (Normal Saline)	All	AEMT, PARAMEDIC
IV D5W	Hypoglycemia when a PARAMEDIC is not available.	AEMT
Procedures		
Automated Transport Ventilator	Intubated Patients	PARAMEDIC
Cardiac Monitoring, 4 Lead	All	AEMT, PARAMEDIC
Cardiac Monitoring, 12 Lead Acquisition Only	All	AEMT, PARAMEDIC
Cardiac Monitoring, 12 Lead Interpretation	All	PARAMEDIC
Defibrillation (Manual)	Pulseless VF/VT	AEMT, PARAMEDIC
Defibrillation (AED)	Pulseless Arrest	EMT, AEMT, PARAMEDIC
End Tidal CO2 Monitoring	Intubated Patients	PARAMEDIC
End Tidal CO2 Monitoring	Non-Intubated Patients	AEMT, PARAMEDIC
Endotracheal Intubation	All	PARAMEDIC
External Jugular Access	Critical Patients	AEMT, PARAMEDIC
EZ-IO	Critical Patients	AEMT, PARAMEDIC
Glucose Monitoring	All	AEMT, PARAMEDIC
Manual Intraosseous Infusion	Critical Pediatric Patient	AEMT, PARAMEDIC
Needle Cricothyrotomy	ETI/NTI/Combitube not possible	PARAMEDIC
Needle Thoracostomy	Tension Pneumothorax	PARAMEDIC
Nasotracheal Intubation	All	PARAMEDIC
Non-Visualized Airways (Combi-Tube)	All	EMT, AEMT, PARAMEDIC
Port-A-Cath Cannulation	All	PARAMEDIC
Post Intubation Sedation	Post intubation anxiety	PARAMEDIC
Pulse Oximetry	All	EMT, AEMT, PARAMEDIC
Quick Trach	ETI/NTI/Combitube not possible	PARAMEDIC
Synchronized Cardioversion	Unstable Tachycardia	PARAMEDIC
Synchronized Cardioversion	Stable Tachycardia, VT with pulse	PARAMEDIC
Transcutaneous Pacing	Asystole, Bradycardia	PARAMEDIC

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Fluid / Procedure / Drug	Situation	Discretion
Medications		
Adenosine	Narrow QRS Tachycardia	PARAMEDIC
Albuterol	Respiratory Distress, Allergic Reaction	AEMT, PARAMEDIC
Amiodarone Drip	Wide QRS Tachycardia	PARAMEDIC
Amiodarone Bolus	VF / Pulseless VT	PARAMEDIC
Atropine	Bradycardia	PARAMEDIC
Atrovent	Respiratory Distress	PARAMEDIC
Baby Aspirin	Suspected AMI	AEMT, PARAMEDIC
Benadryl	Allergic Reaction	PARAMEDIC
Brethine	Respiratory Distress	AEMT, PARAMEDIC
Dextrose 50%	Hypoglycemia, Altered Level of Consciousness	AEMT, PARAMEDIC
Dextrose 25%	Pediatric Hypoglycemia, Pediatric Altered Level of Consciousness	PARAMEDIC
Dopamine Drip	Medical Hypotension, Post Resuscitation Care	PARAMEDIC
Epinephrine 1:10,000	Cardiac Arrest, Severe Allergic Reaction	PARAMEDIC
Epinephrine 1:1000	Respiratory Distress, Moderate Allergic Reaction	AEMT, PARAMEDIC
Fentanyl	Pain Control, Sedation	PARAMEDIC
Glucagon	Altered Level of Consciousness, Hypoglycemia	AEMT, PARAMEDIC
Glucose (Oral)	Adult or Pediatric Hypoglycemia, Altered Level of Consciousness	EMT, AEMT, PARAMEDIC
Lasix	Pulmonary Edema	PARAMEDIC
Lidocaine 2%	EZ-IO Anesthetic	PARAMEDIC
Lidocaine 2% Topical Jelly	Lubrication and Local Anesthesia for Tracheal Intubation or Nasopharyngeal Airway	PARAMEDIC

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Fluid / Procedure / Drug	Situation	Discretion
Magnesium Sulfate	VF, Pulseless VT, Respiratory Distress	PARAMEDIC
Morphine Sulfate	Chest Pain, Pulmonary Edema, Pain Control	PARAMEDIC
Narcan	Altered Level of Consciousness, Narcotic Overdose	AEMT, PARAMEDIC
Neosynephrine	Nasotracheal Intubation	PARAMEDIC
Nitroglycerine	Chest Pain, Pulmonary Edema	AEMT, PARAMEDIC
Oxygen	Respiratory Distress, Hypoxia, Cardiac Arrest, Low SaO ₂	EMT, AEMT, PARAMEDIC
Sodium Bicarbonate	Cardiac Arrest	PARAMEDIC
Solu-Medrol	Respiratory Distress, Allergic Reaction	PARAMEDIC
Thiamine	Altered Level of Consciousness	PARAMEDIC
Valium	Seizure	PARAMEDIC
Vasopressin	Cardiac Arrest	PARAMEDIC
Versed	Post intubation anxiety	PARAMEDIC
Zofran	Nausea / Vomiting	PARAMEDIC
Special Circumstances		
Determination of Obvious Death	Cardiac Arrest	EMT, AEMT, PARAMEDIC
Discontinuation of Prehospital Resuscitation (Non-Traumatic)	Cardiac Arrest	AEMT, PARAMEDIC
Do Not Resuscitate Order / Advance Directive	Cardiac Arrest	EMT, AEMT, PARAMEDIC

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Determination of Level of Care

Policy:

This policy was developed to aid the EMS crew in determining the appropriate level of care that a patient should receive. First class patient care begins with highest level of provider assessing the patient and determining the appropriate management for that patient. Each patient has a right to the appropriate level of care and decision making for their complaint and potential medical problems they may suffer while in our care.

Therefore, this policy establishes that the highest level provider is ultimately responsible for all care delivered from the time patient contact is made until the patient is turned over to an equal or higher level of care.

Indication:

This policy is applicable to all EMS encounters except when a mass casualty incident occurs and the EMS crew must be separated to adequately provide patient care and other functions of an Incident Command System.

Exception:

If the required level of care is not available with the crew configuration, the highest level provider available will be responsible for patient care. A higher level intercept is at the discretion of the provider responsible for patient care.

Procedure:

The following types of runs will have the indicated level of provider in the patient compartment during transport and in control of patient care. The indicated level of provider is responsible for all patient care documentation.

Patient Complaint/Problem	Required Level of Care
1. Difficulty breathing from any etiology.	Paramedic
2. Any patient in need of airway control.	Paramedic
3. Cardiac arrest or if cardiac arrest has been witnessed by police, fire or EMS.	Paramedic
4. Chest pain from any etiology.	Paramedic
5. Seizures described from bystanders or witnessed by police, fire or EMS.	Paramedic
6. Electrocution described from patient, bystanders, police, fire or EMS.	Paramedic
7. Unconsciousness	Paramedic
8. Any Paramedic level intervention ordered, written or verbal.	Paramedic
9. Altered Mental Status: any witnessed Altered Mental Status from the patients' normal mental status.	Advanced EMT, Paramedic

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Determination of Obvious Death

Policy:

This policy may be utilized by the EMT, Advanced EMT, Paramedic. CPR is to be withheld only if the patient is obviously dead per criteria below.

Indication: One or more of the following is present

- Rigor mortis (in the non-hypothermic patient)
- Dependent lividity
- Decapitation
- Incineration
- Damage or destruction of the body which is incompatible with life

Procedure:

1. Do not attempt resuscitation of any patient who meets the above criteria.
2. If resuscitation efforts are in progress and a Paramedic is not available, the highest level of EMS certification should contact medical control for permission to cease resuscitative efforts.
3. Notify the county coroner through the Harrison County Dispatch Center.

Documentation:

The provider shall document all routine information in the Patient Care Report, including the usual patient assessment, medical history, events surrounding the incident and all criteria met above to determine the death. It is especially important to note:

- Body position and location when discovered, including differences from when last seen alive.
- Patient condition when last seen alive.
- Clothing and condition of clothing.
- Conditions of residence/business/location found.
- Statements made on the scene by significant individuals.
- Any unusual circumstances.

Contraindications:

- Drowning or hypothermia

NOTE:

- **If you are unsure whether the patient meets the above criteria, resuscitate.**

Discontinuation of Prehospital Resuscitation (Non-Traumatic)

Policy:

Unsuccessful cardiopulmonary resuscitation (CPR) and other advanced life support interventions may be discontinued prior to transport when this procedure is followed.

Purpose:

The purpose of this policy is to:

- With Medical Control consultation, allow for discontinuation of prehospital resuscitation after the delivery of adequate and appropriate advanced life support therapy, in the non-traumatic patient.

Indications:

- Patient must be 18 years of age or older, and
- Patient must be in asystole or agonal rhythm, and
- Patient must be pulseless and apneic for at least 30 minutes, and
- Patient must have had advanced life support resuscitation for at least 20 minutes, and
 - Advanced life support resuscitation includes all of the following:
 - Adequate CPR has been administered.
 - Airway has been successfully managed with verification of device placement. Acceptable devices include endotracheal intubation, Combitube, King LT.
 - IV or IO access has been achieved and used for at least 20 minutes.
- Patient must have had no return of spontaneous circulation (ROSC).

Contraindications:

- Patients who are exhibiting any neurological activity such as spontaneous respiration, eye opening, or motor response.
- Patients under 18 years old.
- Patients with suspected hypothermia.

Procedure:

1. Follow the appropriate protocol and obtain Medical Control.
2. Request that the consulting physician authorize termination of resuscitation.
3. If approved, discontinue resuscitation and leave all invasive equipment in place.
4. Tactfully, explain discontinuation of resuscitation to family.
5. Offer to contact clergy, friends or other family members that the family may want called.

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Documentation:

Document all patient care and interactions with the patient's family, personal physician, coroner, law enforcement and medical control in the patient care report (PCR).

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Do Not Resuscitate / Advanced Directives

Policy:

Any patient presenting to an EMT, Advanced EMT or Paramedic, with a completed Do Not Resuscitate (DNR), Physician Order for Scope of Treatment (POST) or Living Will form, shall have the form honored, after consultation and agreement by the Medical Control physician.

Purpose:

- To honor the terminal wishes of the patient.
- To prevent the initiation of unwanted resuscitation.

Procedure:

1. When confronted with a cardiac arrest patient, the following conditions must be present in order to honor the DNR request and withhold CPR and advanced life support therapy:
 - A valid Indiana Out Of Hospital Do Not Resuscitate Declaration and Order are presented to the highest certification level.
 - An Advanced Directive or Living Will is presented to the highest level of certification.
 - The Harrison County Hospital Emergency Department physician has been consulted and agrees to honor the DNR, Living Will or Advance Directives.
2. A DNR request may be disregarded by the request of:
 - The patient
 - The guardian of the patient
 - The attending physician
 - The health care provider, if he/she believes in good faith that the Out of Hospital DNR Declaration and Order has been revoked
 - The health care provider, if he/she believes in good faith that the Out of Hospital DNR Declaration and Order must be disregarded to avoid verbal or physical confrontation at the scene.
3. If family members or other persons are present and ask that resuscitative efforts be withheld in the absence of an advance directive:
 - Begin Basic Life Support resuscitative measures immediately.
 - Determine the family members' relationship to the patient.
 - Determine the patient's past medical history, including obvious life-limiting illness (terminal cancer, advanced neurological disease, etc.).

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- Contact Medical Control and advise them of the situation and seek their guidance.

Documentation:

All standard documentation should be included on the patient care report (PCR) including the following:

- The presence of the DNR, POST, Living Will form and Order;
- The attending physicians name; and
- The date the DNR, POST, Living Will and Order was signed;
- Any type of DNR, POST, Living Will identification device.

Documentation of Vital Signs

Policy:

Every patient encounter by EMS will be documented. Vital signs are a key component in the evaluation of any patient and a complete set of vital signs is to be documented for any patient who receives some assessment component.

Purpose:

To insure:

- Evaluation of every patient's cardiovascular status.
- Documentation of a complete set of vital signs.

Procedure:

1. An **initial** complete set of vital signs includes:
 - Pulse rate
 - Systolic **AND** diastolic blood pressure (preferably manual)
 - Respiratory rate
 - Pain / severity (when appropriate to patient complaint)
 - GCS
2. For **REPEAT** vital signs, automated blood pressure is acceptable.
 - Repeat vitals signs on critical patients at least every 10 minutes
 - Repeat vital signs on non-critical patients at least every 20 minutes
 - Repeat vital signs on hospital discharges to residence, skilled nursing facility or extended care facility should be repeated at least every 30 minutes.
3. Based on patient condition and complaint, vital signs may also include:
 - Pulse oximetry
 - Temperature
 - End tidal CO₂ (required with intubation or Combitube)
 - Breath sounds
4. If the patient refuses any aspect of vital signs assessment, a note must be made in the PCR.
5. When automated vital signs are inconsistent with previously taken manual vital signs, manual vital signs should be repeated to check the accuracy of the automated vital signs.
6. Document situations that prevent the evaluation of a complete set of vital signs.
7. Record the time vital signs were obtained.
8. Any abnormal vital sign should be repeated and monitored closely.

Interfacility Transfers

Indication:

Transporting a patient from Harrison County Hospital to any other hospital.

Procedure:

1. The transporting EMS provider may maintain any infusion, provided it is within their scope of practice according to Indiana Department of Homeland Security, provided:
 - a. The provider is familiar with the fluid or medication being infused.
2. The transporting provider should ensure that all appropriate documentation accompanies the patient. This includes a physician orders.
3. While in transit to the receiving facility, all appropriate standing orders or protocols shall remain in place.
4. If an emergency situation develops during the transport, the provider may divert to the closest, appropriate hospital for stabilization. The transferring facility or physician should be notified as soon as possible.
5. If the patient deteriorates, the transferring facility should be notified via radio or cellular phone.
6. If additional orders are needed, Harrison County Hospital Medical Control should be contacted to issue those orders.

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On-Scene Medical Cardiac Arrest Requirement

Policy:

The goal of working any cardiac arrest is to give the patient the best chance of survival. Following the intent of the American Heart Association guidelines, with providing quality, uninterrupted chest compressions, Harrison County Hospital EMS will work medical cardiac arrests on scene for at least 20 minutes following initiation of Paramedic care. This policy does not apply to patients who are obviously dead (see Determination of Obvious Death policy) or who have a valid Do Not Resuscitate order (see Do Not Resuscitate/Advance Directives policy).

Purpose:

- To provide the patient with the best chance of survival.
- To provide the patient with quality, uninterrupted chest compressions.
- To provide for the safety of EMS personnel and first responders.

Procedure:

1. If an EMT or Advanced EMT is the highest level of care, initial care, including quality CPR, artificial ventilation and airway management, should be done. Transport to an appropriate facility should be initiated after this initial care is completed.
2. When an ambulance with a Paramedic on board, arrives at the scene of a medical cardiac arrest, the EMT-Intermediate or EMT-Paramedic will provide the patient with at least 20 minutes of advanced life support care on the scene.
3. If the patient is in an environment of poor weather conditions, the patient may be moved inside a structure or the ambulance to better facilitate patient care. Moving the patient should be done as to minimize the interruption of chest compressions.
4. After 20 minutes of advanced life support care, the Paramedic must contact medical control to advise them of the situation.
5. Contact with medical control should be as soon as possible. Medical Control must be contacted before loading the patient into the ambulance. If the patient is loaded due to a safety or environmental reason, medical control must be contacted before leaving the scene.
6. This 20 minute window of advanced life support care can be shortened if any of the following occur:
 - Danger to EMS personnel, law enforcement or first responders.
 - The patient has a return of spontaneous circulation (ROSC).
 - If directed by medical control.

Harrison County Hospital EMS Physician On Scene

Policy:

The medical direction of prehospital care at the scene of an emergency is the responsibility of those most appropriately trained in providing such care. All care should be provided within the statutes, rules and regulations of the State of Indiana. At no time will be EMS provider exceed their scope of practice.

Purpose:

- To identify a chain of command to allow field personnel to adequately care for the patient.
- To assure the patient receives the maximum benefit from prehospital care.
- To minimize the liability of the EMS system as well as the on-scene physician.

Procedure:

1. When a physician offers assistance to EMS or the patient is being attended by a physician with whom they do not have an ongoing patient relationship and the physician wishes to direct medical care, the provider should state he/she is under the direction of an emergency department physician and ask the physician to notify by radio/phone the physician in the emergency department of Harrison County Hospital to be granted permission to treat the patient. The on-scene physician should present his or her Indiana medical license card and be willing to accompany the patient to the hospital.
2. Urgent medical care should not be delayed to establish identities or medical control.
3. Early radio/phone contact with Harrison County Hospital emergency department is imperative.
4. When the patient is being attended by a physician with whom they have an ongoing patient relationship, EMS personnel may follow orders given by the physician if the orders conform to current EMS protocols, guidelines and policies. Notify medical control at the earliest opportunity. Any deviation from local EMS protocols requires the physician to accompany the patient to the hospital.
5. EMS personnel may accept orders from the patient's physician over the phone with the approval of medical control. The provider should obtain the specific order and the physician's phone number for relay to medical control so that medical control can discuss any concerns with the physician directly.

Documentation:

All standard patient information will be recorded on the patient care report, including the name of the on-scene physician and any orders received from that physician.

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“Safe Haven” Law

Policy:

The Indiana Safe Haven Law provides a mechanism for unwanted infants to be taken under temporary custody by EMS providers, if the infant is presented by the parent within 45 days of birth. Emergency Medical Services will accept and protect infants who are presented to EMS in this manner, until custody of the child can be released to the Department of Child Services.

IC 31-34-2.5

“An emergency medical services provider shall, without a court order, take custody of a child who is, or who appears to be, not more than thirty (30) days of age if: (1) the child is voluntarily left with the provider by the child’s parent; and (2) the parent does not express an intent to return for the child. An emergency medical services provider who takes custody of a child under this section shall perform any act necessary to protect the child’s physical health or safety. Any person who in good faith voluntarily leaves a child with an emergency medical services provider is not obligated to disclose the parent’s name or their name. Immediately after an emergency medical services provider takes custody of a child under this law, the provider shall notify the department of child services that the provider has taken custody of the child.”

Purpose:

To provide:

- Protection to infants that are placed into the custody of EMS under this law.
- Protection to EMS agencies and personnel when confronted with this issue.

Procedure:

1. Take the infant and document any information the parent will give about the infant and parents.
2. Initiate a medical assessment and provide any medical treatment necessary, within the EMS agencies protocols.
3. Keep infant warm.
4. Have dispatch notify the local Department of Child Services as soon as the infant is stabilized.
5. Transport the infant to Harrison County Hospital.
6. Document assessment, procedures and agency notifications in the PCR.

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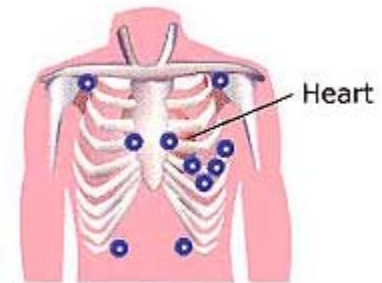
12 Lead ECG Procedure

Clinical Indications:

- Suspected cardiac patient
- Suspected tricyclic overdose
- Electrical injuries
- Syncope

Procedure:

1. Assess patient and monitor cardiac status.
2. Administer oxygen as patient condition warrants.
3. If patient is unstable, definitive treatment is the priority. If patient is stable or stabilized after treatment, perform a 12 Lead ECG. In general, 12 Lead should be obtained in the first 10 minutes of the patient encounter, unless unstable.
4. Prepare ECG monitor and connect patient cable with electrodes.
5. Enter the required patient information (sex, age) into the 12 lead monitor.
6. Expose chest and prep as necessary. Modesty of the patient should be respected.
7. Apply chest leads and extremity leads using the following landmarks.
 - RA – Right arm
 - LA – Left arm
 - RL – Right leg
 - LL – Left leg
 - V1 – 4th intercostal space at right sternal border
 - V2 – 4th intercostal space at left sternal border
 - V3 – Directly between V2 and V4
 - V4 – 5th intercostals space at midclavicular line
 - V5 – Level with V4 at the left anterior axillary line
 - V6 – Level with V5 at the left midaxillary line
8. Instruct patient to remain still.
9. Press the appropriate button to acquire the 12 Lead ECG.
10. If 12 Lead indicates STEMI or consultation is required, attempt to transmit the 12 lead to the ER at the receiving hospital, if transmission capabilities are available.
11. If medication orders are required, attempt to transmit the 12 lead to Medical Control, if transmission capabilities are available, at Harrison County Hospital.
12. For patients with cardiac complaint, keep all leads connected at all times practical to allow automatic ST-segment monitoring to proceed.
13. Contact Harrison County Hospital or the receiving hospital to notify them that a 12 lead has been sent.
14. Monitor the patient while continuing with the treatment protocol.
15. Leave a copy of the 12 lead ECG with the receiving hospital.
16. Document the procedure, time, results and a copy of the 12 lead ECG on the PCR.



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Airway: CPAP

Clinical Indications for Continuous Positive Airway Pressure (CPAP) Use:

- CPAP is indicated in patient's for whom inadequate ventilation is suspected. This could be as a result of pulmonary edema, pneumonia, COPD, asthma, etc. In asthmatic patients, continuous monitoring is required to reduce the risk of respiratory depression or arrest.

Contraindications:

1. Pneumothorax
2. Respiratory arrest
3. Agonal respirations
4. Unconsciousness
5. Shock associated with cardiac insufficiency
6. Penetrating chest trauma
7. Persistent nausea/vomiting
8. Facial anomalies or facial trauma
9. Suspicion of stroke
10. Active upper GI bleeding or history of recent gastric surgery

Procedure:

1. Ensure adequate oxygen supply to ventilation device.
2. Explain the procedure to the patient and be prepared to coach the patient through the procedure.
3. Assemble the CPAP device, ventilation circuit, mask, CPAP valve and headgear
4. Connect the CPAP device to oxygen source.
5. Place the delivery mask over the mouth and nose. Oxygen should be flowing through the device at this point.
6. Secure the mask with the provided headgear until minimal air leak occurs.
7. Evaluate the response of the patient assessing breath sounds, oxygen saturation and general appearance.
8. An additional option available is waveform capnography.
9. Encourage the patient to allow forceful ventilation to occur. Observe closely for signs of complications. The patient must be breathing for use of the CPAP device.
10. Contact receiving hospital as soon as possible so they can prepare for the patient's arrival.
11. Document time and response on patient care report.

Airway: Foreign Body Obstruction

Clinical Indications:

- Sudden onset of respiratory distress often with coughing, wheezing, gagging, or stridor due to a foreign-body obstruction of the upper airway.
- Respiratory arrest where ventilation cannot be accomplished after repositioning or airway.

Procedure:

1. Assess the degree of foreign body obstruction
 - a. Do not interfere with a mild obstruction allowing the patient to clear their airway by coughing.
 - b. In severe foreign-body obstructions, the patient may not be able to make a sound. The victim may clutch his/her neck in the universal choking sign.
2. **For an infant**, deliver 5 back blows (slaps) followed by 5 chest thrusts repeatedly until the object is expelled or the victim becomes unresponsive.
3. **For a child**, perform a subdiaphragmatic abdominal thrust (Heimlich Maneuver) until the object is expelled or the victim becomes unresponsive.
4. **For Adults**, a combination of maneuvers may be required.
 - a. First, subdiaphragmatic abdominal thrusts (Heimlich Maneuver) should be used in rapid sequence until the obstruction is relieved.
 - b. If abdominal thrusts are ineffective, chest thrusts should be used. Chest thrusts should be used primarily in morbidly obese patient and in patients who are in the late stages of pregnancy.
5. If the victim becomes unresponsive, begin CPR immediately but look in the mouth before administering any ventilations. If a foreign-body is visible, remove it.
6. **Do not perform blind finger sweeps in the mouth and posterior pharynx. This may push the object farther into the airway.**
7. In unresponsive patients, EMT-Intermediate and EMT-Paramedic level professionals should visualize the posterior pharynx with a laryngoscope to potentially identify and remove the foreign-body using Magil forceps.
8. Document the methods used and result of these procedures in the PCR.

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Airway: Surgical (Needle Cricothyrotomy)

(This procedure is a temporary in nature and is a high risk procedure. Consider using the QuickTrach prior to a Needle Cricothyrotomy)

Clinical Indications:

- Airway obstruction as a result of glottic edema, fracture of the larynx, or severe oropharyngeal hemorrhage.
- Should be a last resort following endotracheal intubation attempts and attempted use of the QuickTrach.

Procedure:

1. Make sure patient is supine. Identify the cricothyroid membrane. If spinal injury is suspected, in-line stabilization should be provided.
2. Stabilize the larynx using the thumb and middle finger of one hand. With the other hand identify the cricothyroid membrane.
3. Attach a 12 or 14 gauge IV catheter to a 10 ml syringe.
4. Insert the needle of the syringe downward through the midline of the cricothyroid membrane at a 45 to 60 degree angle toward the carina. Apply negative pressure to the syringe during insertion. The entrance of air into the syringe indicates that the needle is in the trachea.
5. Advance the catheter over the needle toward the carina and remove the needle and syringe. Hold on to the catheter hub firmly.
6. Attach a 15mm adapter to the hub and ventilate through the adapter with a BVM.
7. Listen for lung sounds as with intubation.
8. If lung sounds are heard, secure the catheter hub to the patient, being careful not to wrap anything circumferentially around the neck.
9. Document procedure, time and result in the PCR.

Airway: Surgical (Rusch QuickTrach)

Clinical Indications:

Surgical Airway as indicated by the Failed Airway Protocol.

Procedure:

1. Pre-oxygenate patient when possible.
2. Assemble all available additional personnel
3. Have suction machine available and close at hand.
4. Locate cricothyroid membrane at the inferior portion of the thyroid cartilage (with head in neutral position, membrane is approximately 3 finger widths above the sternal notch).
5. Have assistant hold skin taut over membrane and locate the midline.
6. Prep area with betadine if possible.
7. Hold the needle bevel up at a 90 degree angle, aimed inferiorly as you approach the skin.
8. Puncture the skin with the needle and continue with firm, steady pressure while aspirating for air with the syringe.
9. As soon as air is aspirated freely, stop advancing the needle/airway assembly.
10. Modify the angle to 60 degrees from the head and advance to level of the red stopper.
11. Remove the stopper while holding the needle/airway assembly firmly in place. Do not advance the needle further.
12. Hold the needle and syringe firmly and slide only the plastic cannula along the needle into the trachea until the flange rests on the neck. Carefully remove the needle and syringe.
13. Secure the cannula with the neck strap.
14. Apply the EtCO₂ sensor, then the connecting tube to the EtCO₂ sensor and connect the other end to the BVM.
15. Confirm placement with the use of breath sounds, pulse oximetry and EtCO₂.
16. Ensure 100% oxygen to BVM via supplemental O₂.

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Capnography / End Tidal CO₂

Clinical Indications:

- Capnography is required as soon as possible in conjunction with endotracheal intubation, nasotracheal intubation, cricothyrotomy and non visualized airways, such as the Combitube and King airway.
- Capnography is suggested as soon as possible for all patients with a respiratory etiology, including but not limited to asthma, chronic obstructed pulmonary disease (COPD) and congestive heart failure (CHF).

Procedure For Intubated and Supraglottic Airway Patients:

1. Attach the capnography sensor of the ECG monitor to the endotracheal tube or non-visualized airway device.
2. Note CO₂ level and waveform changes. These will be documented on every patient who is intubated or has a non-visualized airway inserted.
3. The capnometer shall remain in place with the airway and be monitored throughout the prehospital care and transport.
4. Any loss of CO₂ detection or waveform indicates an airway problem and should be documented.
5. The capnogram should be monitored as procedures are performed to verify or correct the airway problem.
6. Document the procedure and results on the PCR.
7. Normal EtCO₂ is 35-45 mmHg.
8. In all patients with a pulse, an EtCO₂ > 20 is anticipated.
9. Document the procedure on the PCR.

Procedure For Non-Intubated Patients:

1. Attach the nasal cannula/EtCO₂ sensor to the ECG monitor and place on the patient.
2. Capnography can be beneficial for patients with asthma, COPD and CHF. It may also be beneficial for other patients with a respiratory etiology.
3. Record via “snapshot” on ECG monitor the initial waveform and any significant changes.
4. Document the procedure and results on the PCR.

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Cardiopulmonary Resuscitation (CPR)

Clinical Indications:

- Basic life support for the patient in cardiac arrest

Procedure:

1. Assess the patient's level of consciousness and signs of obvious breathing.
2. If the patient is unresponsive and shows no signs of obvious breathing, immediately begin chest compressions.

Age	Location	Depth	Rate
Infant <i>(birth to 1 year)</i>	Over lower half of the sternum, 2-3 fingers or thumbs/encircling hands technique	1/3 of the anterior-posterior chest dimension	At least 100/minute
Child <i>(1 year to puberty)</i>	Over the sternum, between the nipple line, heel of one hand	1/3 of the anterior-posterior chest dimension	At least 100/minute
Adult <i>(puberty and above)</i>	Over the sternum, between the nipple line, heel of one hand	1/3 of the anterior-posterior chest dimension	At least 100/minute

3. Go to Cardiac Arrest Protocol. Begin ventilations in the adult as directed in the Cardiac Arrest Protocol. In this procedure and all cardiac arrest protocols, 5 cycles of compressions means 2 minutes of uninterrupted chest compressions.
4. Do not hyperventilate the patient. Use EtCO₂ to guide your ventilations as directed in the Cardiac Arrest Protocol.
5. Chest compressions should be provided in an uninterrupted manner. Interruptions in chest compressions must be kept to a minimum when checking ECG rhythm and defibrillating.
6. Document the time and procedure in the PCR.

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Combat Application Tourniquet (C-A-T)

Clinical Indications:

- The C-A-T is designed to control external hemorrhage of an extremity that cannot be controlled with direct pressure.
- The C-A-T can be applied with a two-handed technique, to another person, or with a one-handed technique, to yourself.

Procedure (2-Handed)

1. Wear proper personal protective equipment (gloves, eye protection, etc.).
2. Remove clothing from wound and area where C-A-T will be applied.
3. Pull band out of buckle and wrap band around the limb, two to three inches above wound.
4. Pass red tip through slit on buckle.
5. Pull band tightly and fasten to itself. Do not cover rod clips.
6. Band should be tight enough that three fingers cannot slip under the band.
7. Twist rod until bleeding stops and secure rod inside clip to lock in place.
8. Reassess for bleeding and distal pulse.
9. If bleeding is not controlled, tighten band further or consider application of a second C-A-T above and next to first C-A-T.
10. Reassess patient.
11. Secure rod and band with time strap and write application time on time strap.

Procedure (1-Handed)

1. Wear proper personal protective equipment (gloves, eye protection, etc.).
2. Insert injured limb through C-A-T.
3. Position C-A-T two to three inches above wound, preferably directly to skin.
4. Pull band tightly.
5. Fasten band onto itself, around the limb, but no over rod clips.
6. Band should be tight enough that three fingers cannot slip under the band.
7. Twist rod until bleeding stops and secure rod inside clip to lock in place.
8. Reassess for bleeding and distal pulse.
9. If bleeding is not controlled, tighten band further or consider application of a second C-A-T above and next to first C-A-T.
10. Reassess bleeding.
11. Secure rod and band with time strap and write application time on time strap.

Important Points

1. Never place C-A-T over a joint.
2. If C-A-T must be applied over clothing, never apply over items in clothing, i.e. keys, wallet, etc.
3. For larger limbed individuals, two C-A-T's can be used but must be placed side by side with rods not interfering with each other.

Chest Decompression (Needle Thoracostomy)

Clinical Indications:

- Peri-arrest patients with hypotension (systolic BP < 90), clinical signs of shock, and at least one of the following signs:
 - Jugular vein distention.
 - Tracheal deviation away from the side of the injury (often a late sign)
 - Absent or decreased breath sounds on the affected side.
 - Hyper-resonance to percussion on the affected side.
 - Increased resistance when ventilating a patient.

Procedure:

1. Wear proper personal protective equipment (gloves, eye protection, etc.).
2. Administer high flow oxygen.
3. Identify and prep the site:
 - a. Locate the second intercostal space in the mid-clavicular line on the same side as the Pneumothorax.
 - b. As a last resort, lateral placement may be used at the fourth intercostal space mid-axillary line.
 - c. Prepare site with betadine or other similar cleanser.
4. Insert the catheter (12 or 14 gauge for adults) into the skin over the third rib and direct it just over the top of the rib (superior border) into the interspace.
5. Advance the catheter through the parietal pleura until a “pop” is felt and air or blood exits under pressure through the catheter, then advance catheter only to chest wall.
6. Remove the needle, leaving the plastic catheter in place.
7. Secure the catheter hub to the chest wall with dressings and tape.
8. Make a flutter valve from a glove tip. Cut a finger from an exam glove. Cut a small hole in the tip of the finger. Secure the glove finger with tape to the catheter hub.
9. Document the procedure, time and result in the PCR.

Orthostatic Blood Pressure Measurement

Clinical Indications:

- Patient situations with suspected blood, fluid loss, or dehydration with no indication for spinal immobilization.
- Patient's > 8 years of age, or patients larger than the Broslow tape.

Procedure:

1. Gather and prepare standard sphygmomanometer and stethoscope.
2. With the patient supine, obtain pulse and blood pressure.
3. Have the patient sit upright.
4. After 30 seconds, obtain blood pressure and pulse.
5. If the systolic blood pressure falls more than 30 mmHg or the pulse rises more than 20 bpm, the patient is considered to be orthostatic.
6. If a patient experiences dizziness upon sitting or is obviously dehydrated based on history or physical exam, formal orthostatic examination should be omitted and fluid resuscitation initiated.

Pain Assessment and Documentation

Clinical Indications:

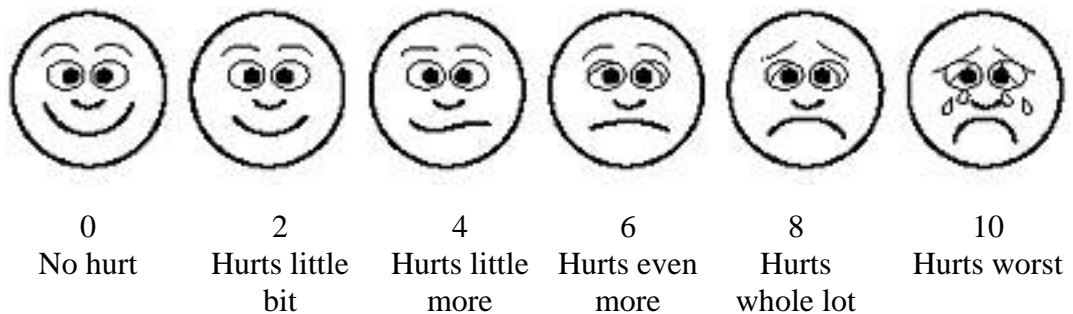
- Any patient

Definitions:

- Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage.
- Pain is subjective (whatever the patient says it is).

Procedure:

1. Initial and ongoing assessment of pain intensity and character is accomplished through the patient's self report.
2. Pain should be assessed and documented in the PCR during initial assessment, before starting pain control treatment, with each set of vital signs after pharmacological pain management intervention, and until resolved or the last set of vital signs for non-drug therapies.
3. Two pain scales are available: the 0 – 10 scale, and the Wong-Baker “faces” scale.
 - 0 – 10 Scale: This is the most familiar scale used by EMS for rating pain with patients. It is primarily for adults and is based on the patient being able to express their perception of the pain as related to numbers. Avoid coaching the patient; simply ask them to rate their pain on a scale from 0 – 10, where 0 is no pain at all and 10 is the worst pain ever.
 - Wong – Baker “faces” Scale: This scale is primarily for use with pediatrics but may also be used with geriatrics or any patient with a language barrier. The faces correspond to numeric values from 0-10. This scale can be documented with the numeric value.



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Post Intubation Sedation

This protocol is to be used following an endotracheal or nasotracheal intubation for sedation when needed. It is not intended to be used as pharmacological induced intubation.

Clinical Indications:

- A conscious patient who has been intubated, to control anxiety, restlessness or combativeness.
- An inter-facility transfer, when patient has been previously intubated and sedation or neuromuscular blockade becomes ineffective.
- A minimum of an EMT and a Paramedic in the patient compartment with the patient.
- The following things must be accomplished prior to use of Post Intubation Sedation:
 - Oxygen administration
 - Bag-Valve-Mask ventilation
 - ECG monitor application
 - Pulse oximetry
 - Capnography (EtCO₂)
- The goal is sedation, not elimination of the respiratory drive.

Absolute Contraindications:

- Age < 18
- Systolic BP < 100 mmHg
- Known or suspected use of opiate agonists
- CNS depression
- Shock
- Hypovolemia
- Suspected stroke
- Known or suspected pregnancy

Precautions:

- Suspected increased intracranial pressure
- Women who are breast feeding
- Hepatic disease
- Age > 60
- Debilitated patients
- Neuromuscular disease, such as muscular dystrophy, myotonia, myasthenia gravis
- Parkinson's disease
- Depressive disorders, such as bipolar disorder
- Known glaucoma

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Post Intubation Sedation, continued

Procedure:

1. Make sure intubation has been verified by multiple methods.
2. One clinical person must be dedicated to managing the airway.
3. Administer 0.01 to 0.02 mg/kg Versed (Midazolam) by slow IV push over a 2 minute period, up to a maximum dose of 2mg.
4. Contact Medical Control as soon as possible.
5. For additional Versed (Midazolam), contact medical control.
6. Document on the PCR, all clinical indications that were present, your actions and results of the medication administration, medical control contact.

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pNeuton Pneumatic Transport Ventilator

Therapeutic Goal:

To provide adequate support of ventilation and oxygenation to intubated patients during transport.

Equipment:

- Ventilator – pNeuton
- Disposable ventilator circuit
- Compressed oxygen source yielding 50 psi output
- Bag-valve-mask with oxygen reservoir
- Continuous Cardiac, SaO₂, and ETCO₂ monitoring
- Miscellaneous ventilator circuit adjuncts (filters)

Clinical Indications:

- Any patient requiring placement of an advanced airway to support ventilation and/or oxygenation.

Contraindications:

- None

Patient Utilization:

- **Interfacility Transfers:** Continue the current settings that the patient is on at the hospital. If you have questions about the settings, contact the sending physician. The patient will be placed on the ventilator at the hospital bedside. If the hospital ventilator is using SIMV, the Zoll critical care ventilator must be used.
- **Scene Calls:** The ventilator will help meet specific ventilator requirements – e.g., patients with decreased lung compliance secondary to lung disease or other restrictive processes, head injury patients, or patients presenting with “resuscitative” needs.

Procedure:

- A ventilator “check-out” should be performed at the beginning of each shift.
- Initiating Mechanical Volume Ventilation:
 - Verify artificial airway patency and position by use of ETCO₂ detection and pulse oximetry equipment in order to verify artificial airway placement and to evaluate effectiveness of current ventilation technique.
 - Prepare the BVM device for emergent use in case of ventilator failure.
 - Attach ventilator to appropriate oxygen source. (50 psi outlet)

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- Attach disposable ventilator circuit to ventilator. Attach gas outlet and pressure transducer to corresponding connections.
- Set PEEP at 3 to 5 cm H₂O for field initiation. When used for an interfacility transfer use sending physicians settings.
- Select appropriate Respiratory Rate (RR)
 - Adult: 12-14 / min
 - Child: 16-20 / min
- Select desired Tidal Volume (Vt).
 - Patients should typically be ventilated with a Vt of 6-8 mL/kg, based on ideal body weight (IBW).
 - Use Vt of 10-12 mL/kg (IBW) with lower RR (6-8/min) for hypotensive patients with SBP<80 mmHg.
 - Use lower volumes in patients at risk for barotrauma (e.g., ARDS, COPD).
 - Calculate ideal body weight (IBW).
 - Male: $50 \text{ kg} + (2.3 \times [\text{Height (in.)} - 60 \text{ inches}])$
 - Female: $45.5 \text{ kg} + (2.3 \times [\text{Height (in.)} - 60 \text{ inches}])$

Example (IBW): Your patient is a male, 5' 8" tall.

Height = 68 inches

$50 \text{ kg} + (68-60) \times 2.3$

$50 \text{ kg} + 8 \times 2.3$

$50 \text{ kg} + 18.4 = 68.4 \text{ kg}$

Example Vt: Using 6 mL/kg

$68.4 \text{ kg} \times 6 \text{ mL} = 410.4 \text{ mL}$ of tidal volume

- Select desired FiO₂. 65 or 100 %.
- If Positive End Expiratory Pressure (PEEP) is required, select the desired amount and set via the ventilator's PEEP/CPAP function.
- Turn the Mandatory Breaths to the ON position.
- Attach patient to the ventilator and observe peak inspiratory pressure (PIP). Set Peak Pressure function 10-15 cmH₂O above the PIP.
- Observe delivery of several breaths. Evaluate patient for adequate chest rise, ETCO₂, and SpO₂.
- If at any time the ventilator should fail or an alarm is received that cannot be corrected, the patient should be immediately ventilated with a BVM attached to 100% oxygen source.
- At the completion of the transport, dispose of the ventilator circuit and clean ventilator as necessary.

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Ideal Body Weight (IBW) & Tidal Volume Calculation

Normotensive

Height (ft, in)	Male Tidal Volume (mL)	Female Tidal Volume (mL)
5' 5"	369	342
5' 6"	383	356
5' 7"	397	370
5' 8"	410	383
5' 9"	424	397
5' 10"	438	411
5' 11"	452	425
6' 0"	466	439
6' 1"	479	452
6' 2"	493	466
6' 3"	507	480
6' 4"	521	494
6' 5"	535	508
6' 6"	548	521
6' 7"	562	535
6' 8"	576	549
6' 9"	590	563
6' 10"	604	577
6' 11"	617	590
7' 0"	631	604
7' 1"	645	618
7' 2"	659	632
7' 3"	673	646
7' 4"	686	659
7' 5"	700	673
7' 6"	714	687

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Ideal Body Weight (IBW) & Tidal Volume Calculation

Hypotensive – SBP <80 mmHg

Height (ft, in)	Male Tidal Volume (mL)	Female Tidal Volume (mL)
5' 5"	615	570
5' 6"	638	593
5' 7"	661	616
5' 8"	684	639
5' 9"	707	662
5' 10"	730	685
5' 11"	753	708
6' 0"	776	731
6' 1"	799	754
6' 2"	822	777
6' 3"	845	800
6' 4"	868	823
6' 5"	891	846
6' 6"	914	869
6' 7"	937	892
6' 8"	960	915
6' 9"	983	938
6' 10"	1006	961
6' 11"	1029	984
7' 0"	1052	1007
7' 1"	1075	1030
7' 2"	1098	1053
7' 3"	1121	1076
7' 4"	1144	1099
7' 5"	1167	1122
7' 6"	1190	1145

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Selective Spinal Immobilization

Purpose:

The traditional practice of spinal immobilization based solely on mechanism of injury has been found to either provide minimal or no patient benefit and in some cases can cause harm to patients. It also takes time away from the severely injured patient when other more beneficial interventions could be performed.

Policy:

Each patient where there is a mechanism of injury suggestive of possible spinal injury will have a Selective Spinal Immobilization exam performed to see if there is a need of spinal immobilization.

Procedure:

1. The provider will begin each exam with the Universal Patient Care Protocol.
2. Spinal immobilization is not needed for patients who fall into **all** of the following categories
 - a. No neurological focal deficits, i.e. paralysis, numbness or tingling (parasthesia).
 - b. Over 12 years of age and no communication barriers, i.e. deafness, language barrier, etc.
 - c. The patient has a Glasgow Coma Scale (GCS) of 15.
 - d. No evidence of intoxication from alcohol, medication or drugs.
 - e. No painful injury that might distract the patient from the pain of a cervical spine injury.
 - f. No point tenderness over the spinous process(es) or deformity.
 - g. No pain with flexion, extension, **and** rotation of cervical spine during active movement.
 - i. Range of motion should not be assessed on any patient that has midline spinal tenderness.
 - ii. Patient's range of motion should not be assisted
 - iii. The patient should touch their chin to their chest, extend the neck (look up), and turn their head from side to side (shoulder to shoulder) without spinal pain.
3. Consider immobilization for any patient with arthritis, cancer, dialysis, or other underlying spinal or bone disease.
4. Patients with penetrating trauma and no evidence of spinal injury do not require spinal immobilization, this includes penetrating trauma to the head and/or neck.
5. Patients who are ambulatory at the scene of blunt trauma, in general do not require immobilization via long spine board, but may require cervical collar and

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spinal precautions, i.e. cervical collar in place, patient flat on cot and secured with all cot straps.

6. If spinal immobilization with a long spine board is chosen and the patient forcefully resists, becomes combative or agitated, remove the long spine board and attempt to get the patient to lie flat on the cot with a cervical collar in place.
7. Whether a long spine board is utilized, spinal precautions are **STILL VERY IMPORTANT** in patients at risk for spinal injury. Adequate spinal precautions may be achieved by placement of a rigid cervical collar and ensuring that the patient is secured tightly to the cot, ensuring minimal movement. Provide manual in-line stabilization during any transfers from the cot.

Documentation:

All standard documentation should be included on the patient care report (PCR). With the exam necessary for Selective Spinal Immobilization, including pertinent negatives is very important. The following items must be documented in the PCR when utilizing Selective Spinal Immobilization.

- The age of the patient.
- The neurological exam.
- The Glasgow Coma Scale.
- Any evidence of intoxication by alcohol, medications or illicit drugs.
- Any distracting injuries.
- The spinal exam.

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Stroke Screen: Cincinnati Prehospital

Clinical Indications:

- Suspected stroke patient

Procedure:

1. Assess and treat suspected stroke patients as per protocol.
2. The Cincinnati Prehospital Stroke Screen should be completed for all suspected stroke patients.
3. Establish the “Last Time Normal” for the patient. This will be the presumed time of onset.
4. Perform the screen through physical exam:
 - Facial Droop
 - i. Normal: Both sides of face move equally well
 - ii. Abnormal: One side of face does not move as well as the other side.
 - Arm Drift (patient closes eyes and holds both arms out)
 - i. Normal: Both arms move the same or both arms do not move at all.
 - ii. Abnormal: One arm does not move or one arm drifts down compared with the other.
 - Speech
 - i. Have the patient say, “You can teach an old dog new tricks.”
 - ii. Normal: Patient uses correct words with no slurring.
 - iii. Abnormal: Patient slurs words, uses inappropriate words, or is unable to speak.
5. Evaluate blood glucose level results.
6. The completed stroke screen procedure should be documented on the PCR.

Venous Access: External Jugular Access

Clinical Indications:

- External jugular vein cannulation is indicated in a critically ill patient, over 8 years of age, who requires intravenous access for fluid or medication administration and in whom an extremity vein or intraosseous access is not obtainable.
- External jugular cannulation can be attempted initially in life threatening events where no obvious peripheral site is noted and intraosseous access is contraindicated or undesirable.

Procedure:

1. Place the patient in a supine head down position. This helps distend vein and prevents air embolism.
2. Turn the patient's head toward the opposite side if no risk of cervical injury exists.
3. Prep the site in the same manner as a peripheral IV site.
4. Align the catheter with the vein and aim toward the same side shoulder.
5. Occluding the vein lightly with one finger above the clavicle, puncture the vein midway between the angle of the jaw and the clavicle and cannulate the vein in the usual method.
6. Attach the IV and secure the catheter avoiding circumferential dressing or taping.
7. Document the procedure, time and result (success) on the PCR.

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Venous Access: EZ-IO

Clinical Indications:

- When IV access is required for a critical patient and peripheral IV access is not available.
- This procedure should not be used for “routine” IV access or if there is obvious peripheral IV access available.

Contraindications:

1. Fracture of the bone selected for IO infusion.
2. Excessive tissue at insertion site with the absence of anatomical landmarks.
3. Previous significant orthopedic procedures.
4. Infection at the site selected for insertion.

Procedure:

1. Consider pain medication if patient is conscious.
2. Locate proximal tibia insertion site.
3. Using an aseptic technique, prep the insertion site.
4. Select proper size needle and attach to driver.
5. Remove and discard the needle safety cap.
6. Insert the needle at a 90° angle to the insertion site.
7. Stop insertion when the needle enters the medullary space, you will feel a “give” or “pop”.
8. Remove power driver and stylet.
9. Confirm catheter stability.
10. Attach the supplied extension set to the catheter hub’s luer lock.
11. Aspirate a small amount of blood to confirm placement.
12. Flush the adult EZ-IO catheter with 10 ml of Normal Saline, flush the pediatric EZ-IO catheter with 5 ml of Normal Saline.
13. Slowly administer Lidocaine 2% for pain:
 - Adult 40 mg
 - Pediatric 0.5 mg/kg
14. Connect IV line to the extension set and use as any other IV line.
15. Document time and procedure on PCR.

Warning:

- Do not leave the EZ-IO catheter in for more than 24 hours.

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Venous Access: EZ-IO Advanced EMT

Clinical Indications:

- When IV access is required for a critical patient and peripheral IV access is not available.
- This procedure should not be used for “routine” IV access or if there is obvious peripheral IV access available.

Contraindications:

1. Fracture of the bone selected for IO infusion.
2. Excessive tissue at insertion site with the absence of anatomical landmarks.
3. Previous significant orthopedic procedures.
4. Infection at the site selected for insertion.

Procedure:

1. Consider pain medication if patient is conscious.
2. Locate proximal tibia insertion site.
3. Using an aseptic technique, prep the insertion site.
4. Select proper size needle and attach to driver.
5. Remove and discard the needle safety cap.
6. Insert the needle at a 90° angle to the insertion site.
7. Stop insertion when the needle enters the medullary space, you will feel a “give” or “pop”.
8. Remove power driver and stylet.
9. Confirm catheter stability.
10. Attach the supplied extension set to the catheter hub’s luer lock.
11. Aspirate a small amount of blood to confirm placement.
12. Flush the adult EZ-IO catheter with 10 ml of Normal Saline, flush the pediatric EZ-IO catheter with 5 ml of Normal Saline.
13. Connect IV line to the extension set and use as any other IV line.
14. Document time and procedure on PCR.

Warning:

- Do not leave the EZ-IO catheter in for more than 24 hours.

“Port-A-Cath”

Clinical Indications:

1. Any patient having a previously implanted “Port-A-Cath” or similar device; and
2. Venous access is needed to administer medications or fluids.

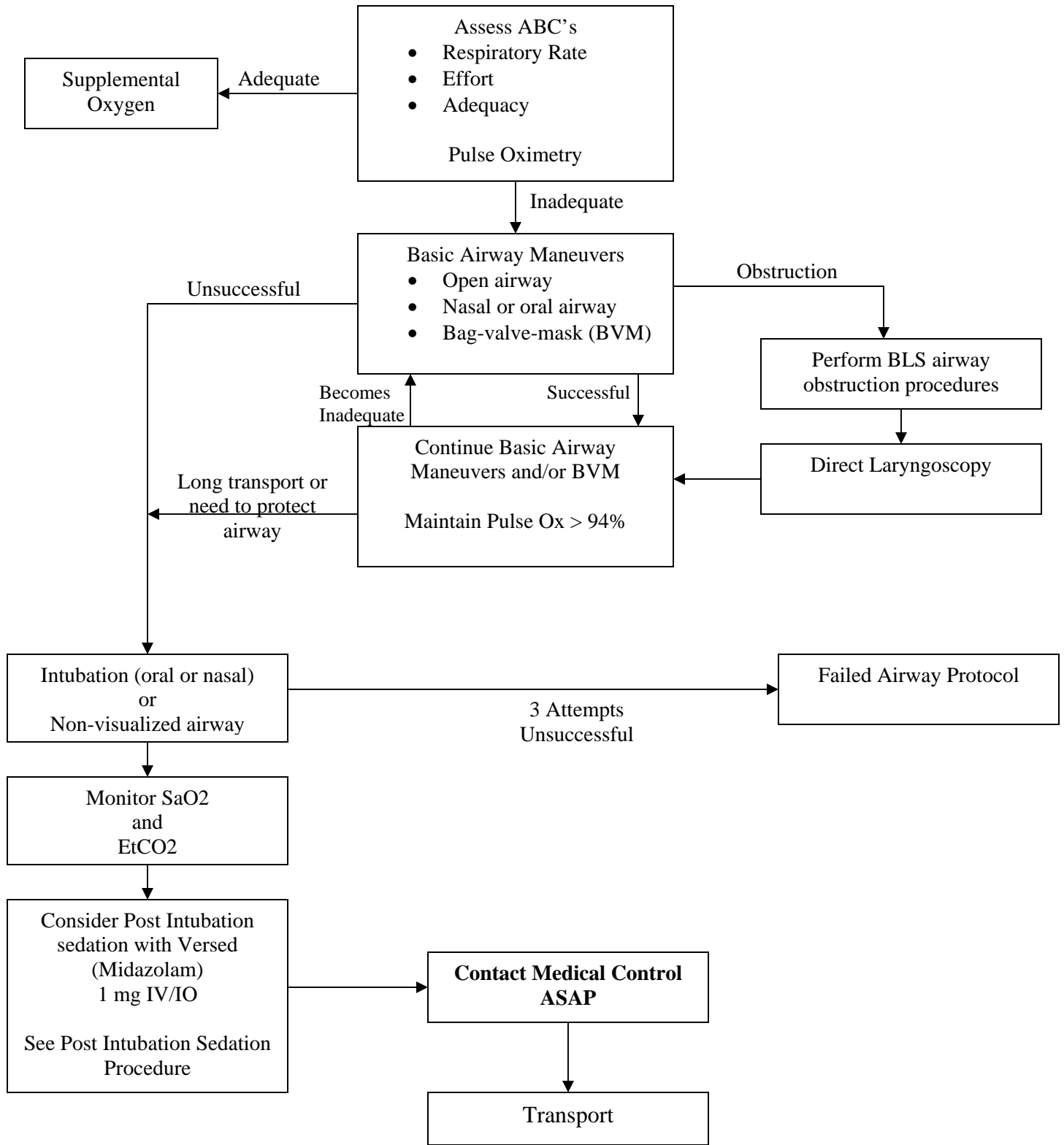
Procedure:

1. This should be a sterile procedure.
2. Use pre-made Port-A-Cath kits and lay out materials.
3. Locate silicone top of the Port-A-Cath.
4. Wipe the skin with betadine or iodine for 2 minutes, then with alcohol for 2 minutes. If patient is allergic to betadine or iodine, use alcohol only.
5. Stabilize the Port-A-Cath implant with one hand.
6. With the other hand, make a needle stick at a 90° angle, through the skin.
7. Insert the needle to metal base of the Port-A-Cath.
8. Withdraw 10 ml of blood to ensure the Port-A-Cath is functioning properly. Discard the 10 ml of blood.
9. Draw appropriate amount of blood for lab tests, if necessary.
10. Connect IV of Normal Saline to Port-A-Cath.
11. Flush Port-A-Cath with 20 ml of Normal Saline.
12. Secure needle as an impaled object and tape IV tubing to patient’s chest.
13. Use Port-A-Cath as any other IV.
14. Document time and procedure on PCR.

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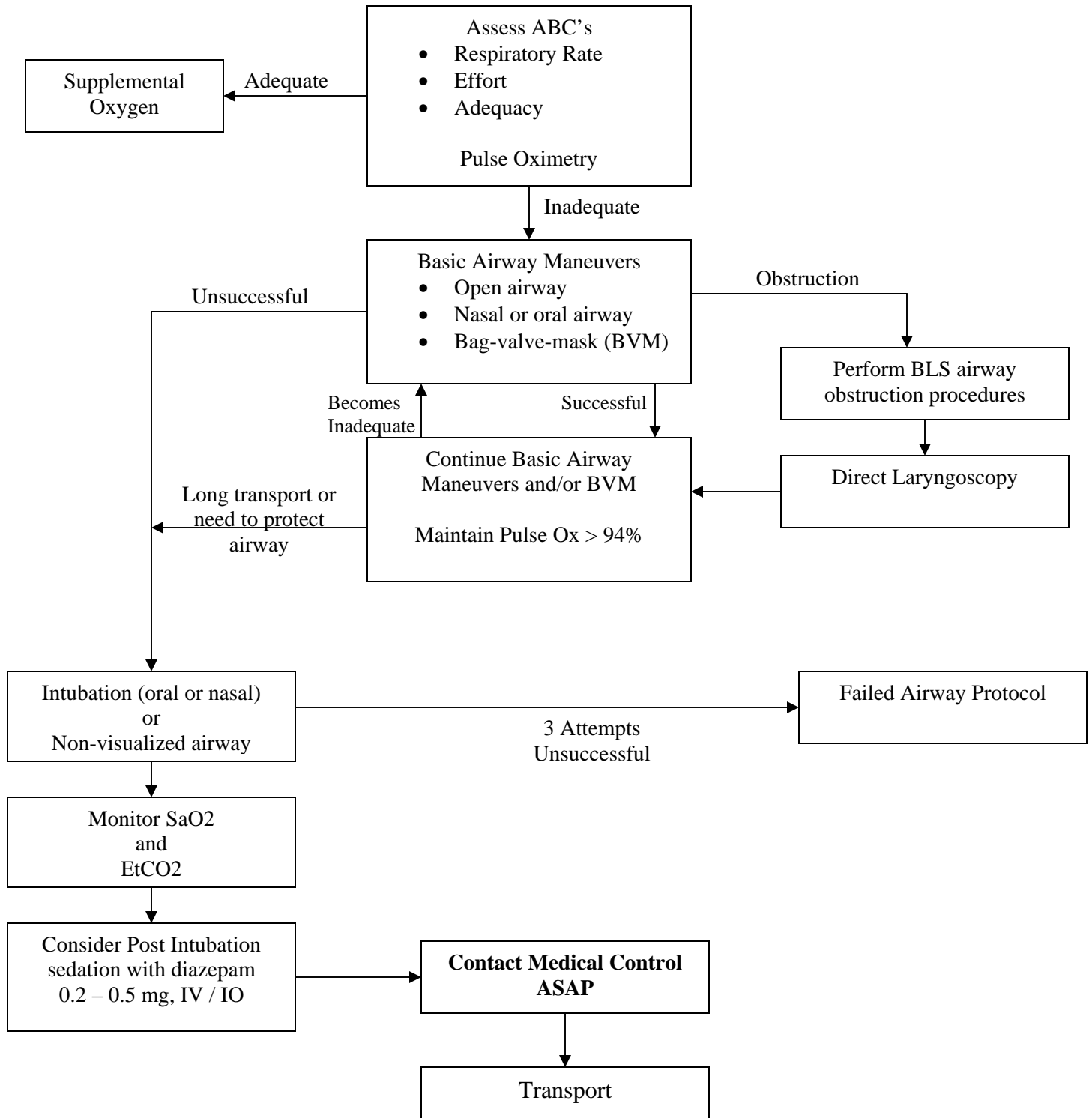
Harrison County Hospital EMS

Airway, Adult



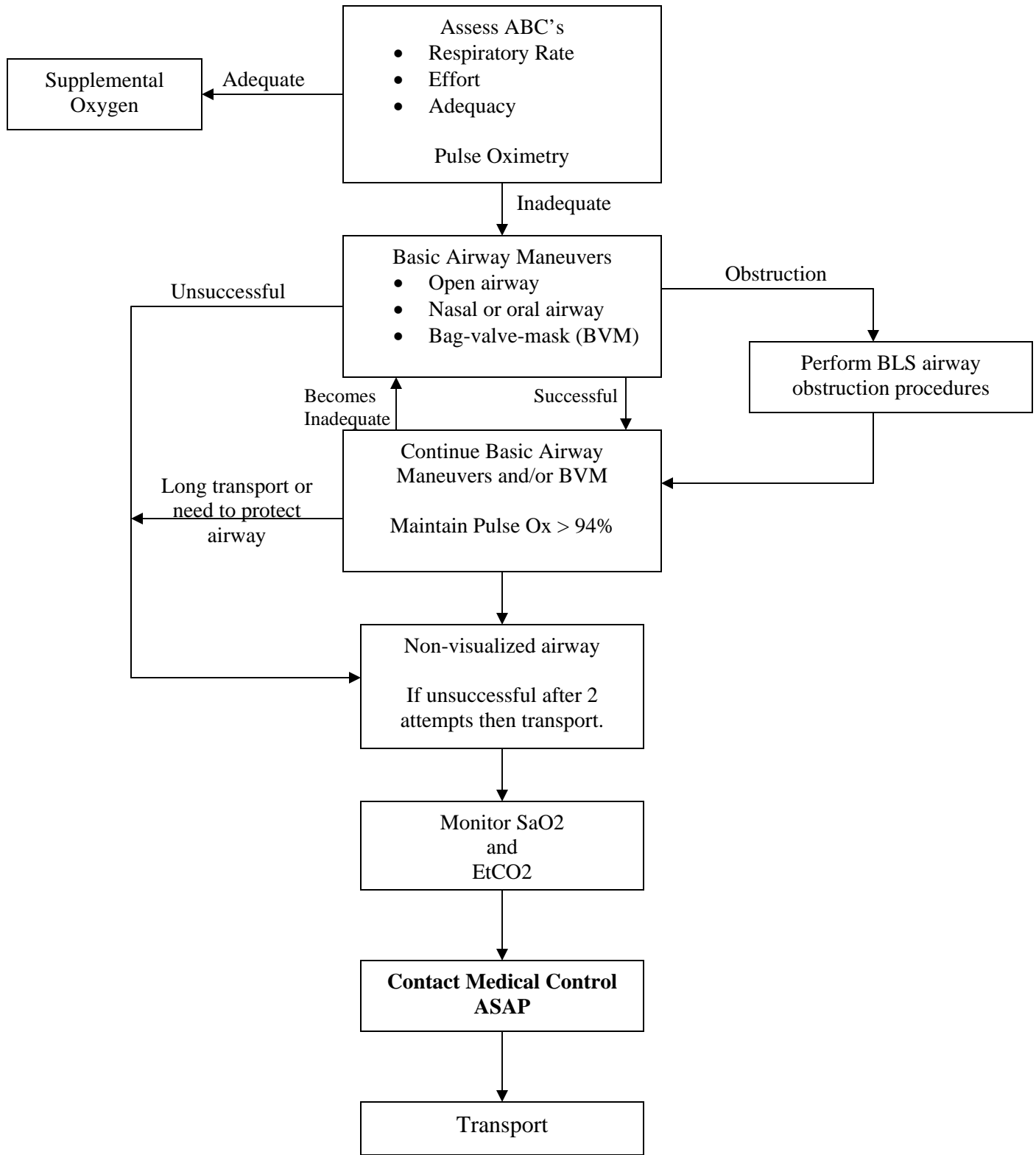
Harrison County Hospital EMS

Airway, Pediatric

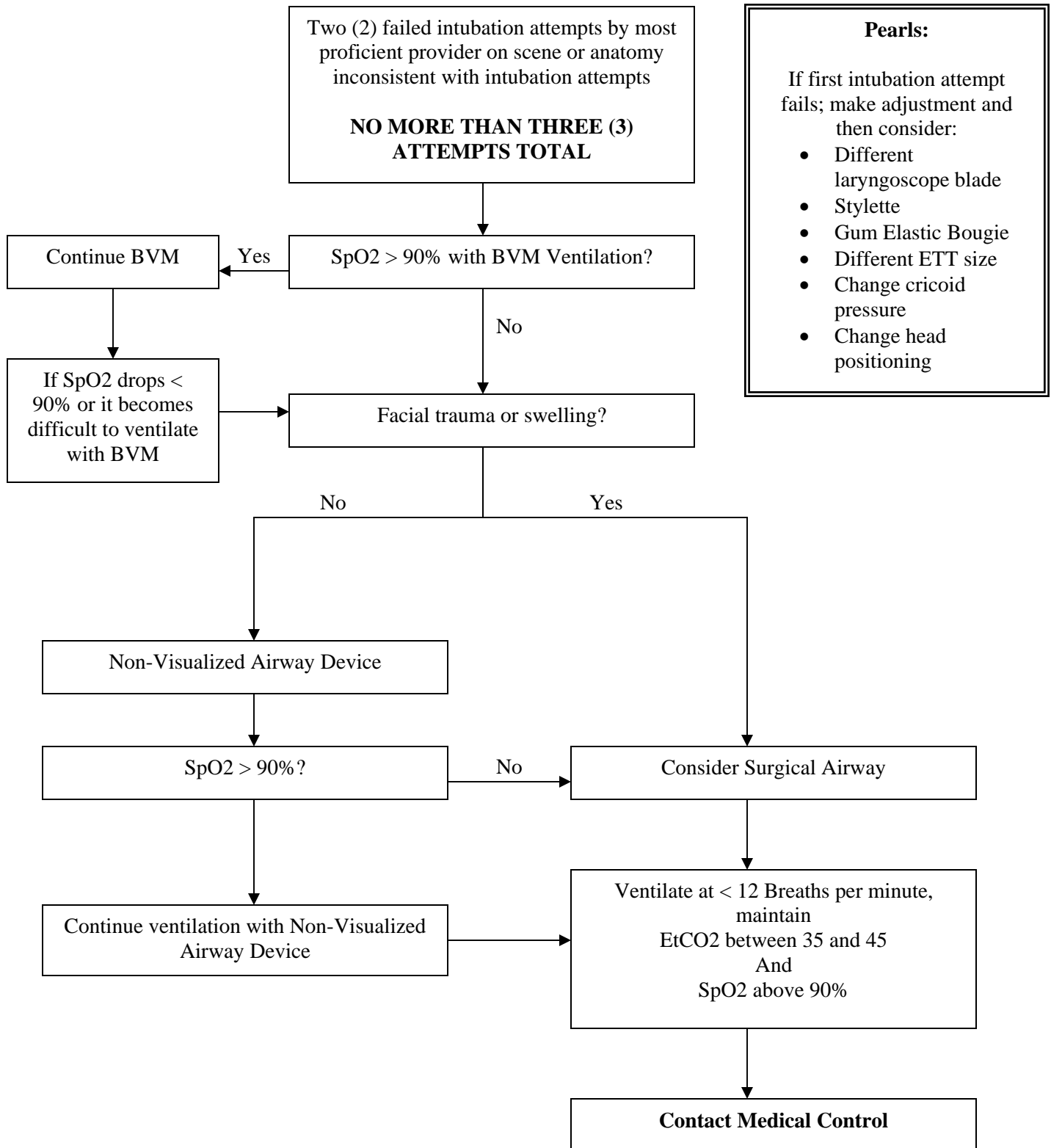


Harrison County Hospital EMS

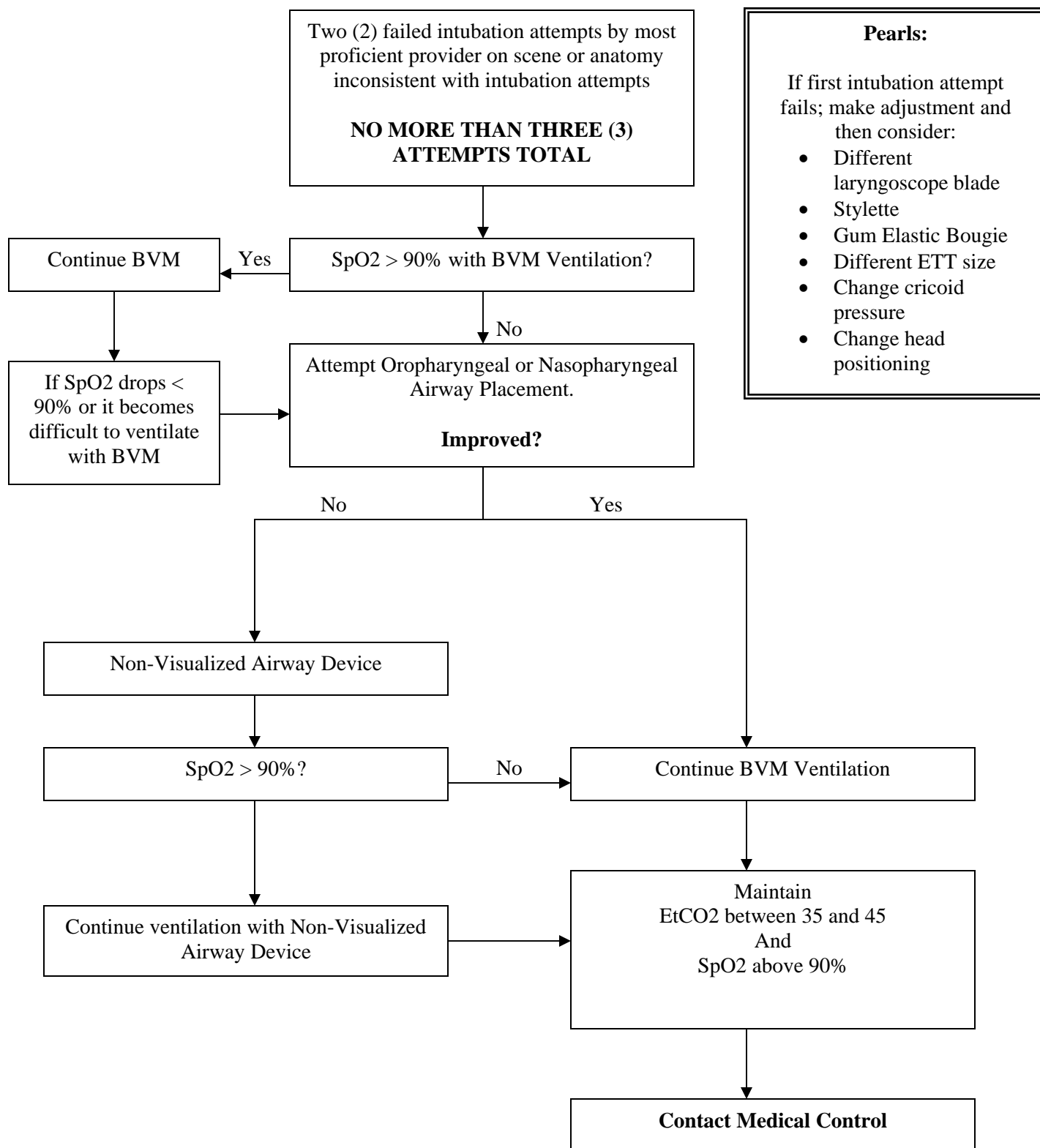
Airway, Adult Advanced EMT



Airway, Adult-Failed

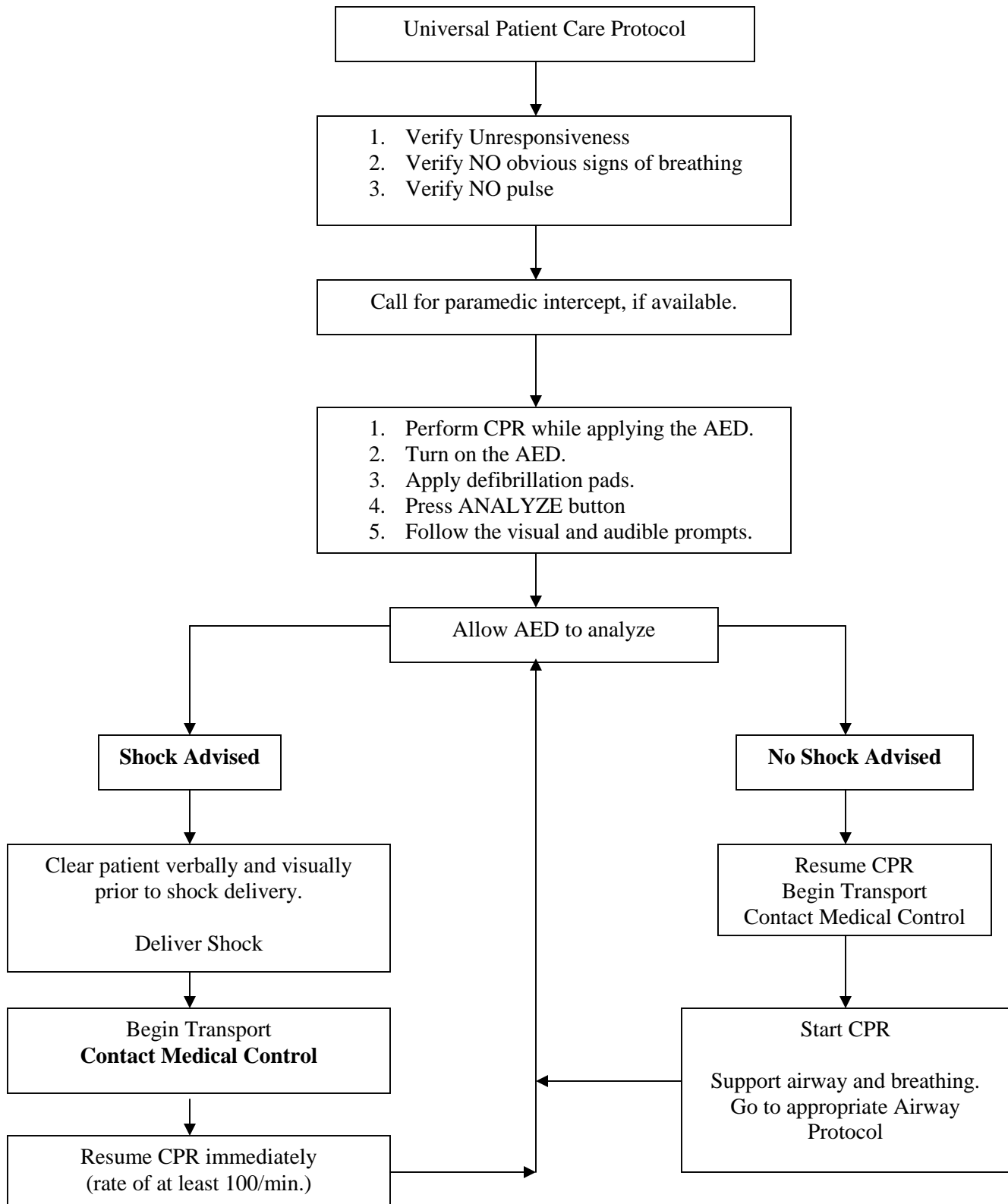


Airway, Pediatric-Failed

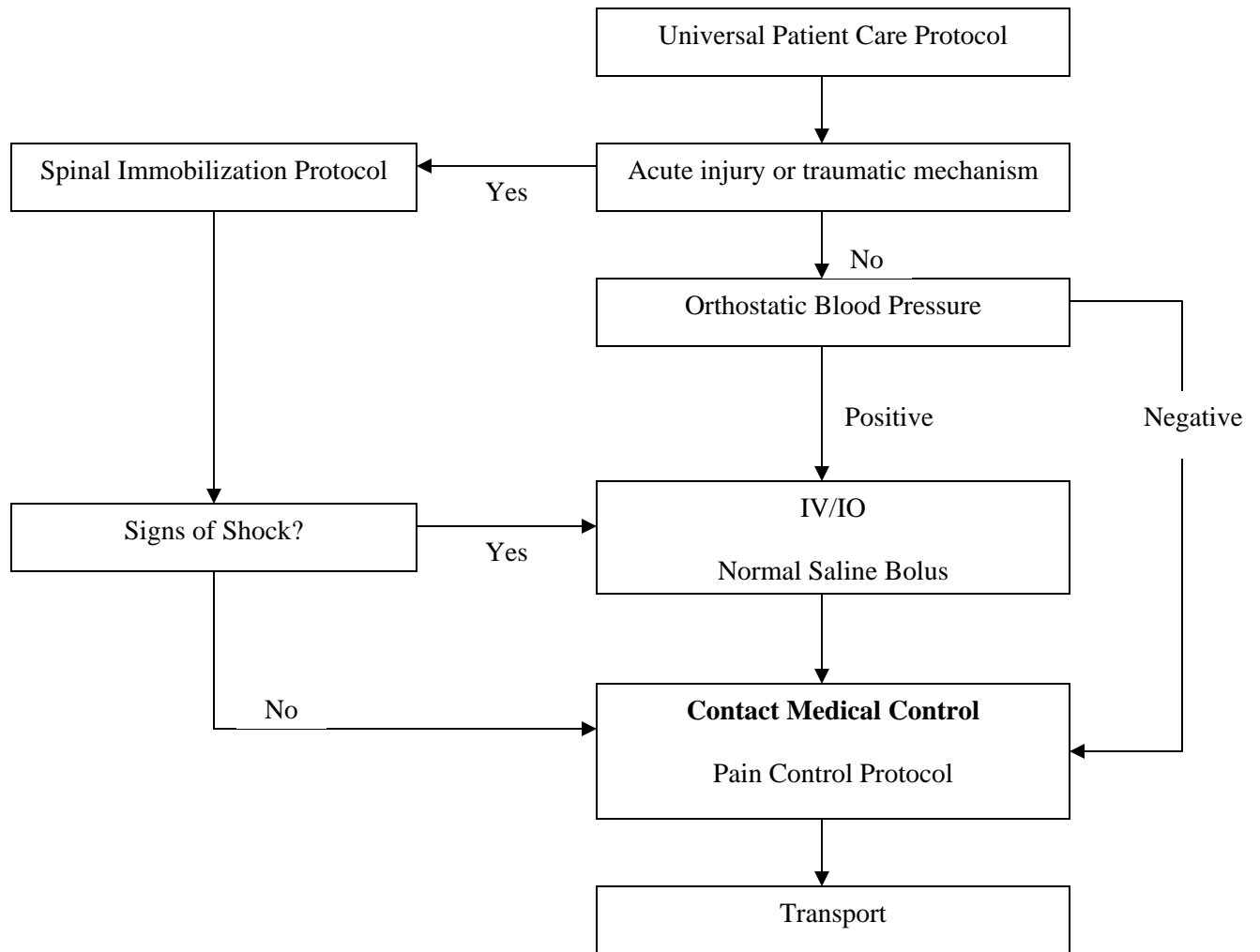


Harrison County Hospital EMS

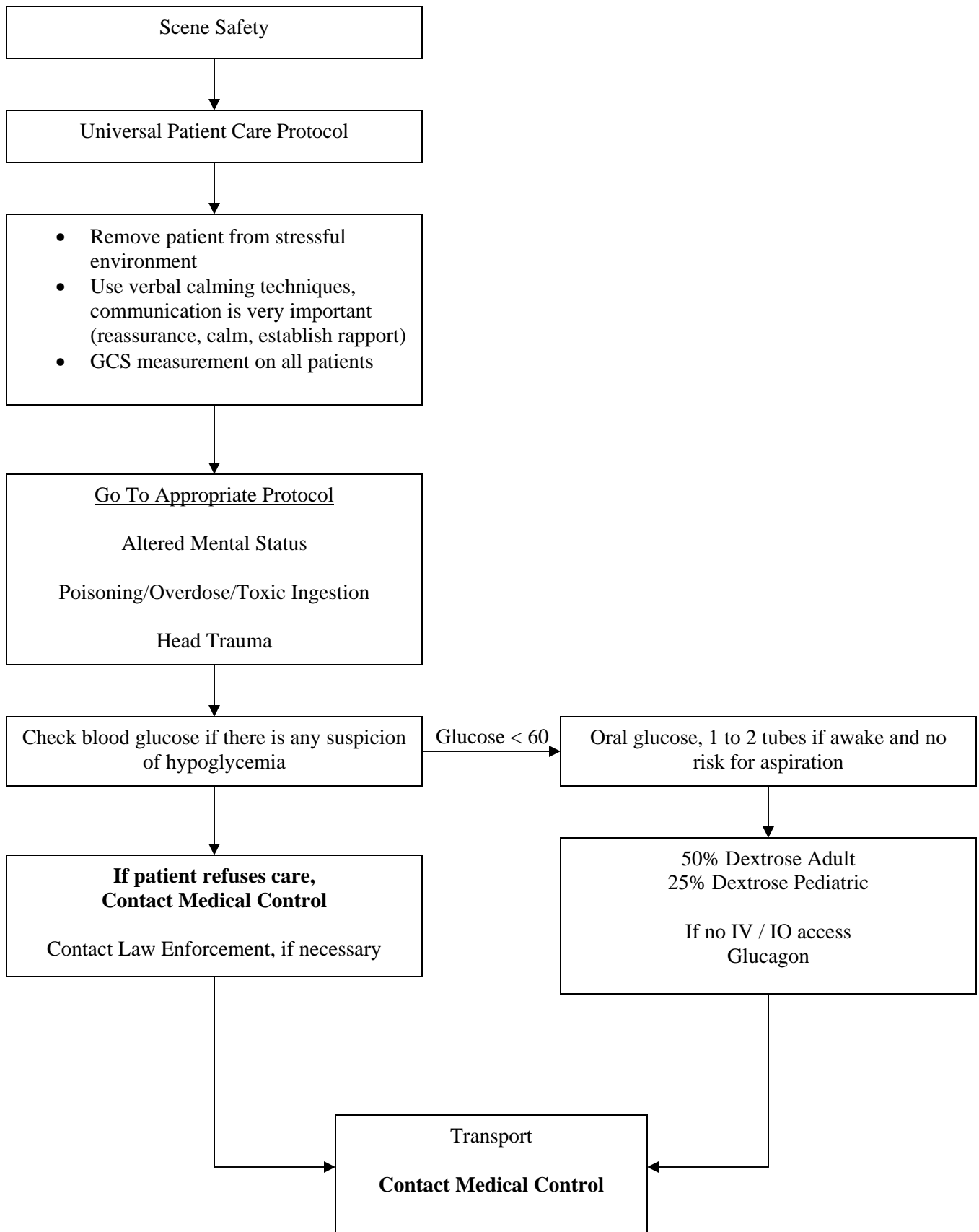
Automated External Defibrillator All Patients



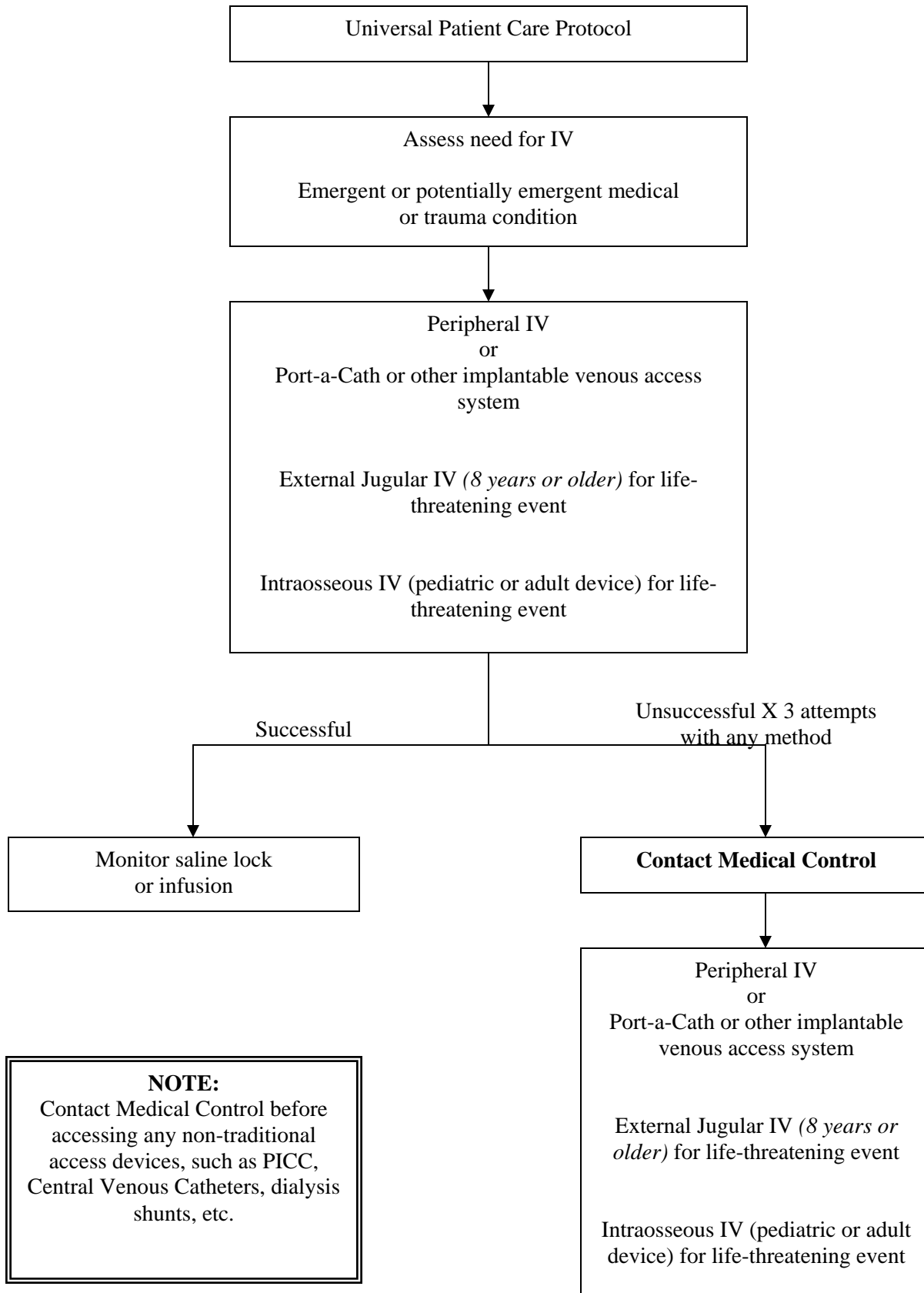
Back Pain



Behavioral

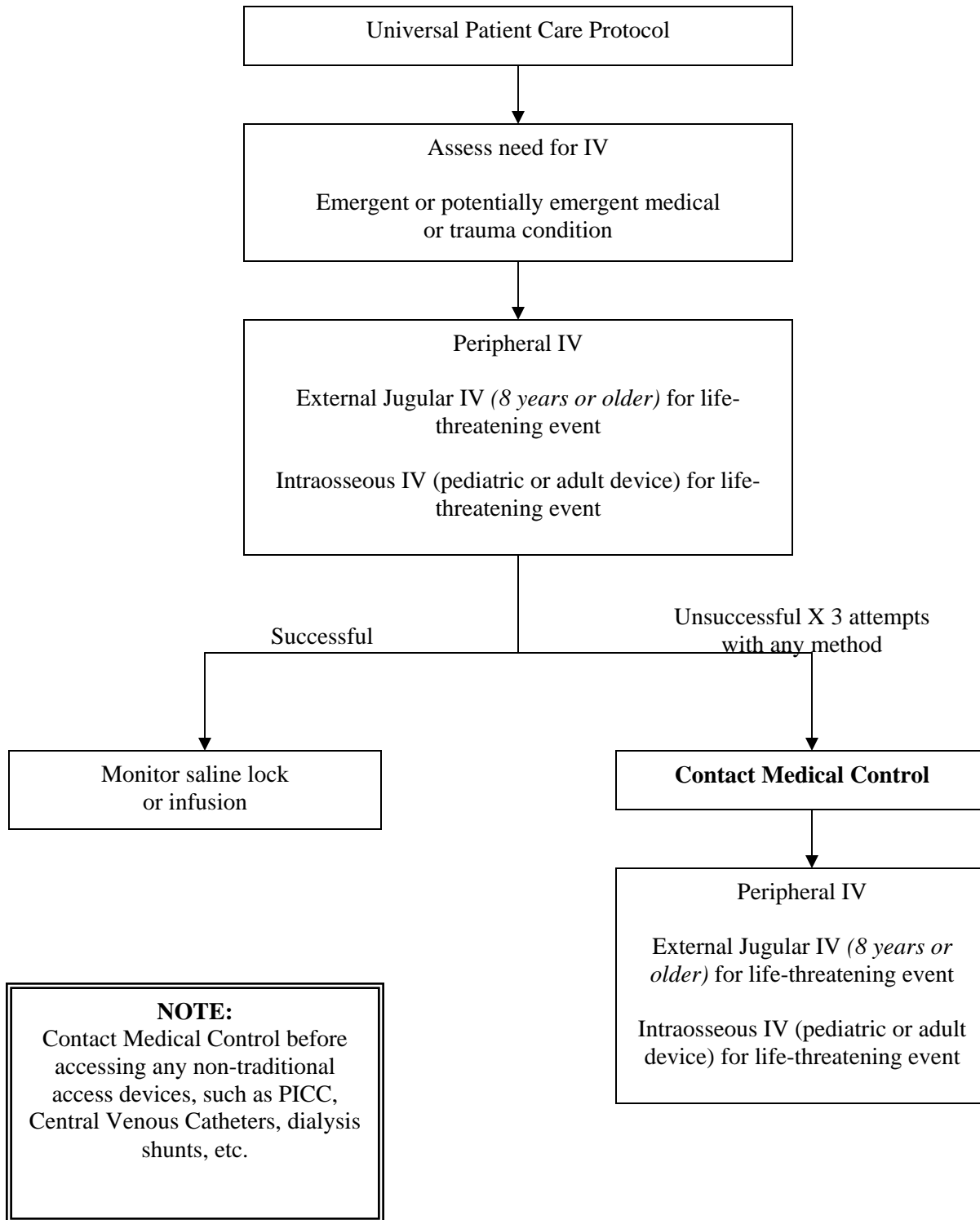


IV Access



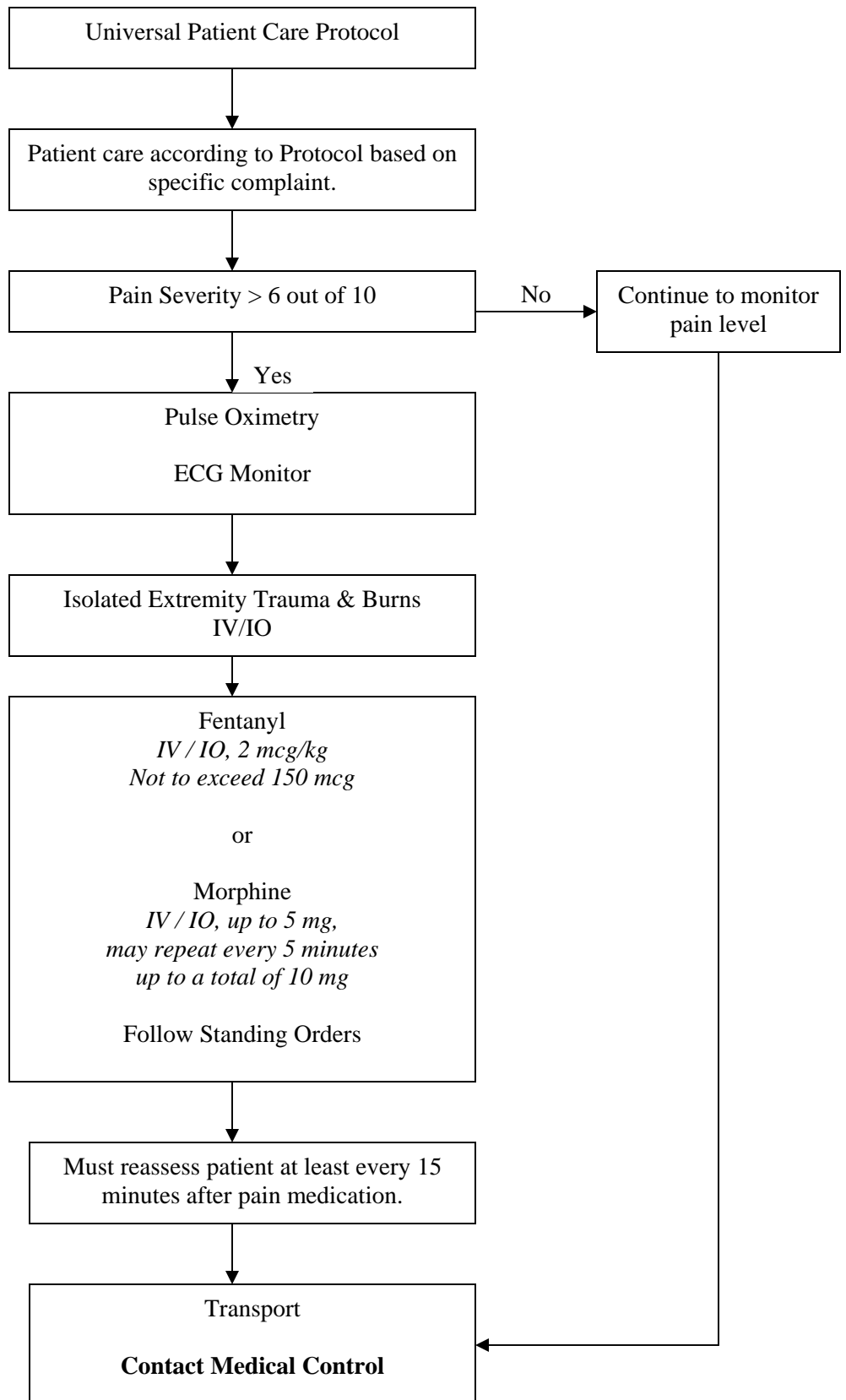
Harrison County Hospital EMS

IV Access Advanced EMT



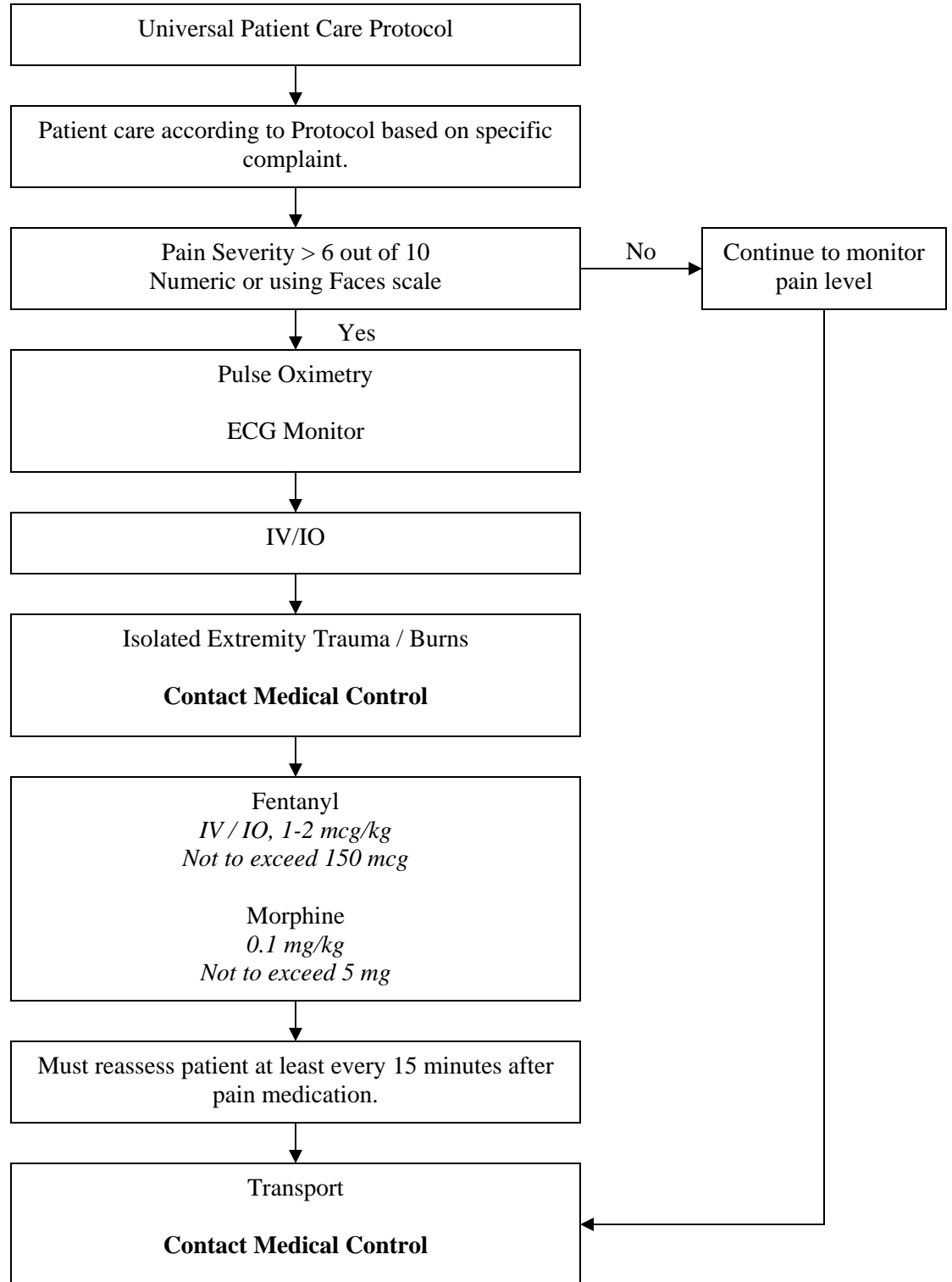
Harrison County Hospital EMS

Pain Control: Adult



Harrison County Hospital EMS

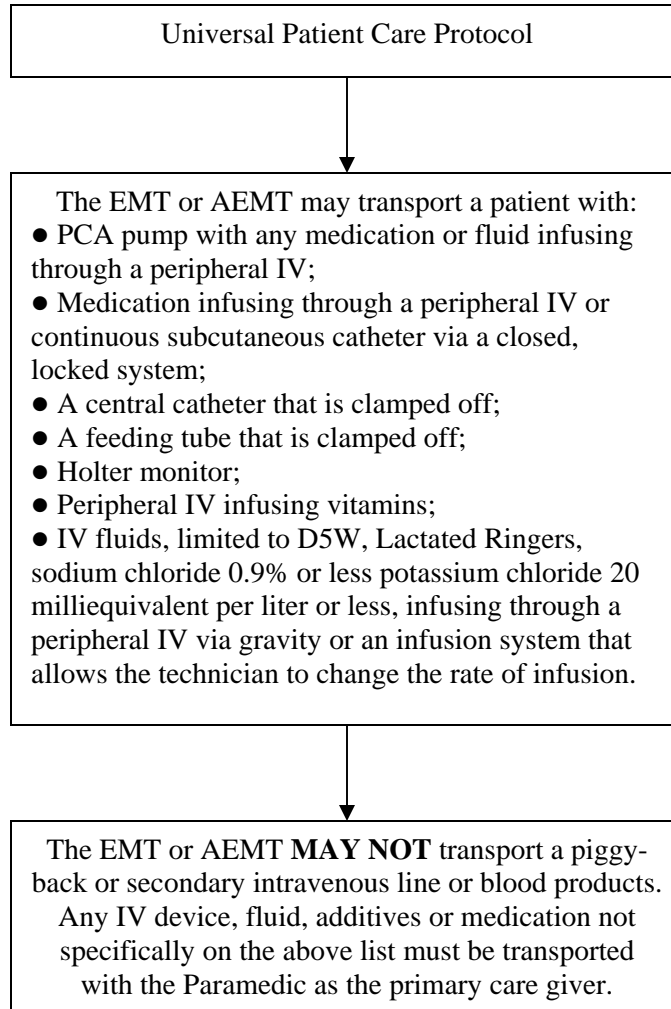
Pain Control: Pediatric



Harrison County Hospital EMS

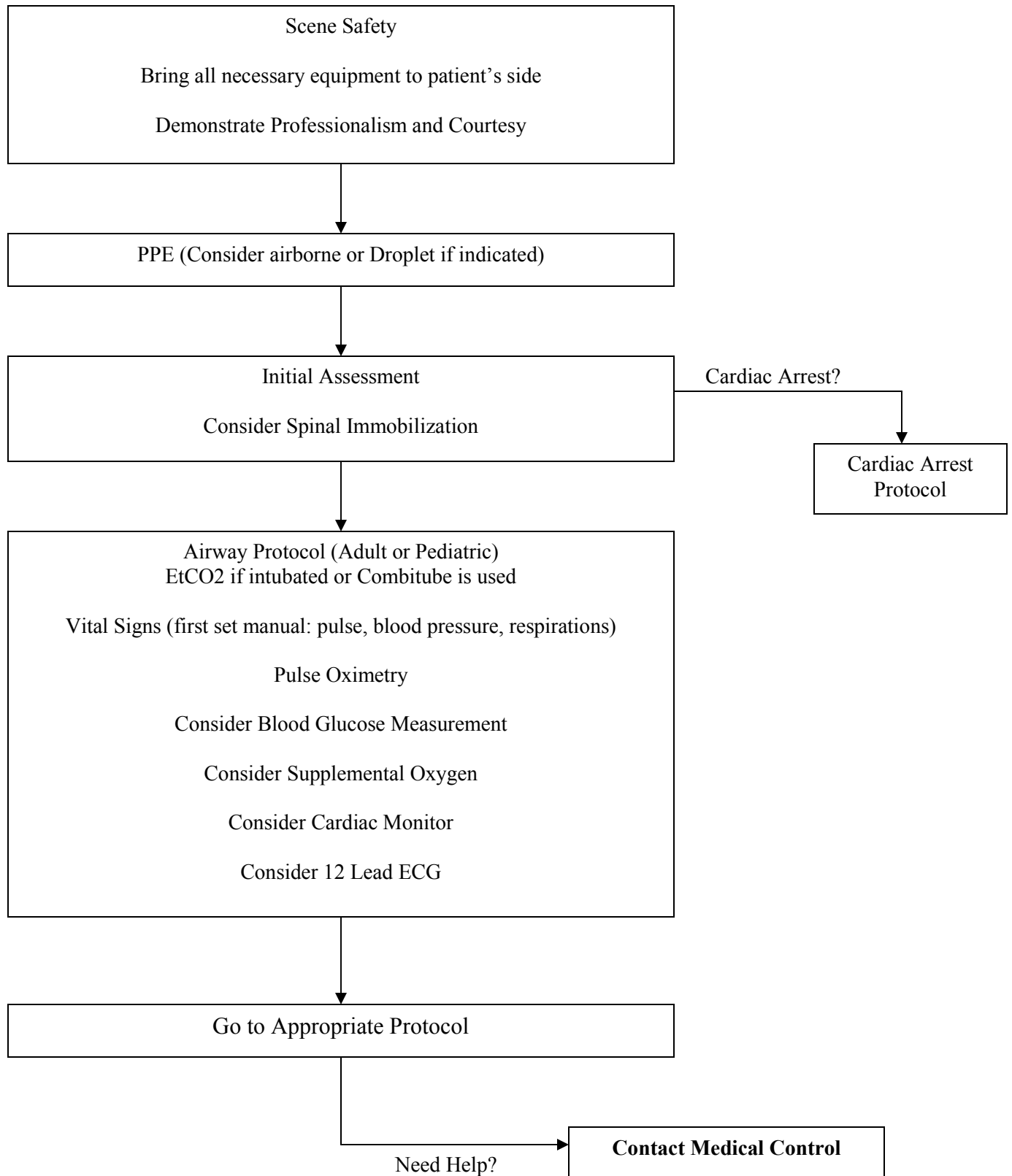
Peripheral IV Maintenance EMT and AEMT

This protocol is specific to inter-facility transfers and does not include peripheral IV's initiated in the pre-hospital environment prior to being evaluated by an ER physician. This protocol is consistent with 836 IAC 1-2-3(f).



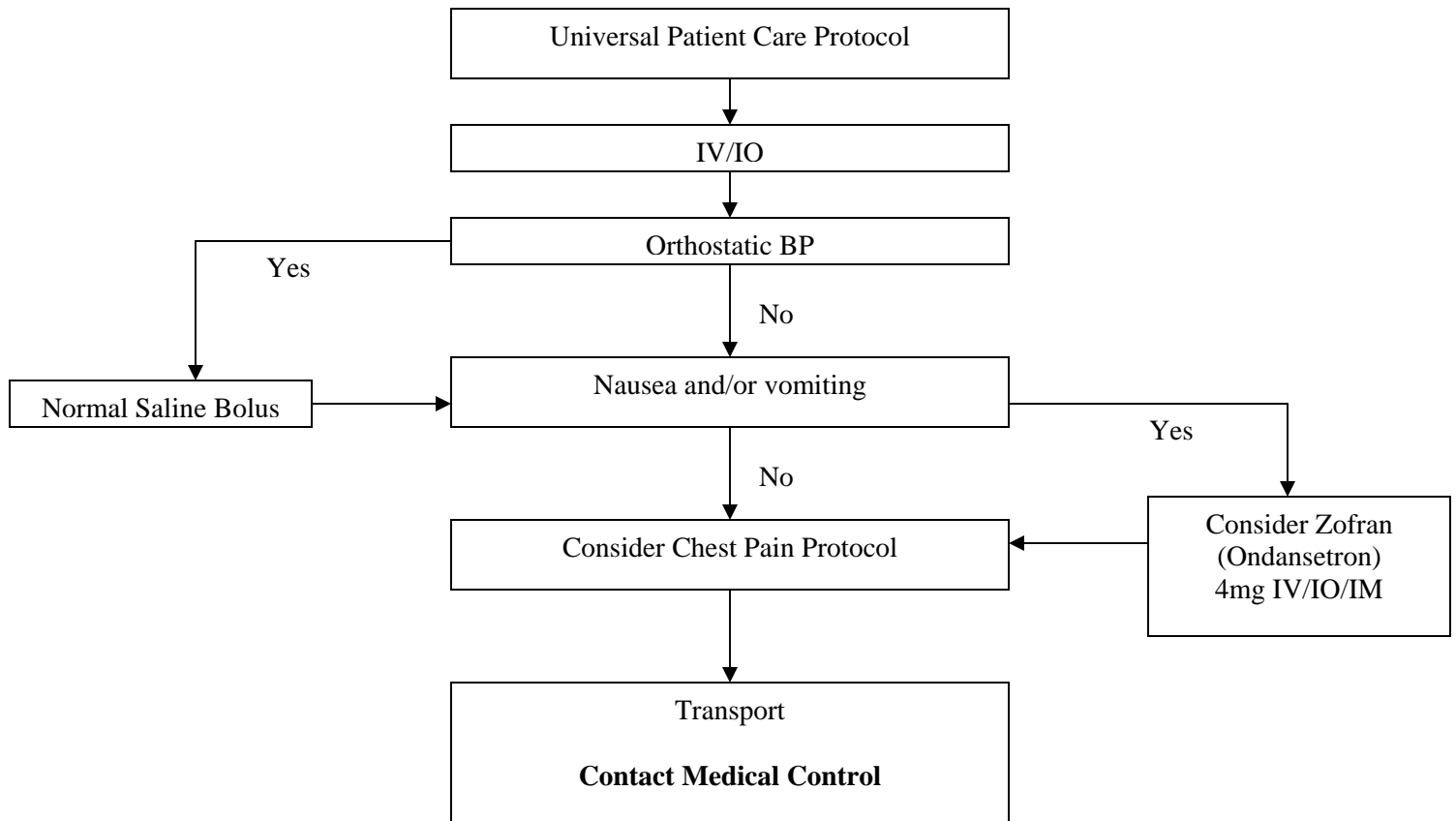
Harrison County Hospital EMS

Universal Patient Care Protocol



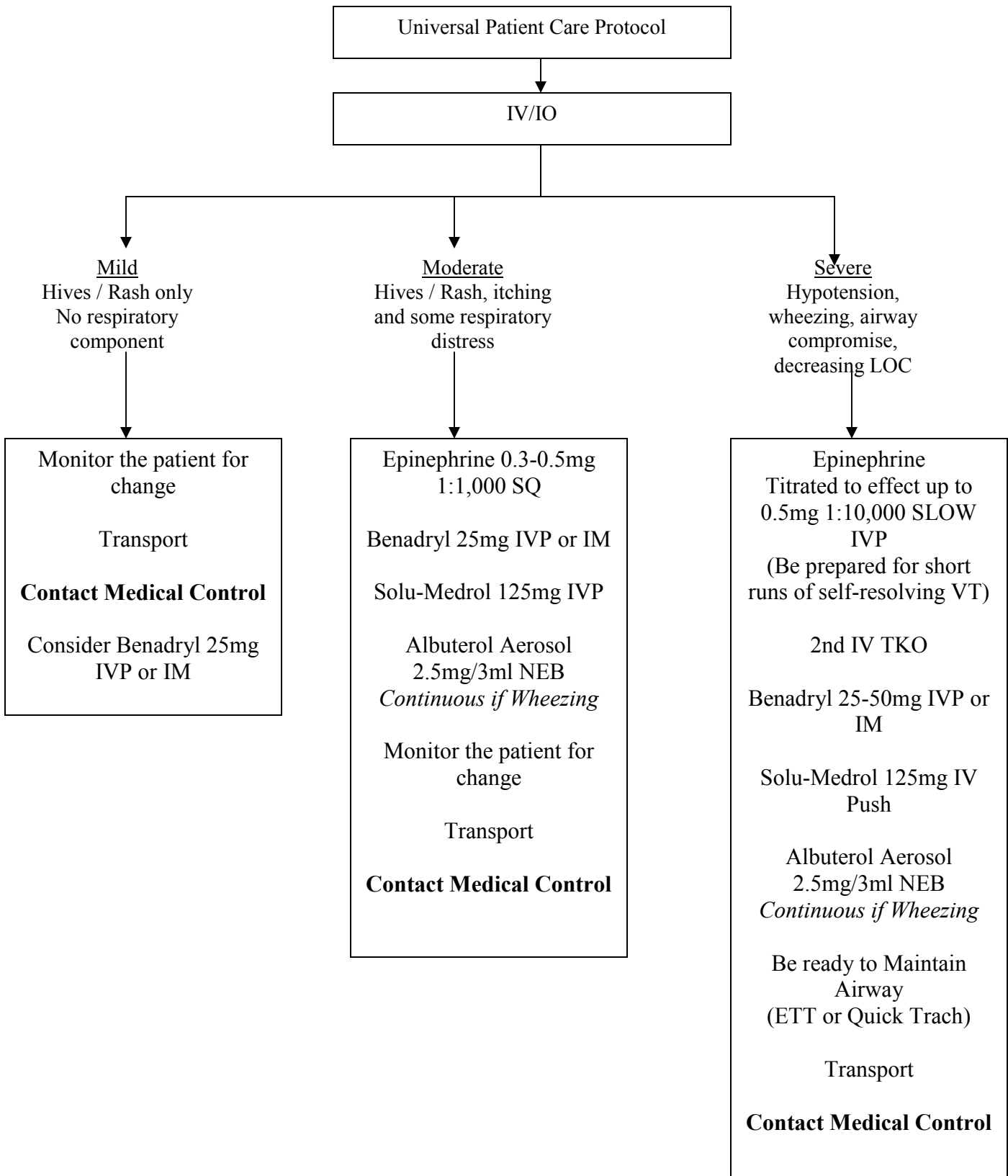
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Abdominal Pain



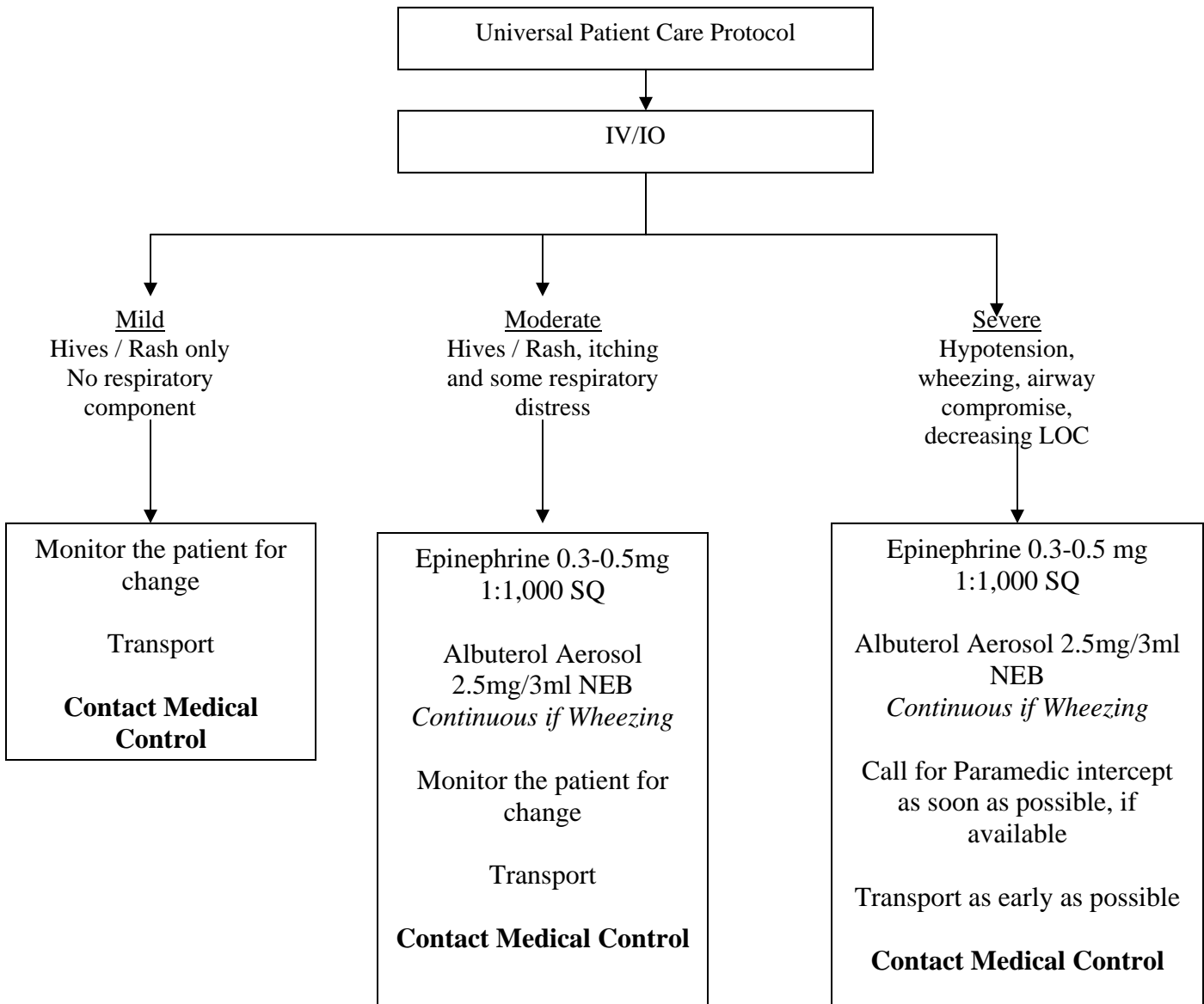
Harrison County Hospital EMS

Allergic Reaction

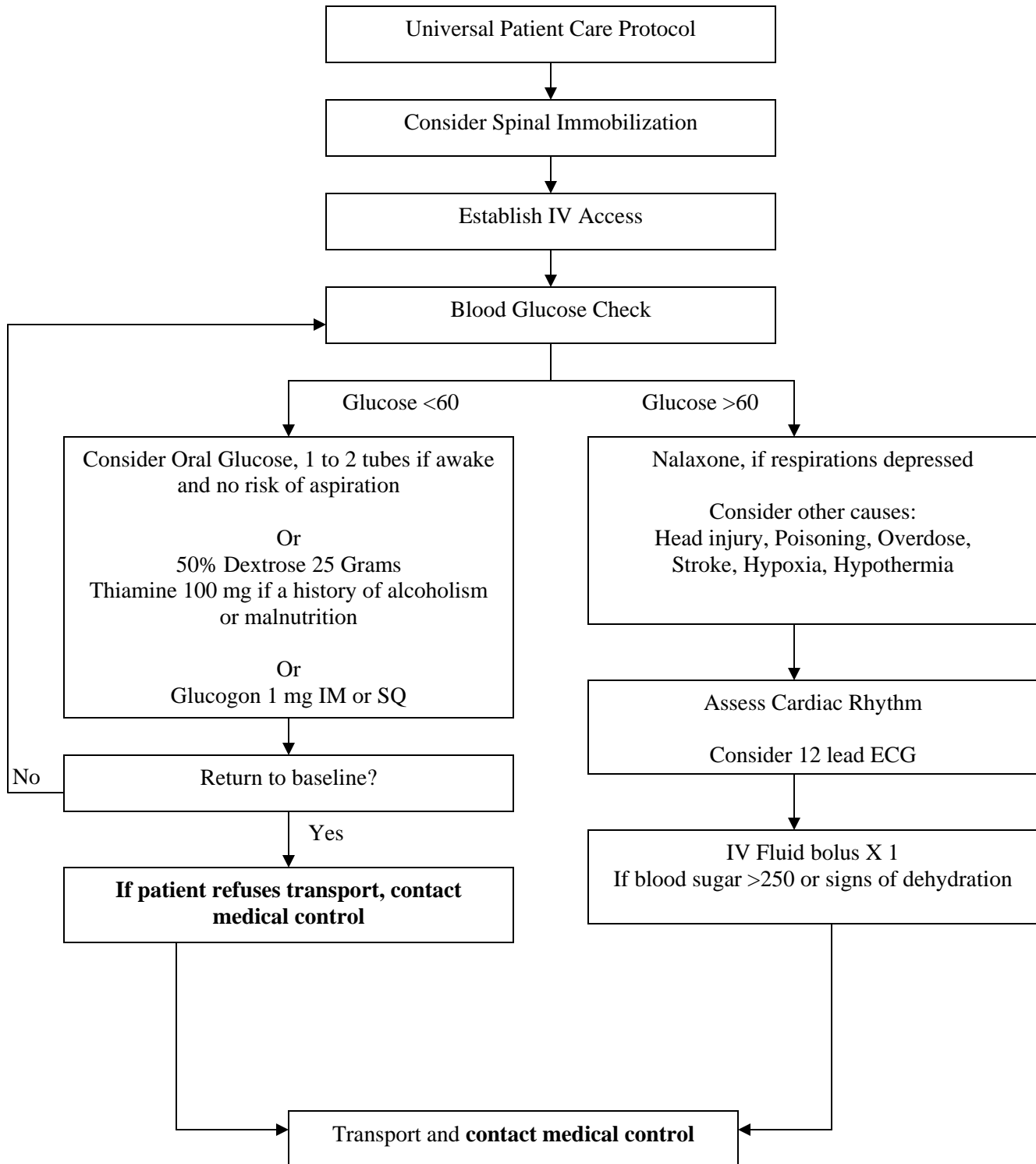


Harrison County Hospital EMS

Allergic Reaction Advanced EMT

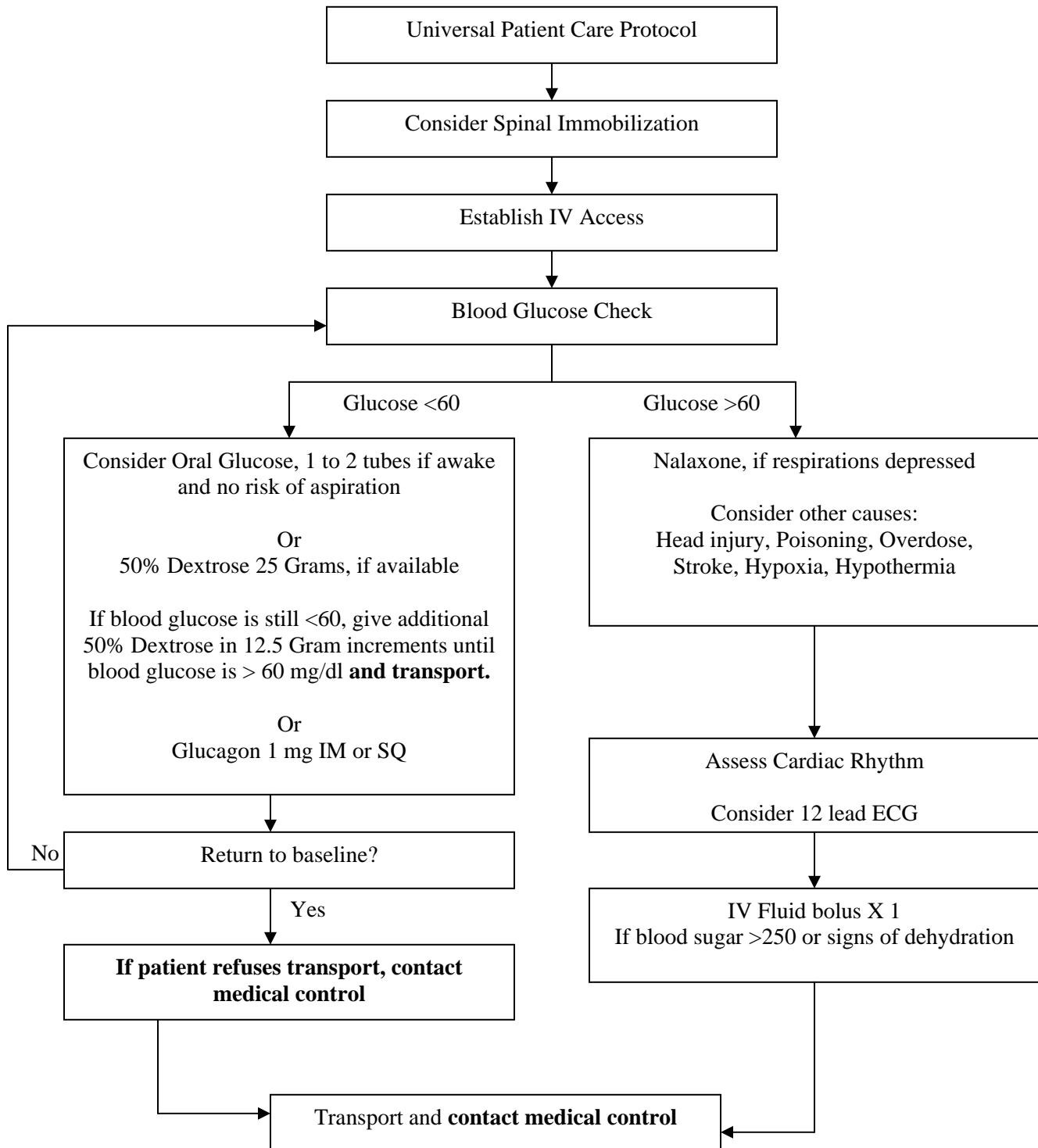


Altered Mental Status



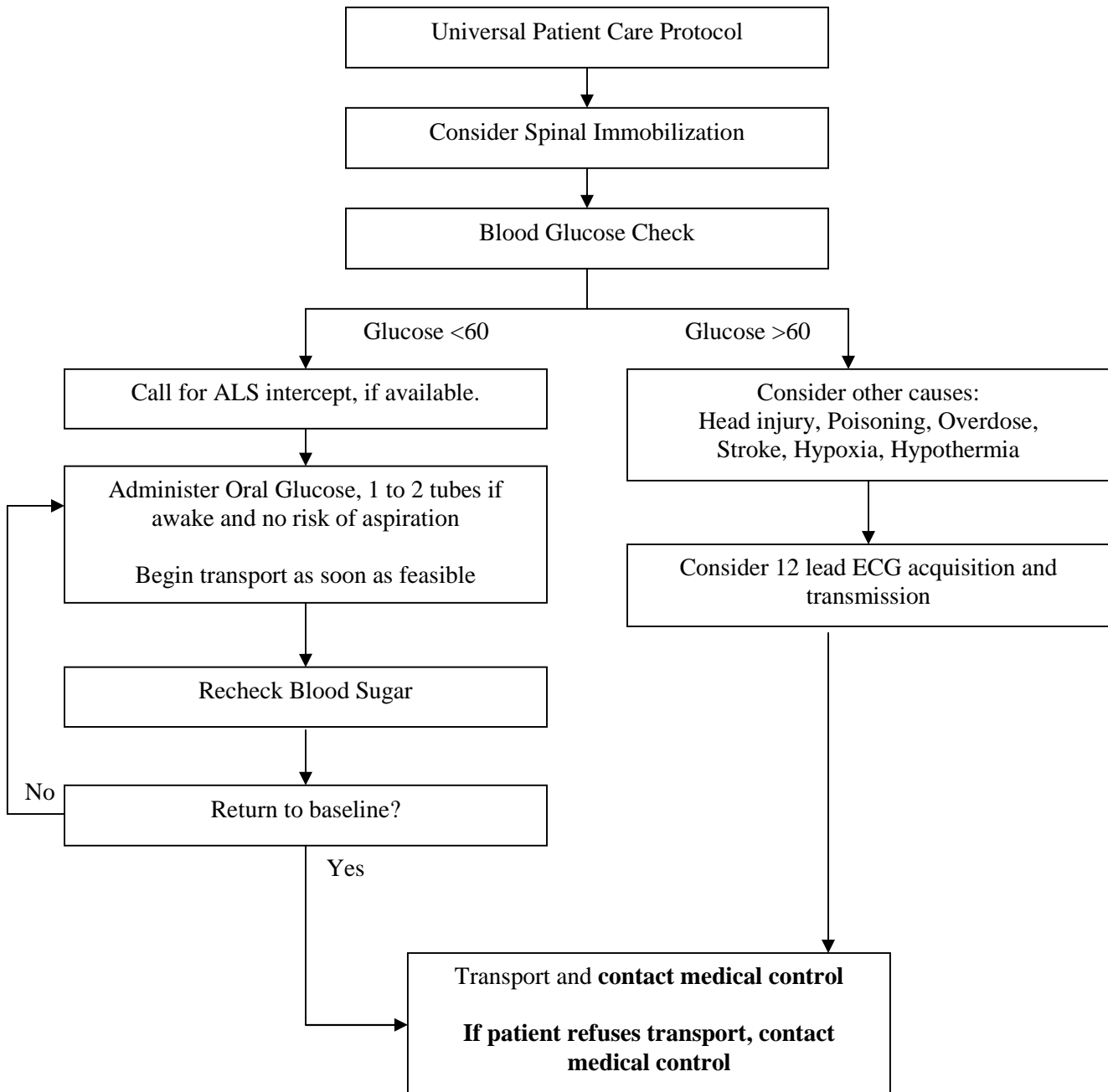
Harrison County Hospital EMS

Altered Mental Status Advanced EMT



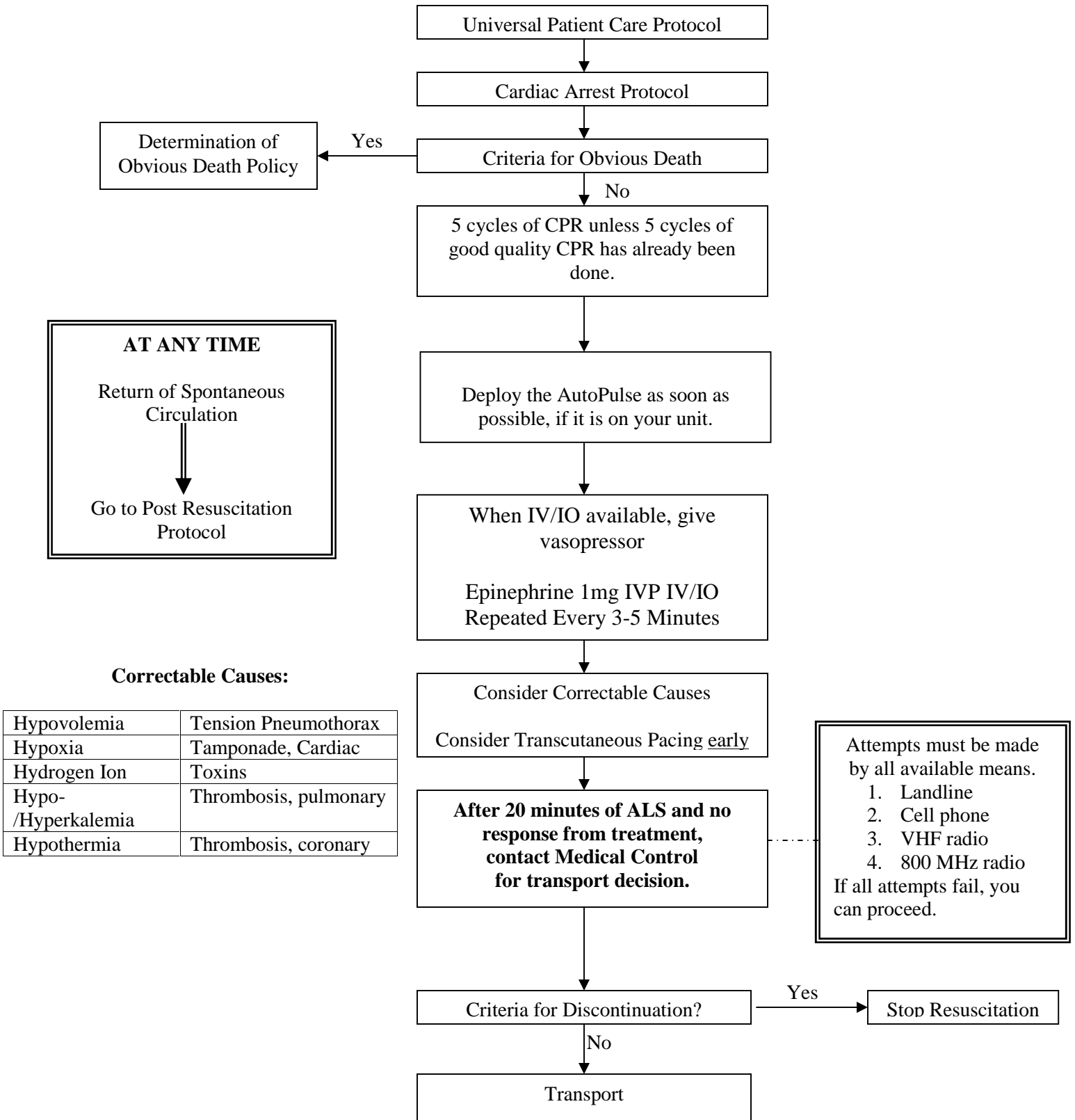
Harrison County Hospital EMS

Altered Mental Status EMT



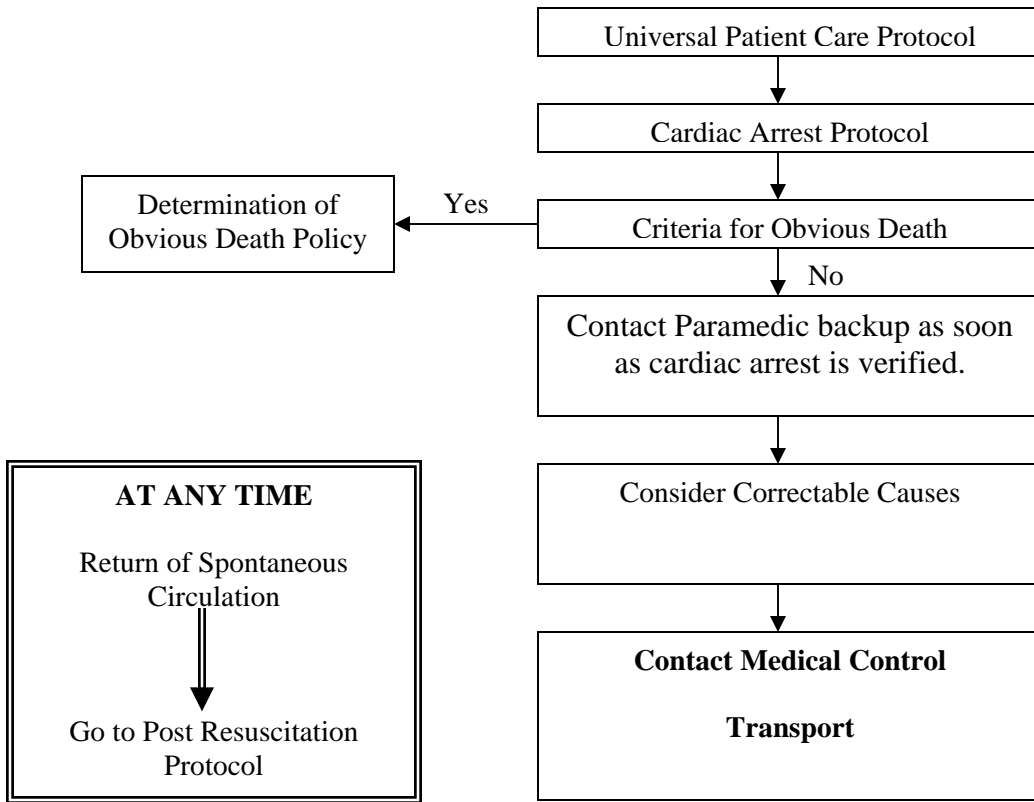
Harrison County Hospital EMS

Asystole - Adult



Harrison County Hospital EMS

Asystole - Adult Advanced EMT

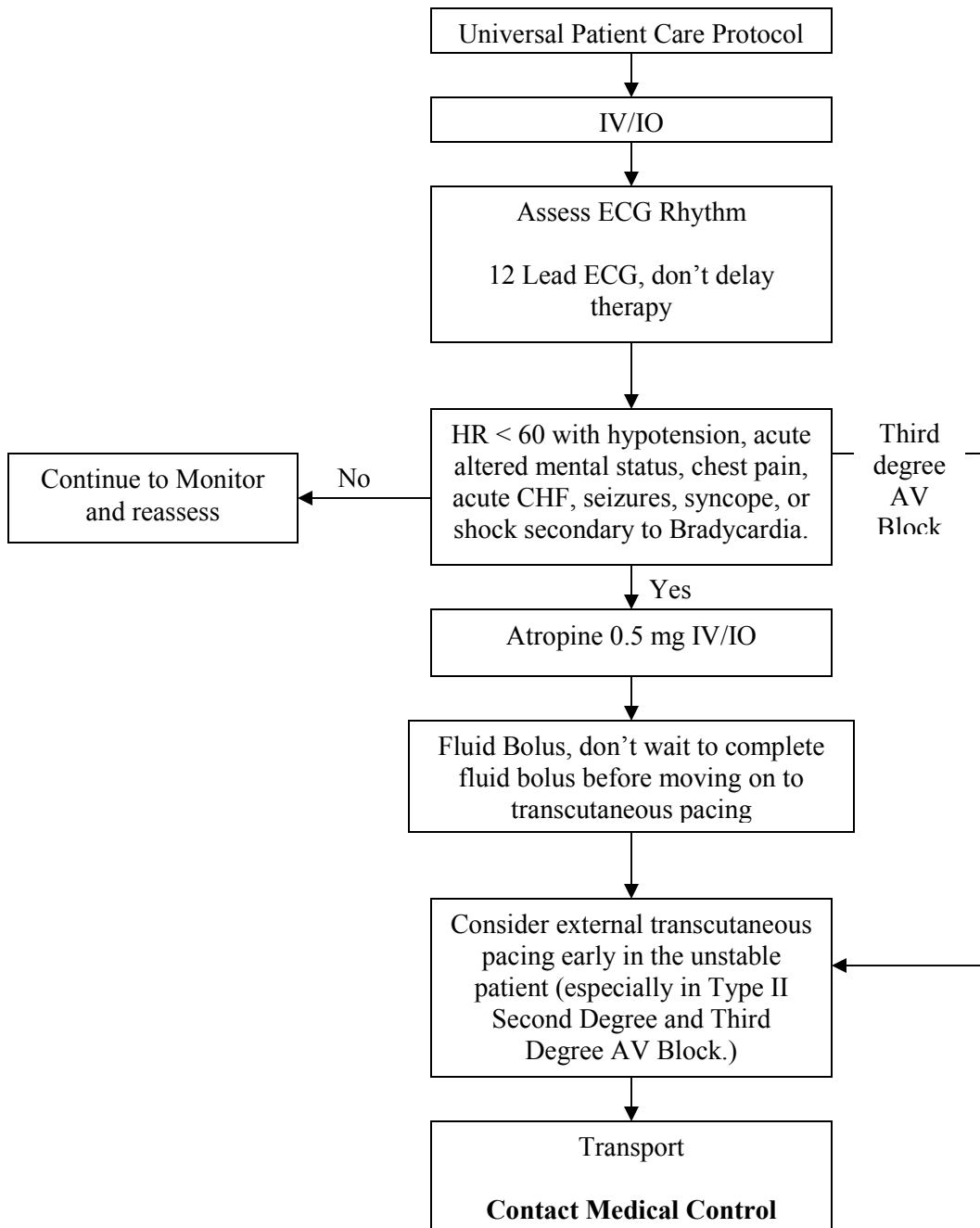


Correctable Causes:

Hypovolemia	Tension Pneumothorax
Hypoxia	Tamponade, Cardiac
Hydrogen Ion	Toxins
Hypo-/Hyperkalemia	Thrombosis, pulmonary
Hypothermia	Thrombosis, coronary

Harrison County Hospital EMS

Bradycardia - Adult

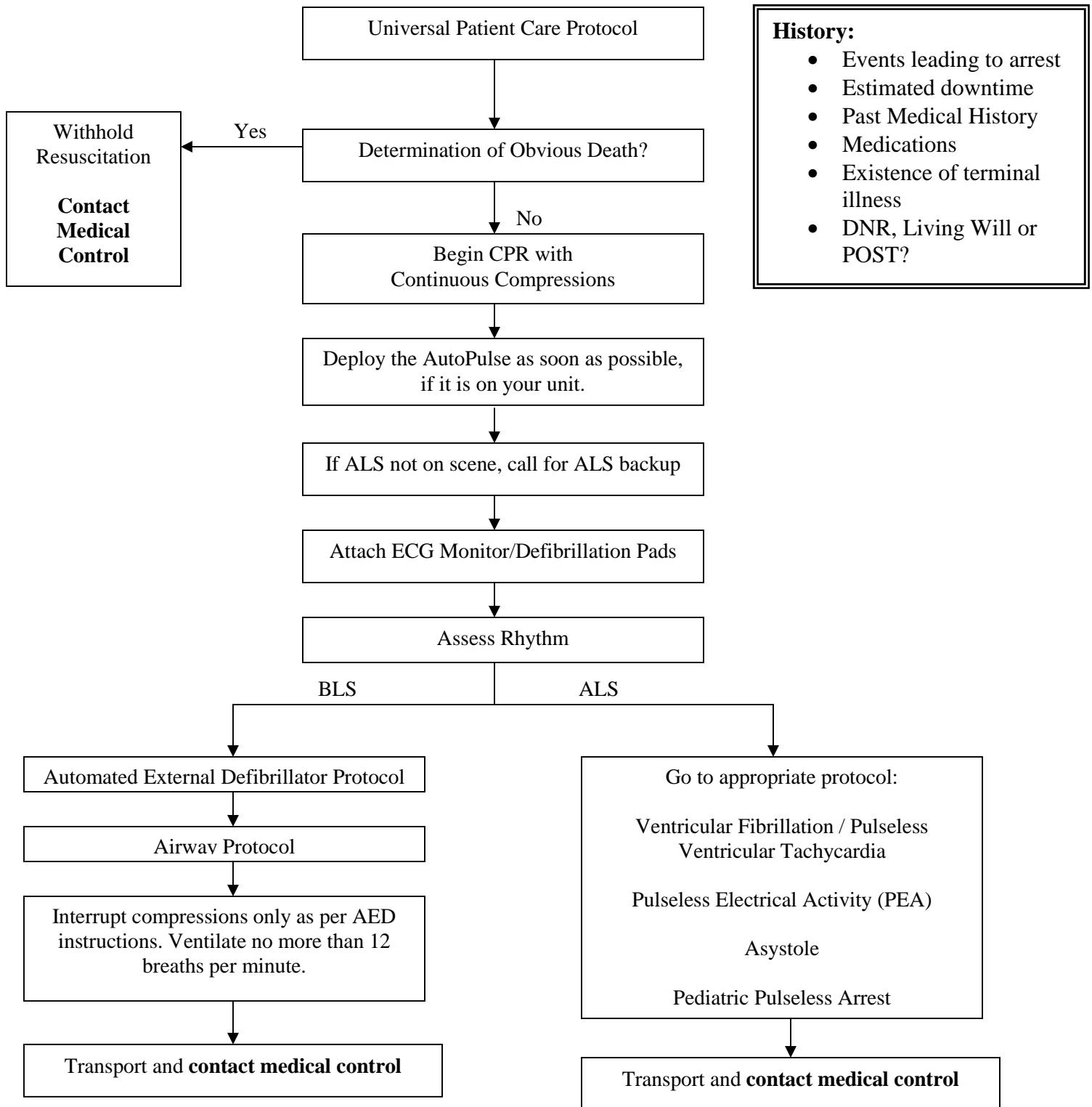


Notes:

- Treat the patient, not the monitor. Bradycardia does not necessarily mean the patient is symptomatic or unstable.
- Hypoxemia is a common cause of bradycardia. Correct oxygenation issues before proceeding to other therapy.
- 12 Lead ECG should be done as soon as possible based on patient condition. However, don't delay therapy to perform a 12 Lead ECG.

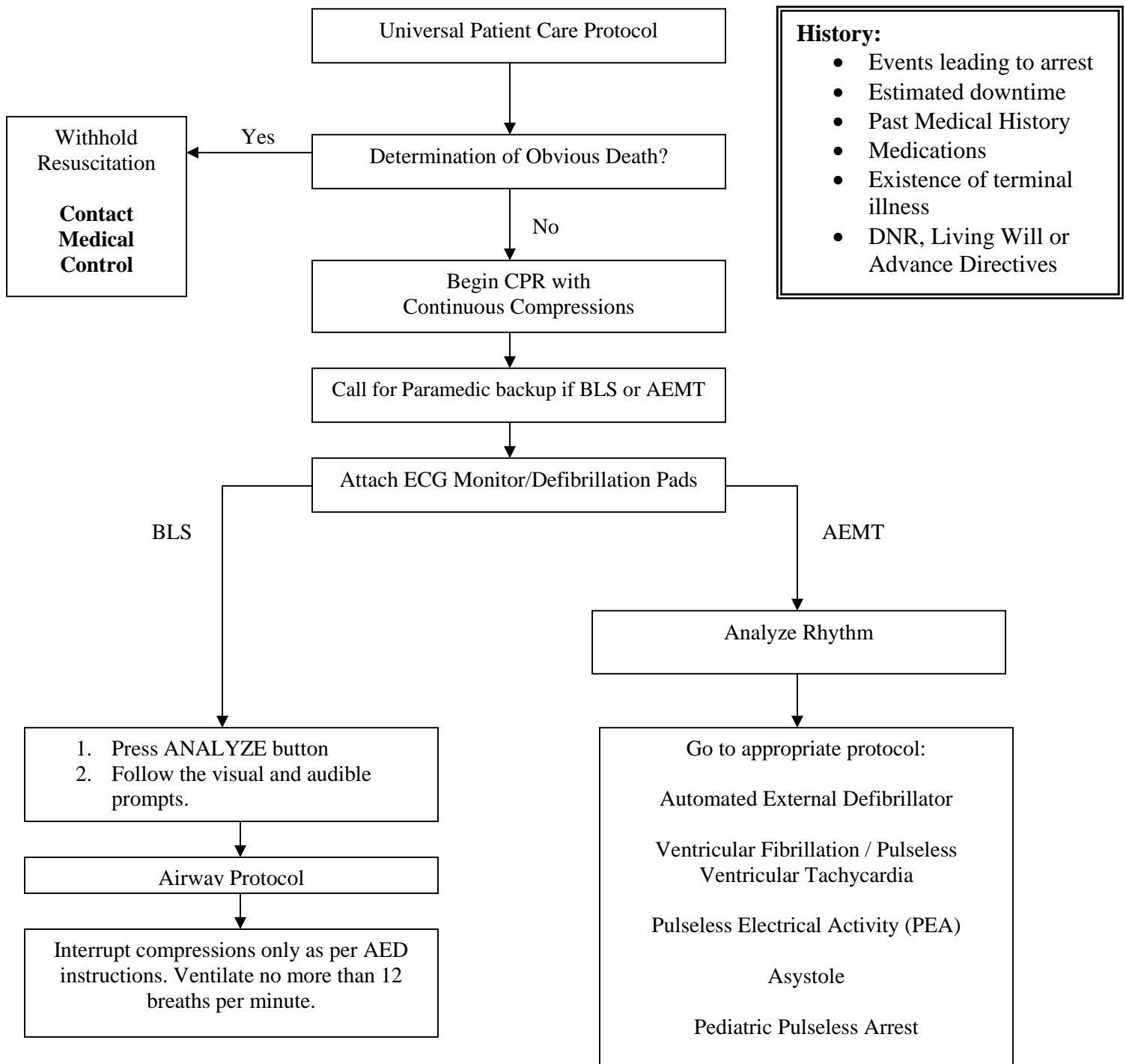
Harrison County Hospital EMS

Cardiac Arrest



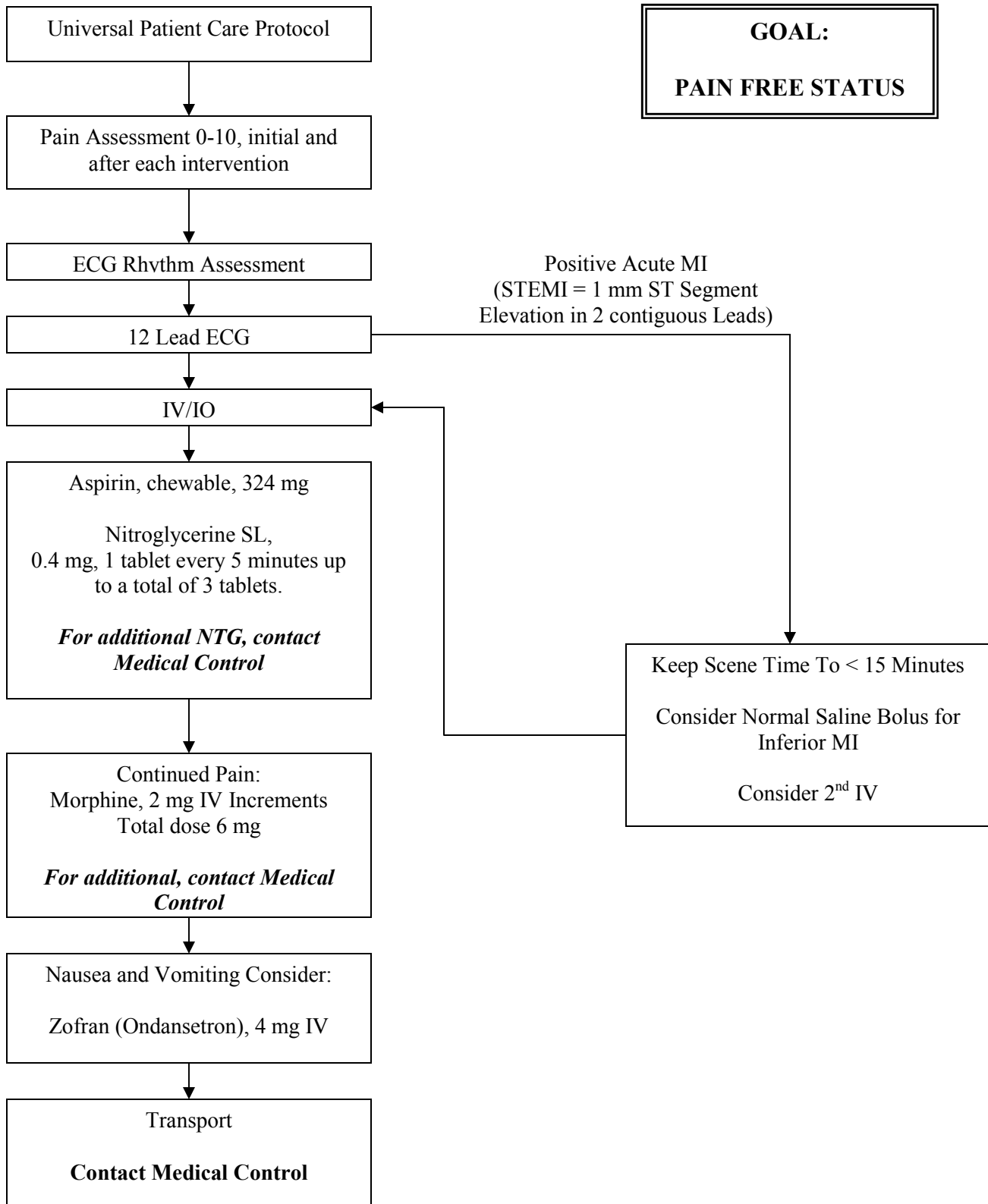
Harrison County Hospital EMS

Cardiac Arrest BLS / Advanced EMT



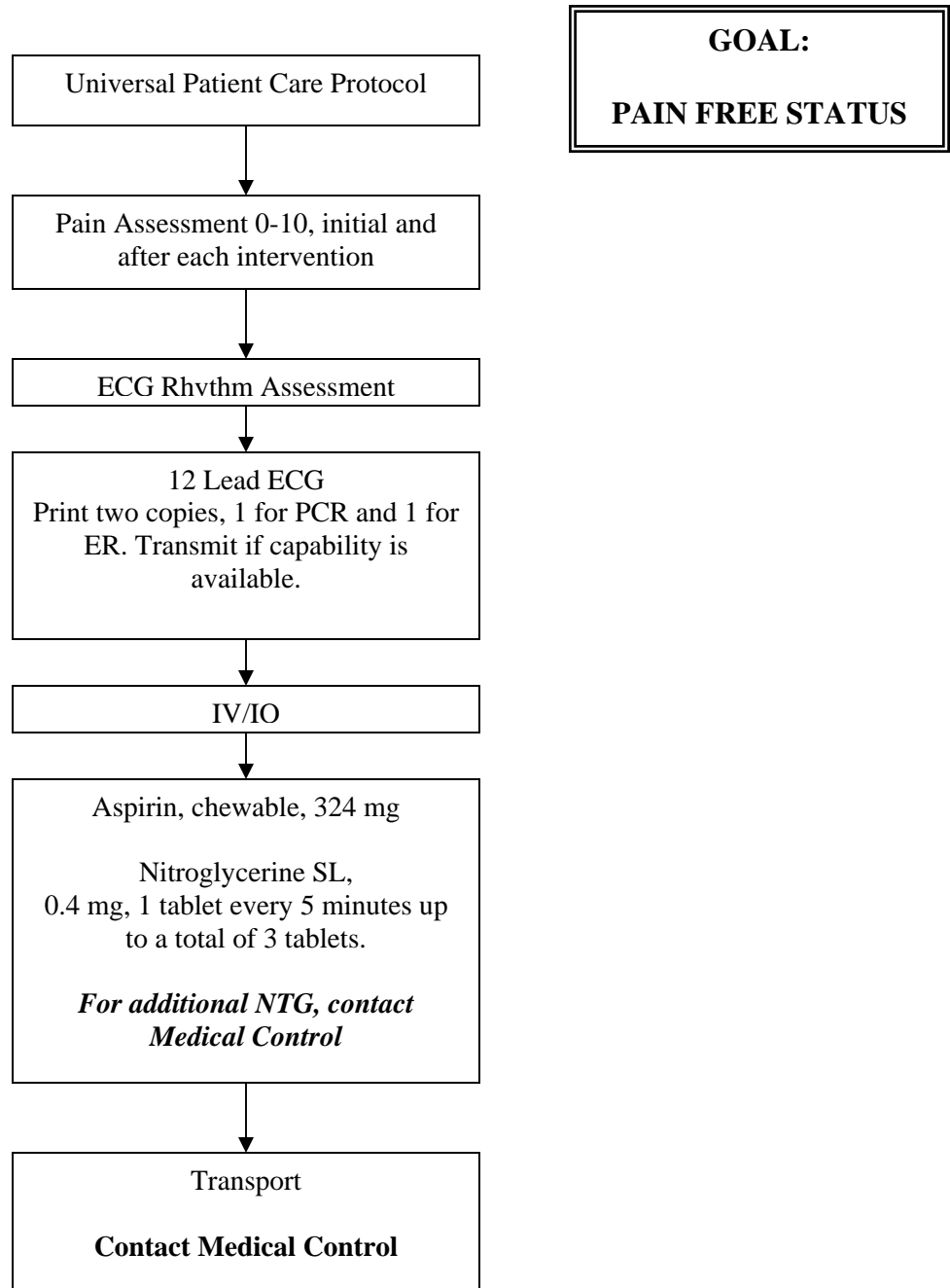
Harrison County Hospital EMS

Chest Pain: Cardiac and STEMI



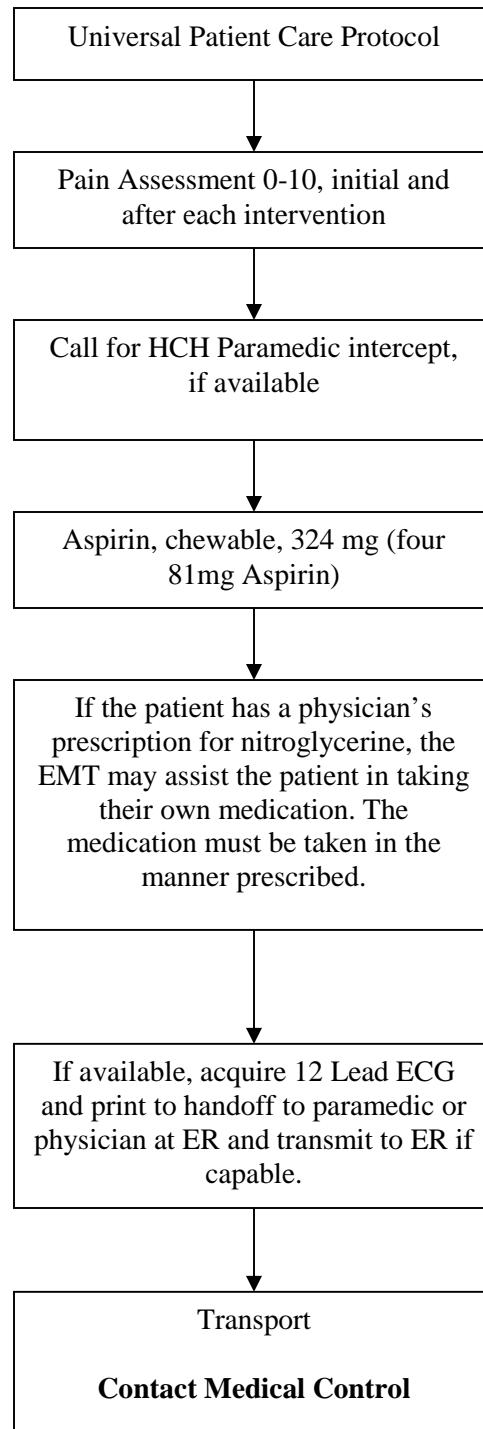
Harrison County Hospital EMS

Chest Pain: Cardiac and STEMI Advanced EMT



Harrison County Hospital EMS

Chest Pain: Cardiac - EMT



GOAL:
PAIN FREE STATUS

Hypertension

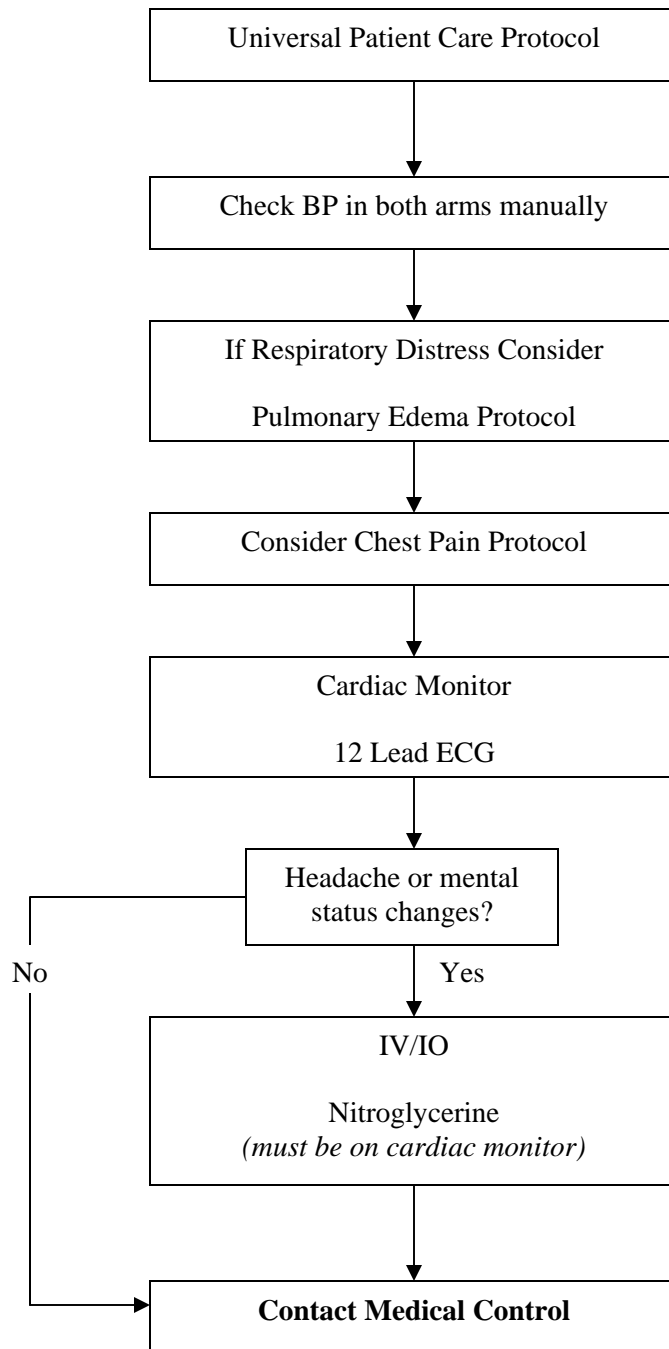
Definition of Hypertension:

One of these:

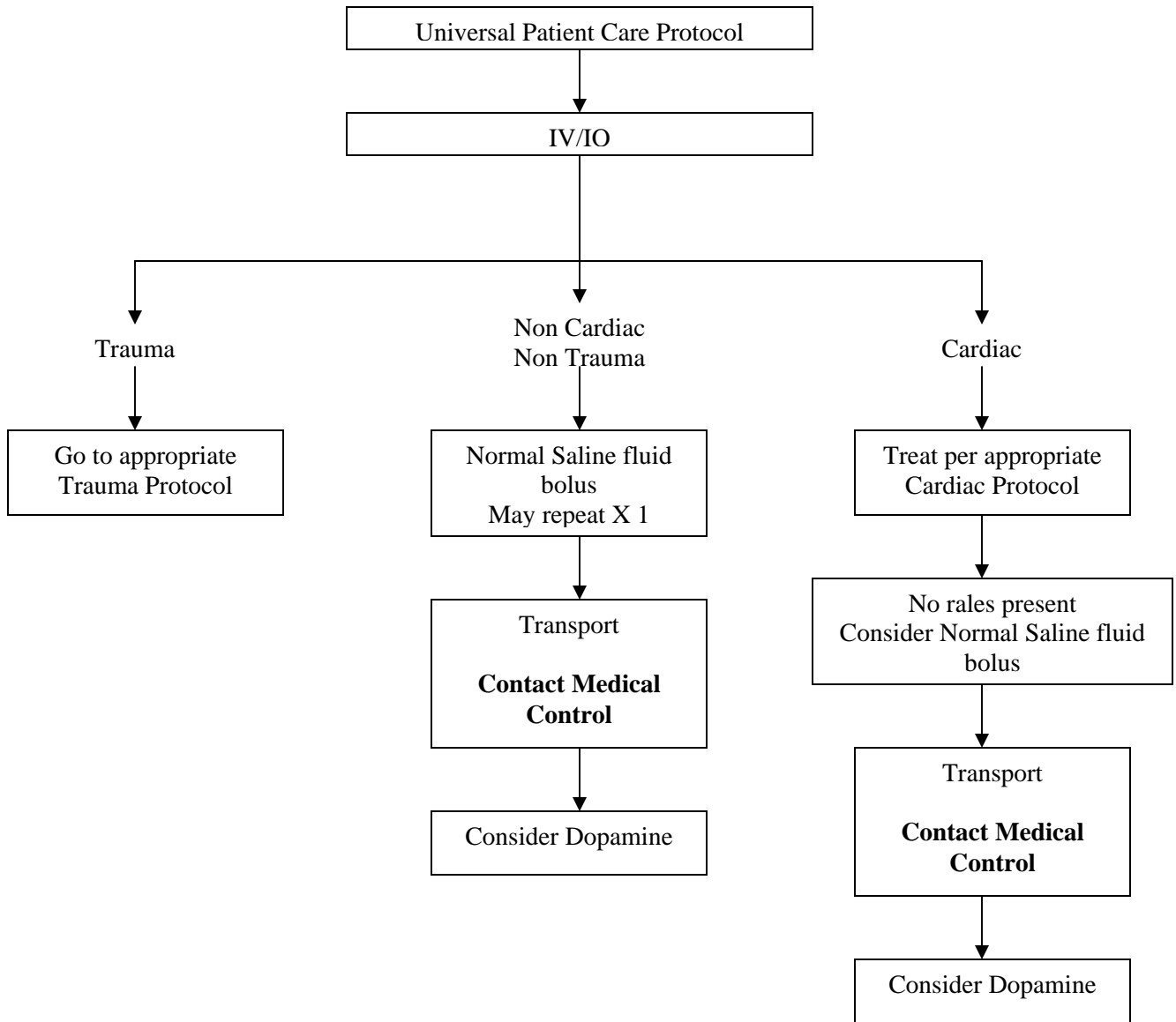
- Systolic BP 200 or greater
- Diastolic BP 110 or greater

AND at least one of these:

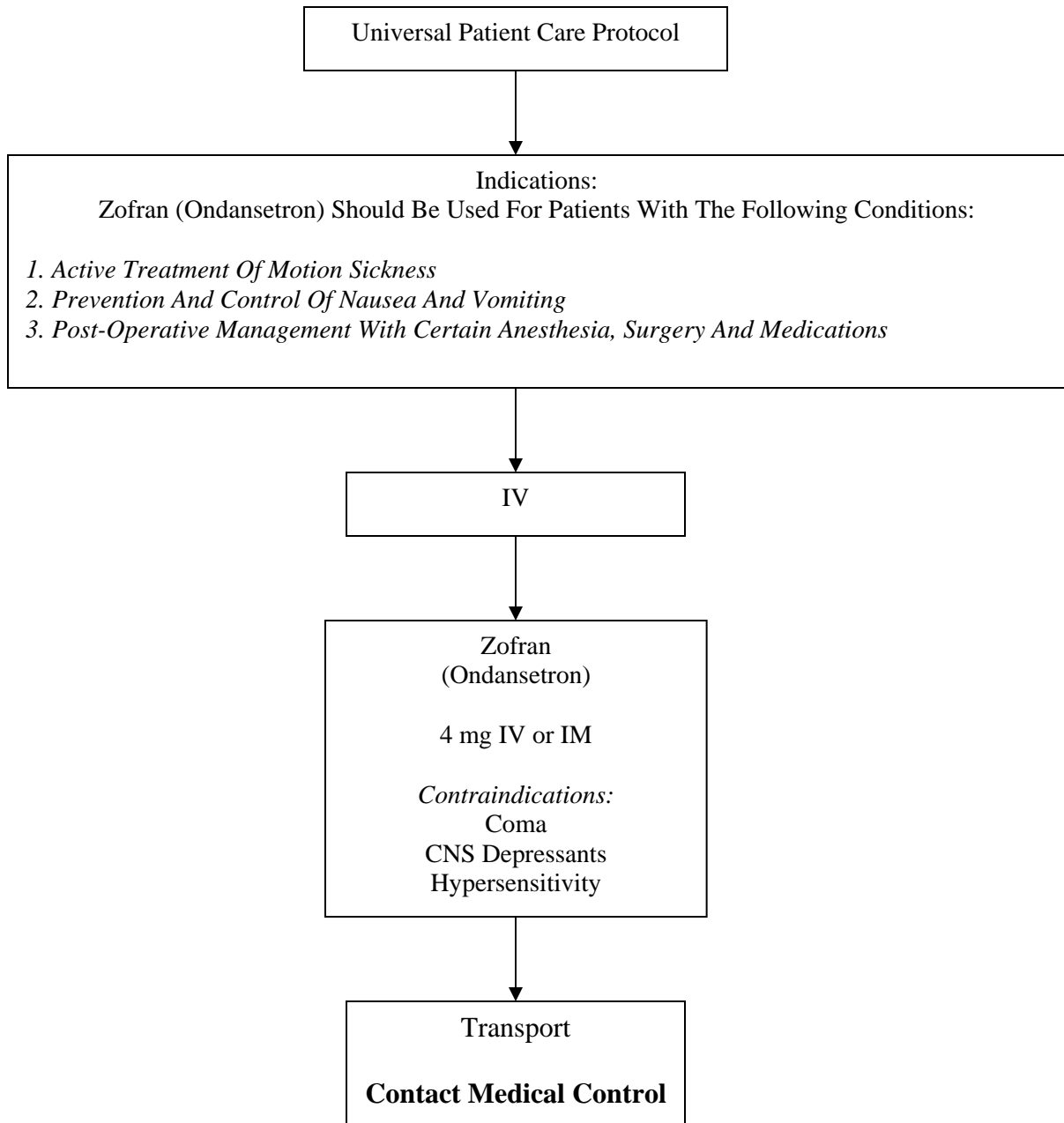
- Headache
- Nosebleed
- Blurred vision
- Dizziness



Hypotension

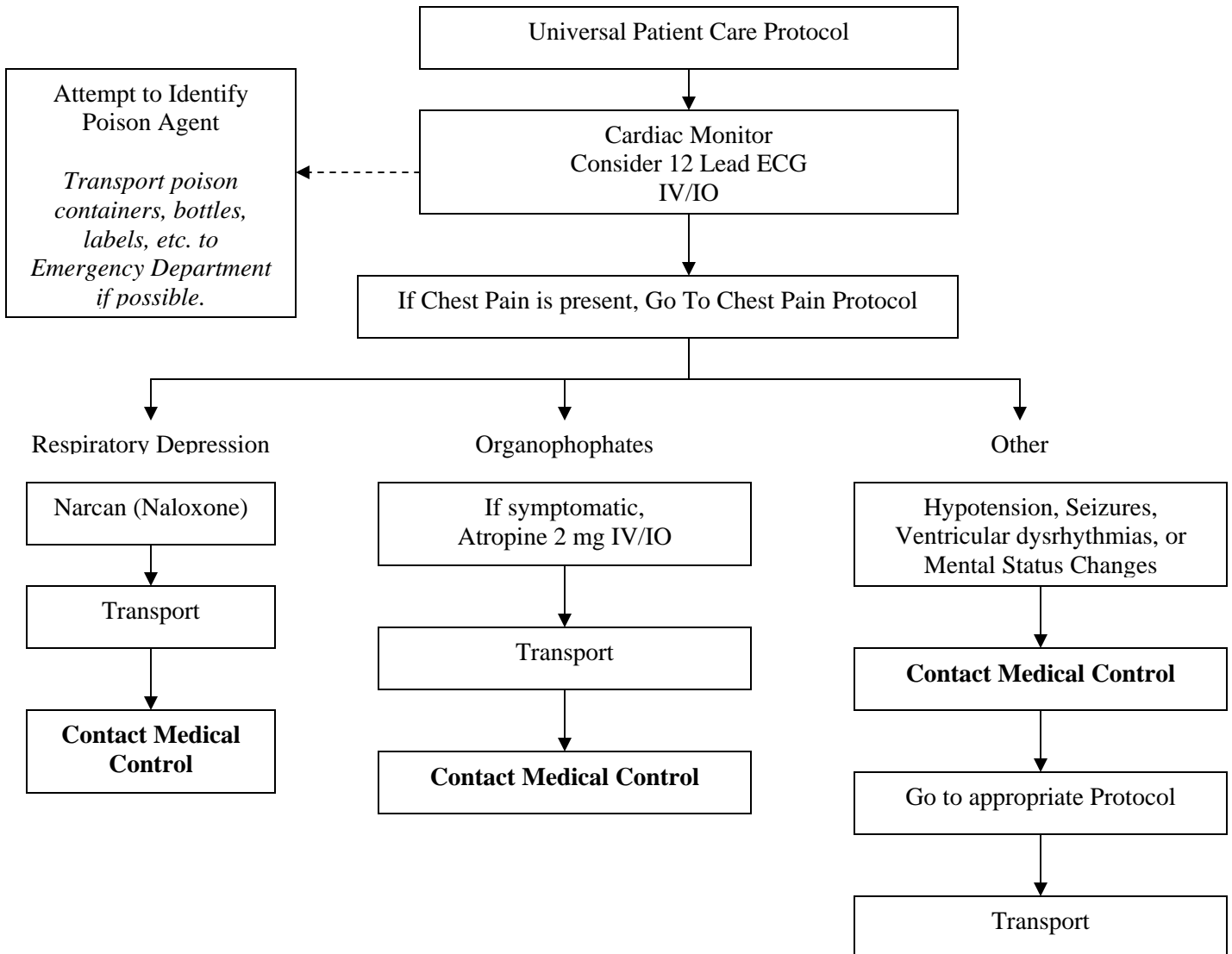


Nausea/Vomiting



Harrison County Hospital EMS

Poisoning/Overdose/Toxic Ingestion



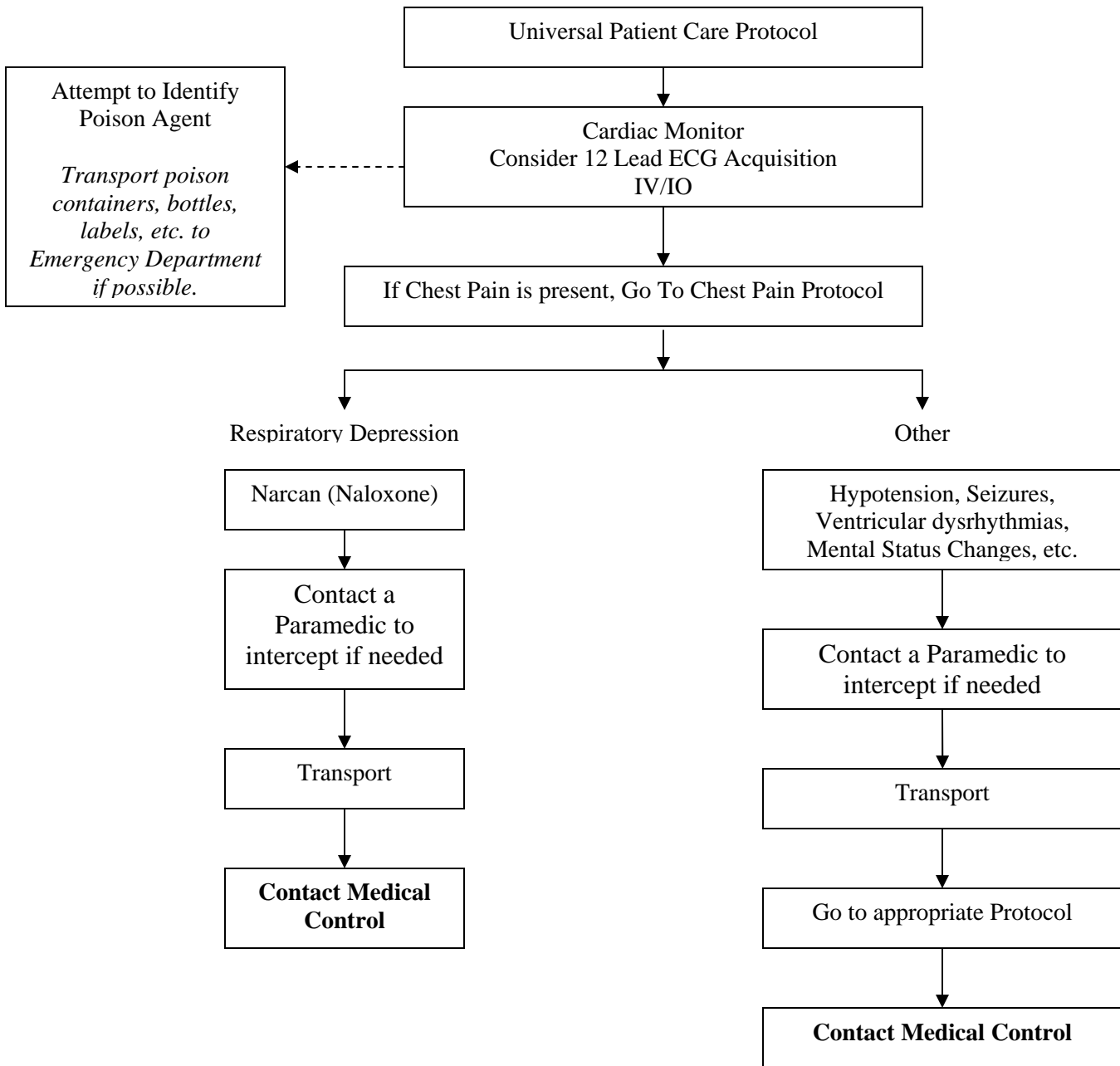
NOTE:

If poison substance is identified, you may contact Poison Control for recommendations.

1-800-222-1222

Harrison County Hospital EMS

Poisoning/Overdose/Toxic Ingestion Advanced EMT



NOTE:

If poison substance is identified, you may contact Poison Control for recommendations.

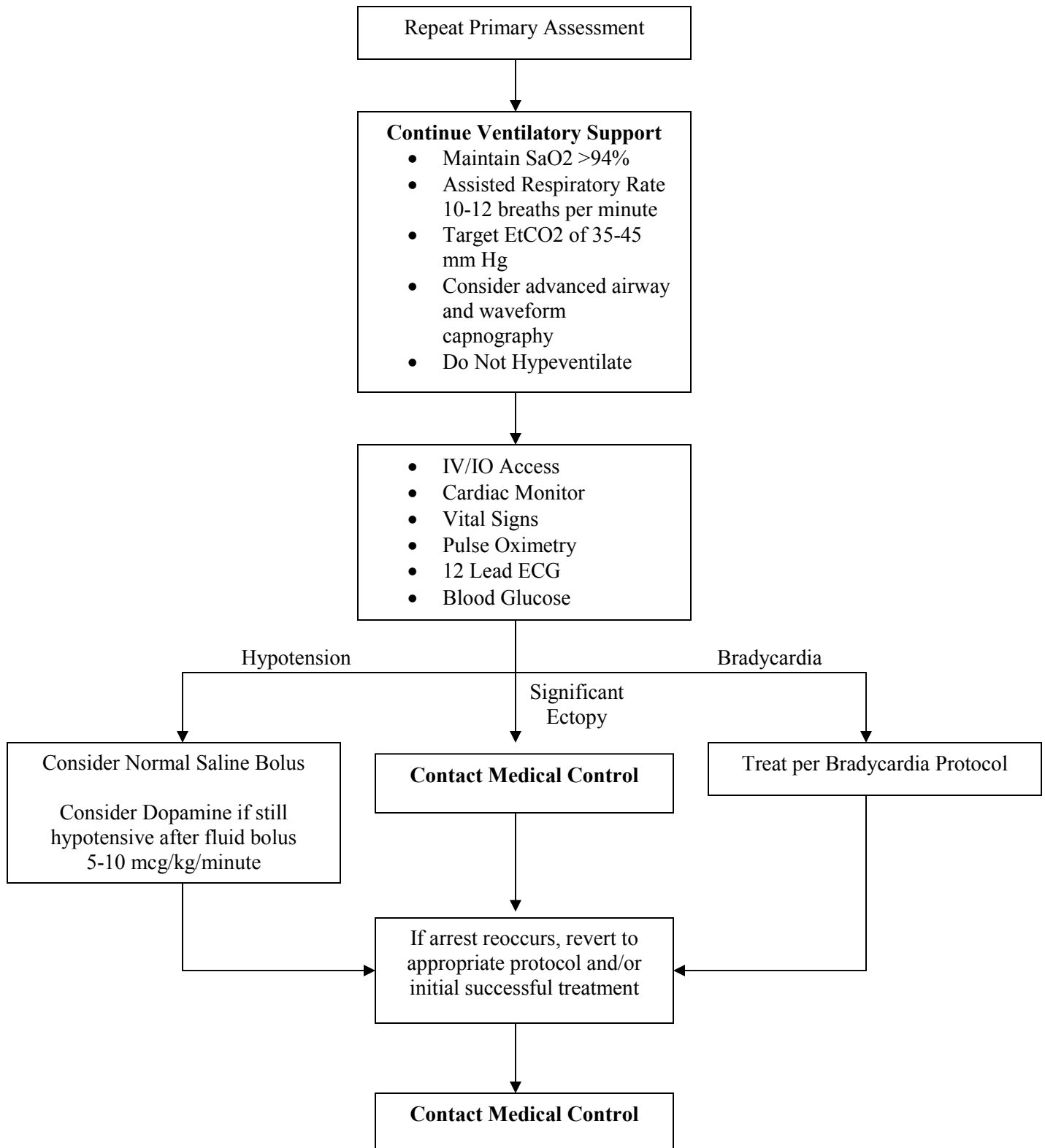
1-800-222-1222

Approved

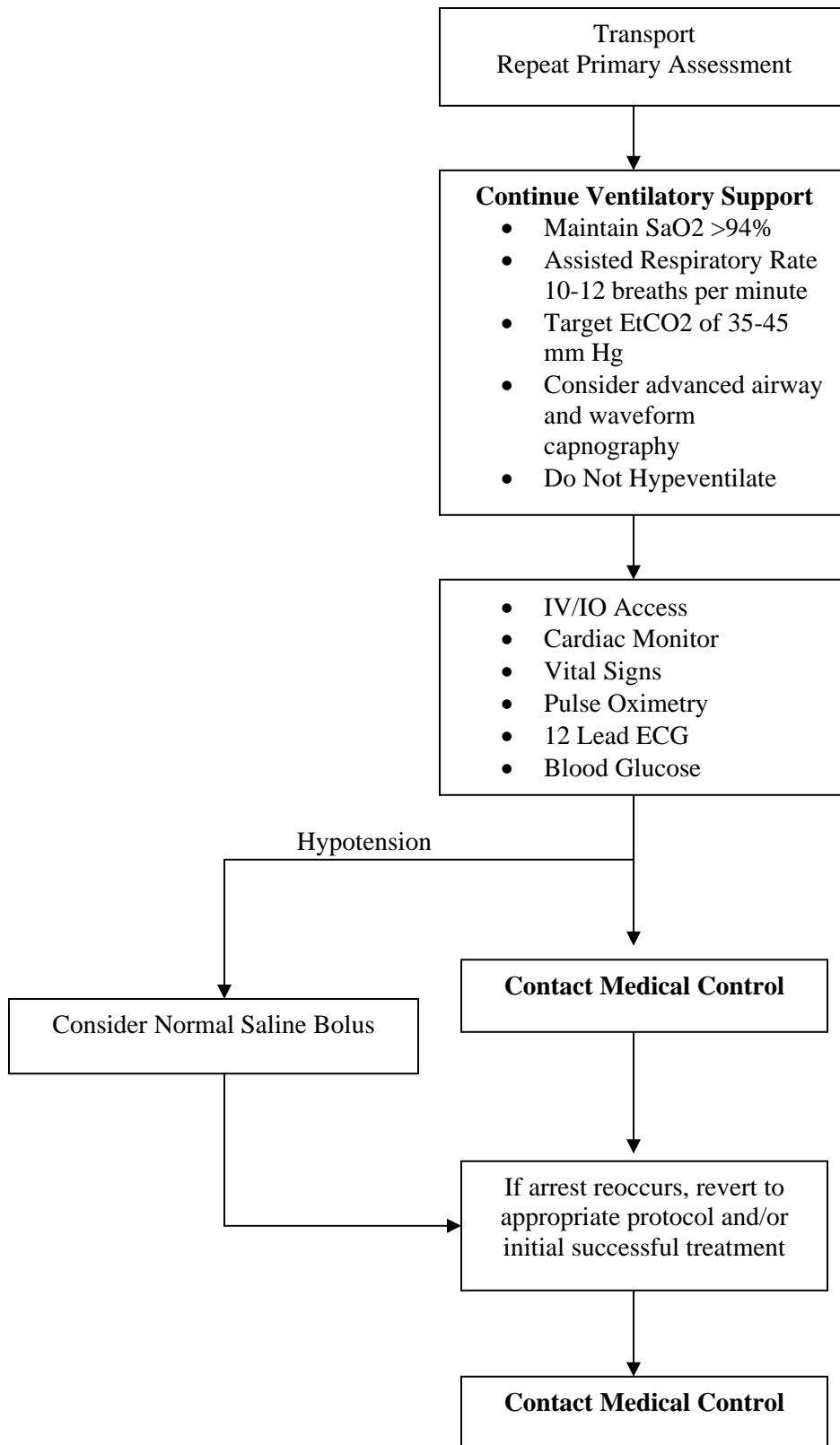
Stephen Bodney, MD

Date

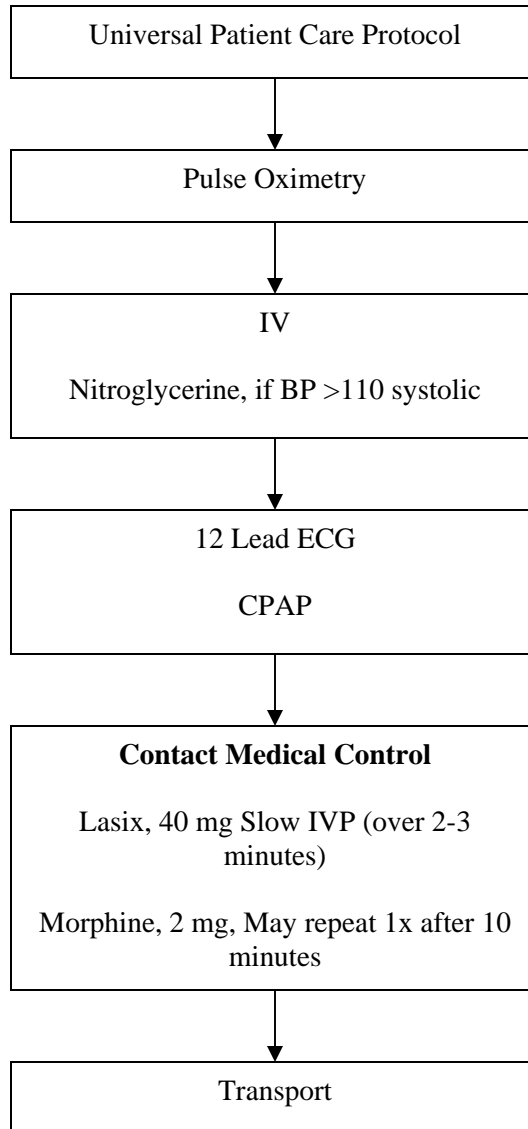
Harrison County Hospital EMS Post Resuscitation Care (ROSC)



**Harrison County Hospital EMS
Post Resuscitation Care (ROSC)
Advanced EMT**



Pulmonary Edema

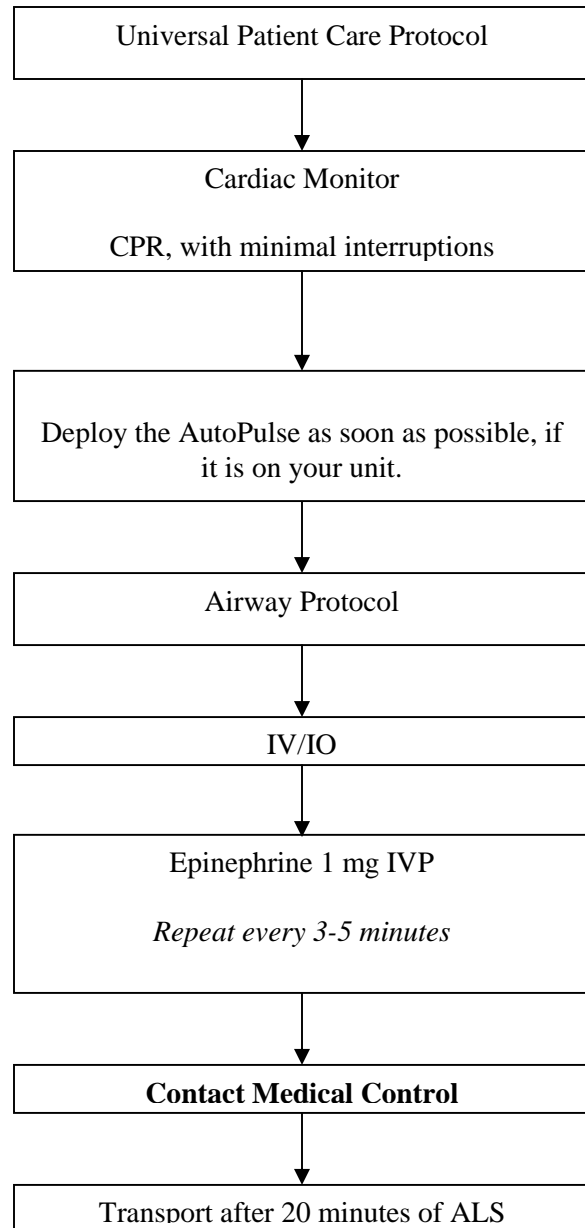
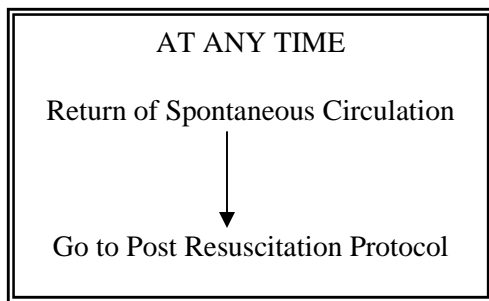


Harrison County Hospital EMS

Pulseless Electrical Activity (PEA)

Consider causes early in all PEA patients:

Hypovolemia	Tension Pneumothorax
Hypoxia	Tamponade, cardiac
Hydrogen ion	Toxins
Hypo/Hyperkalemia	Thrombosis, pulmonary
Hypothermia	Thrombosis, coronary

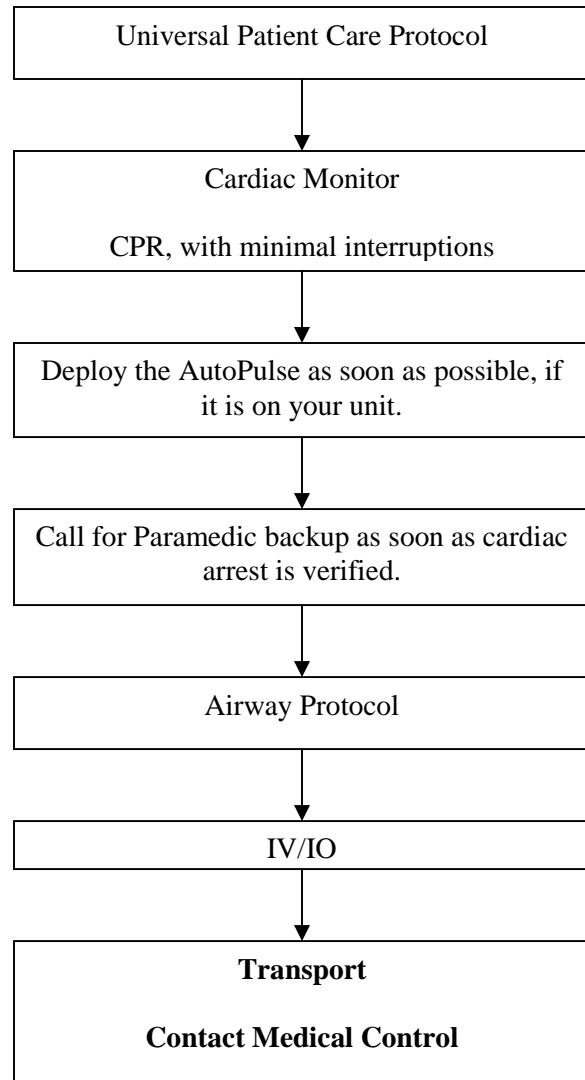
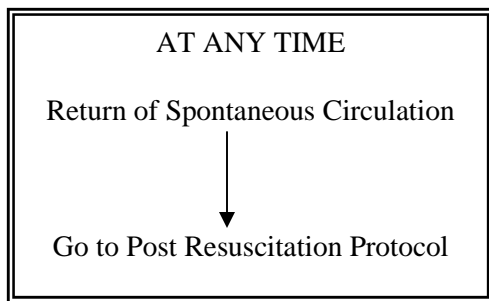


Harrison County Hospital EMS

Pulseless Electrical Activity (PEA) Advanced EMT

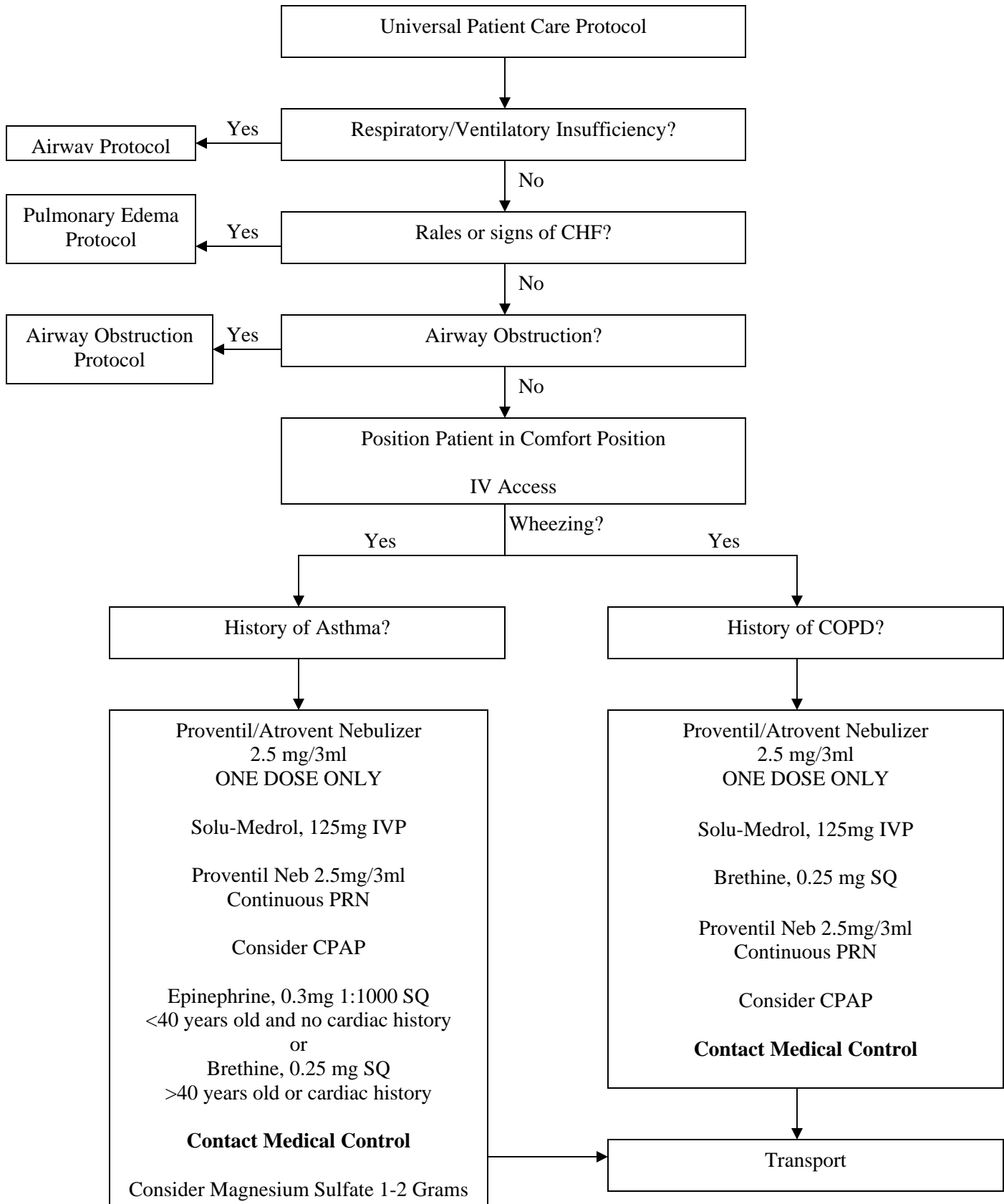
Consider causes early in all PEA patients:

Hypovolemia	Tension Pneumothorax
Hypoxia	Tamponade, cardiac
Hydrogen ion	Toxins
Hypo/Hyperkalemia	Thrombosis, pulmonary
Hypothermia	Thrombosis, coronary



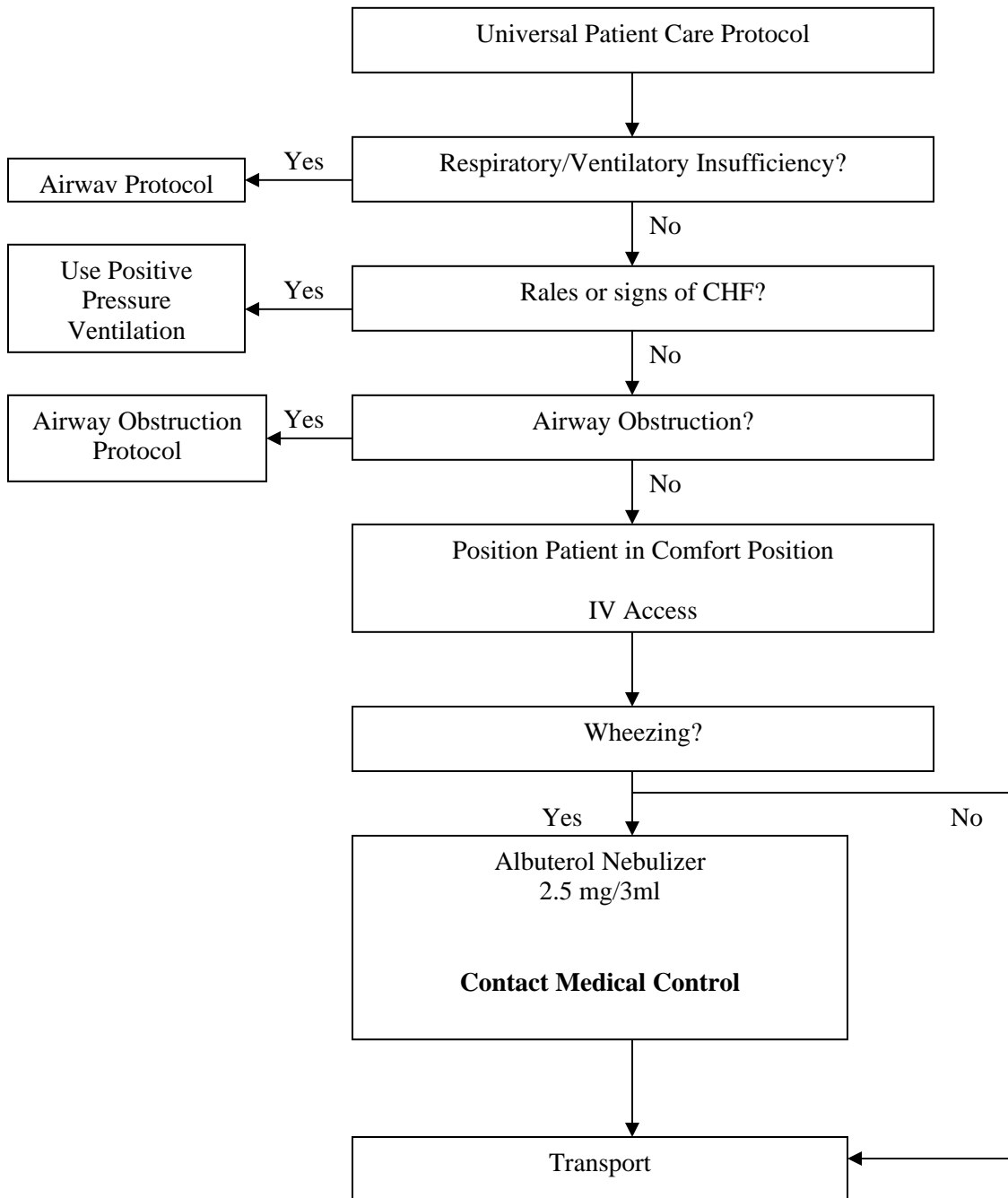
Harrison County Hospital EMS

Respiratory Distress



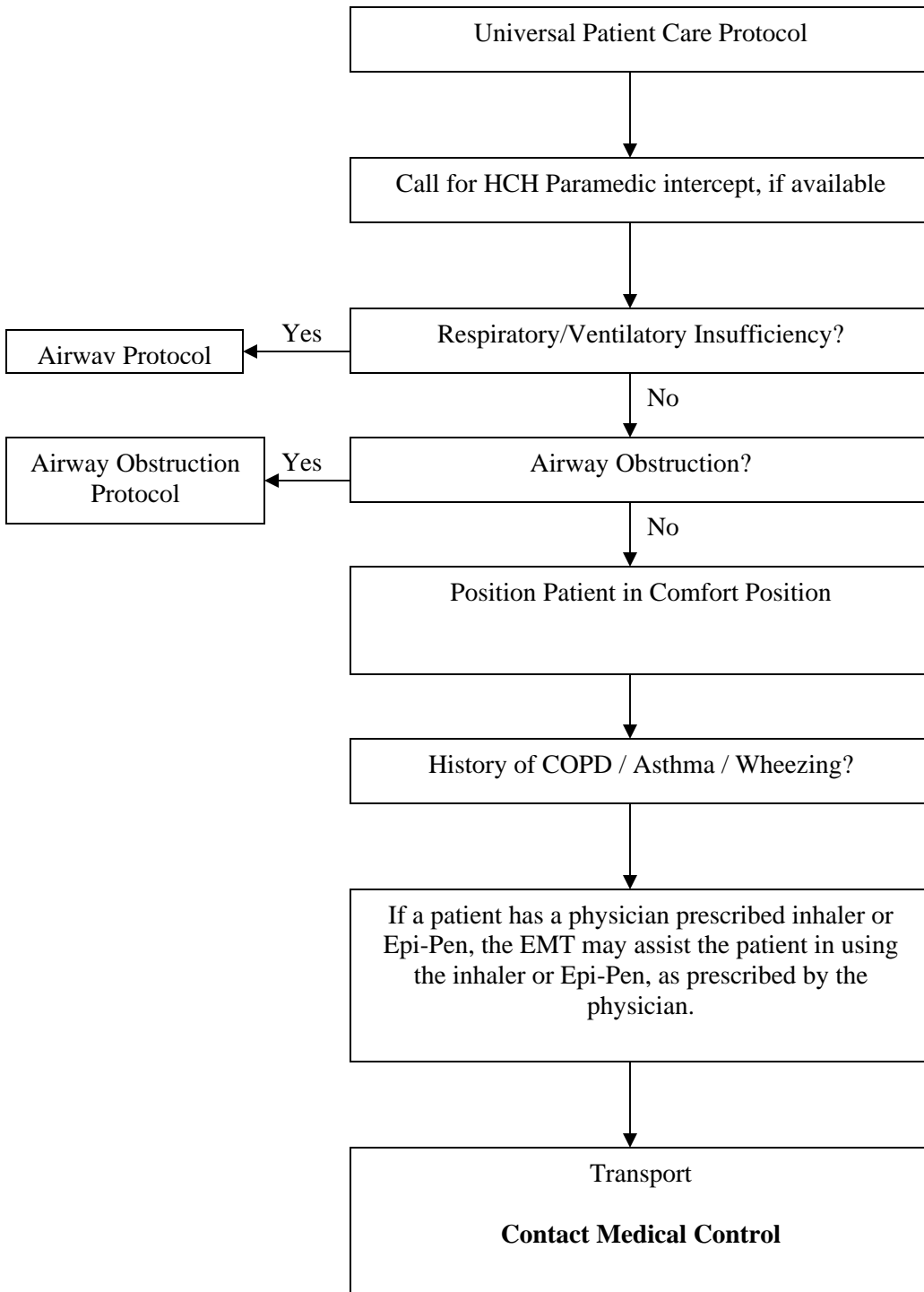
Harrison County Hospital EMS

Respiratory Distress Advanced EMT



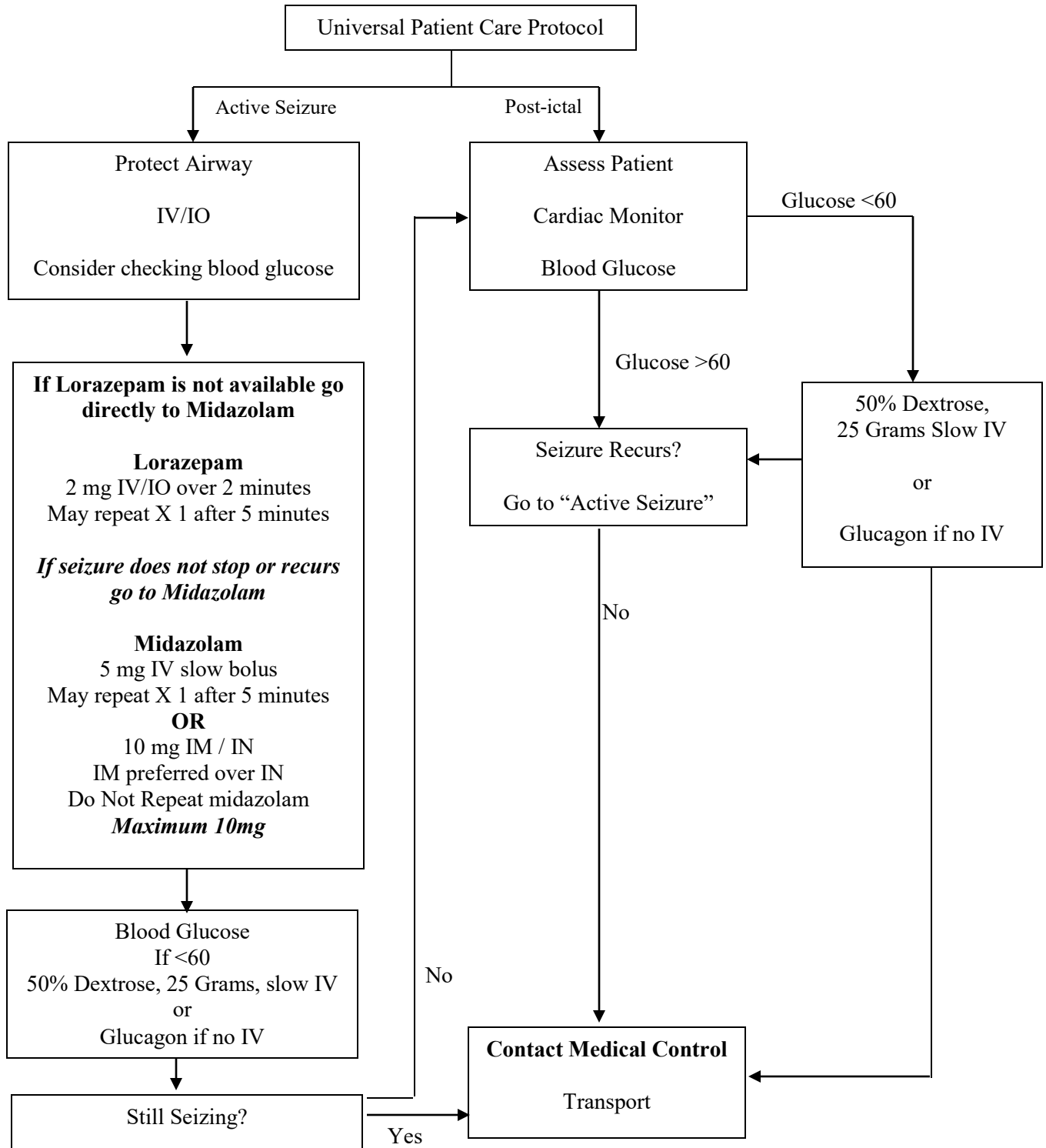
Harrison County Hospital EMS

Respiratory Distress: EMT



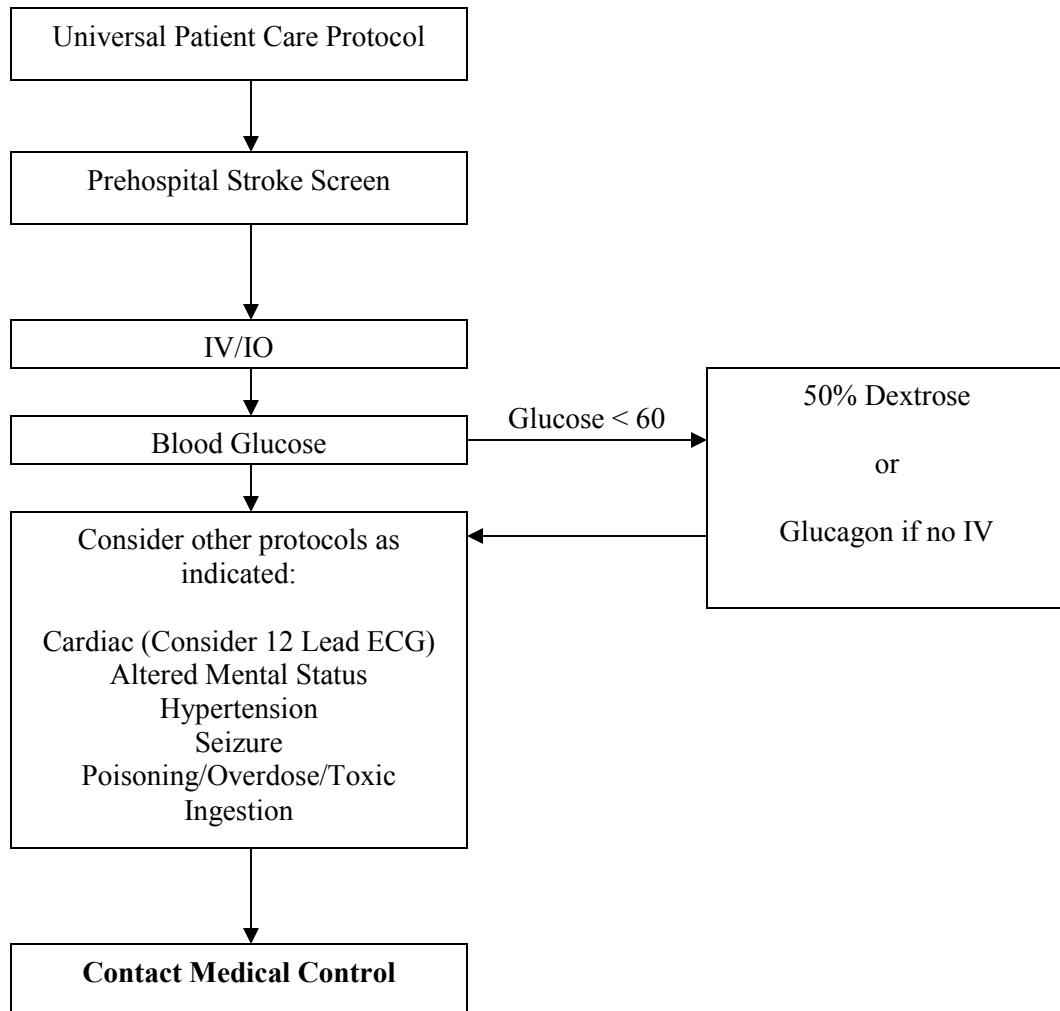
Harrison County Hospital EMS

Seizure > 40 kg (88 lbs.)

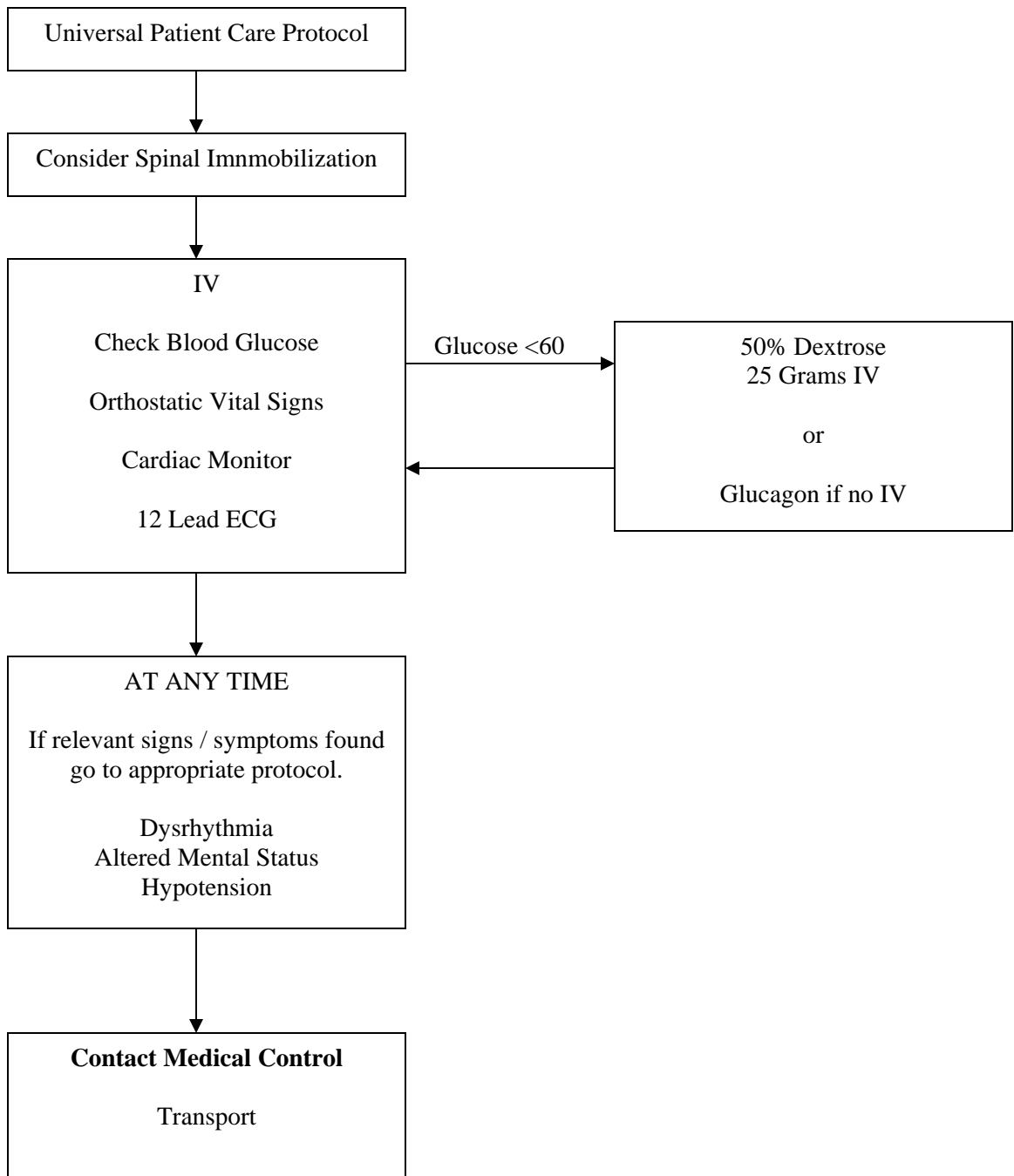


Harrison County Hospital EMS

Suspected Stroke



Syncope



Harrison County Hospital EMS

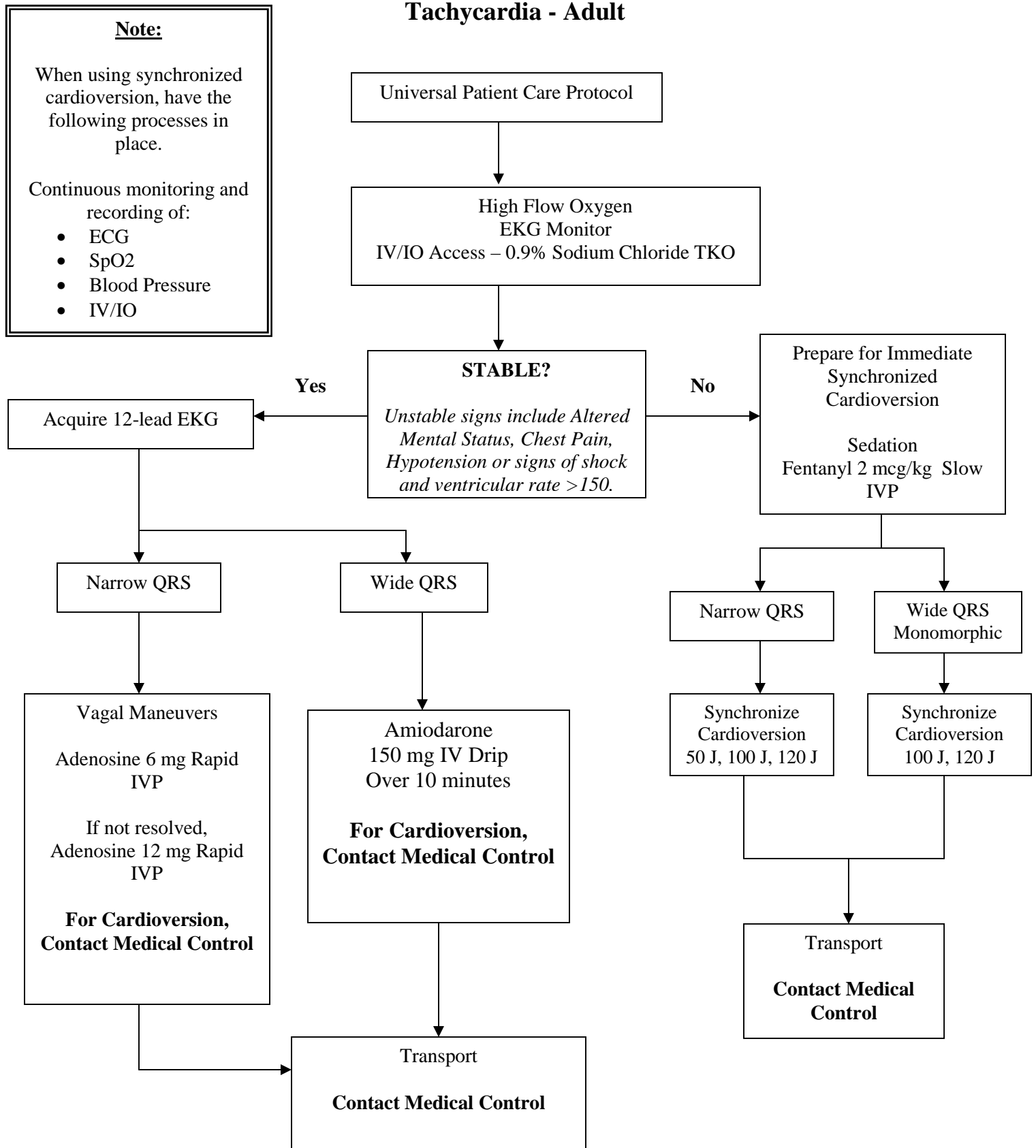
Tachycardia - Adult

Note:

When using synchronized cardioversion, have the following processes in place.

Continuous monitoring and recording of:

- ECG
- SpO2
- Blood Pressure
- IV/IO



Harrison County Hospital EMS

CODE STEMI

Applies only to Norton Hospital Downtown

Access Center 1-888-486-6786

State "CODE STEMI", give patient's name and any other demographic information you have time to give.

Before Coming To This Protocol:

Begin treatment following the Chest Pain – Cardiac & STEMI protocol.

Clinical Criteria for Catheterization Lab Activation:

ALL MUST BE PRESENT FOR ACTIVATION!

1. Active chest pain or equivalent symptoms (dyspnea, nausea, weakness, etc.).
2. An especially high index of suspicion, considering risk factors for coronary artery disease (hypertension, hypercholesterolemia, smoking, diabetes, etc).
3. 12 lead ECG of good quality showing STEMI.
 - a. ST elevation >2 mm in at least 2 anatomically contiguous leads.
 - b. QRS duration <0.12 seconds (**No LBBB**)
4. Age <85
5. No major active bleeding.
6. No major surgery in past 6 weeks.
7. No significant trauma (steps 2-4 of CDC Triage Decision Scheme)
8. Patient is able to provide informed consent or a legal representative is with the patient to provide consent.
9. Ask the patient if they have a cardiologist and get the name.

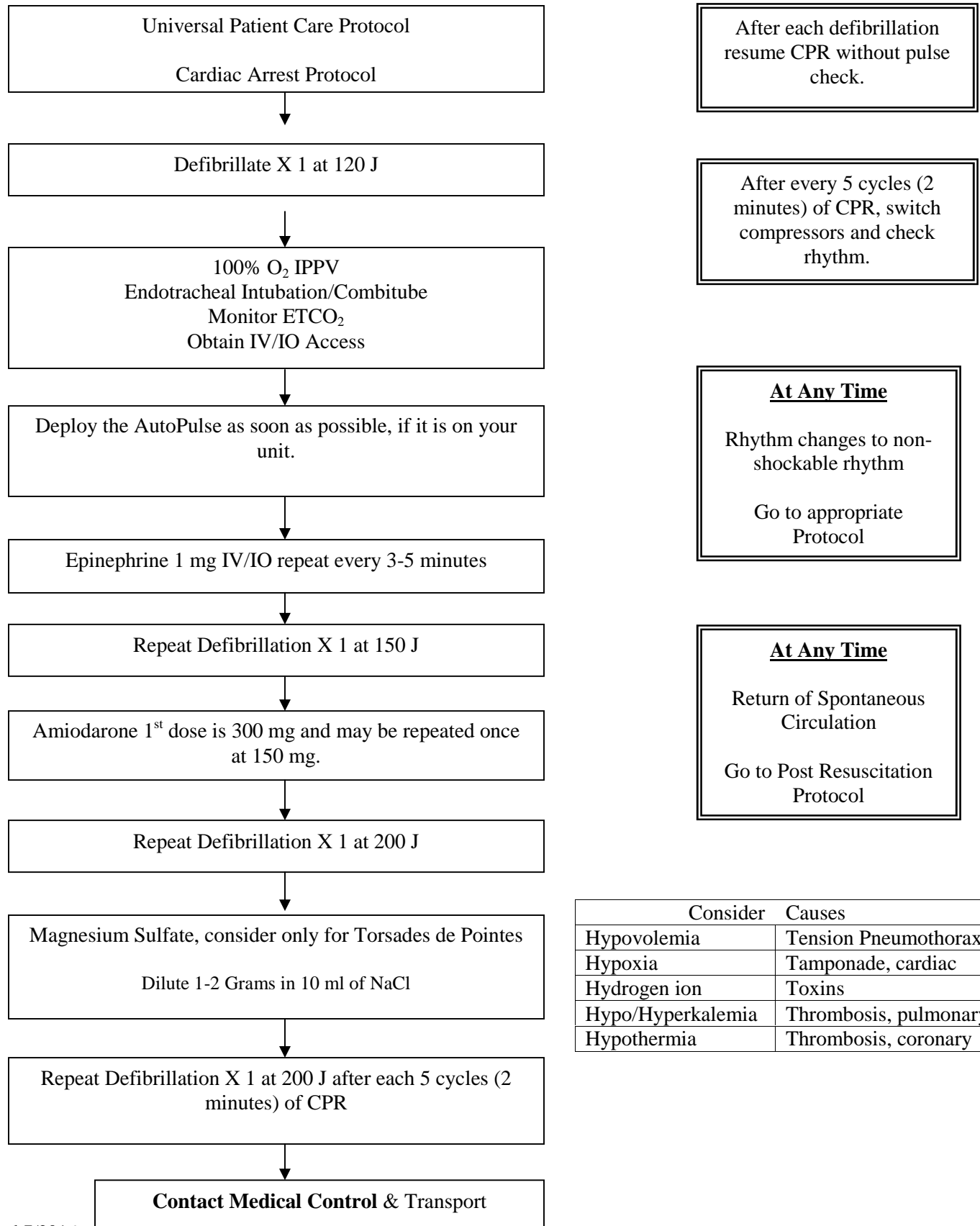
Documentation:

1. All information above must be documented in the PCR as well as the Zoll X-Series data imported into the PCR. If the X-Series data cannot be imported due to an IT problem, contact the EMS Education Coordinator to have the data removed manually from the monitor.

If patient goes into cardiac arrest during transport, divert to the nearest ER. If you have crossed the Sherman Minton bridge when cardiac arrest occurs, proceed to Norton Downtown. Notify the Emergency Department as soon as possible at (502) 629-3434.

Harrison County Hospital EMS

VENTRICULAR FIBRILLATION/PULSELESS VENTRICULAR TACHYCARDIA (VF/VT) - Adult



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Harrison County Hospital EMS

Burns: Chemical and Electrical

Note:

All patients should be decontaminated before EMS receives them.

Universal Patient Care Protocol

Cardiac Monitor

Eye Involvement? Continuous saline flush in affected eye. Flush eye with water or Normal Saline for 10-15 minutes.

Remove rings, bracelets, and other constricting items. Remove clothing or expose area.

Identify entry and exit sites, apply sterile dressings.

IV/IO

Pain Control Protocol

Critical

Serious

Minor

>15% TBSA 2nd / 3rd Degree Burn
Burns with Multiple Trauma
Burns with definitive airway compromise

Transport to Trauma Center

Consider Aeromedical Transport

5-15% TBSA 2nd / 3rd Degree Burn
Suspected Inhalation injury or requiring intubation for airway stabilization.
Hypotension or GCS < 14

Transport to Trauma Center

Consider Aeromedical Transport

< 5% TBSA 2nd / 3rd Degree Burn
No Inhalation Injury, Not Intubated, Normotensive
GCS >14

Contact Medical Control about transport decision

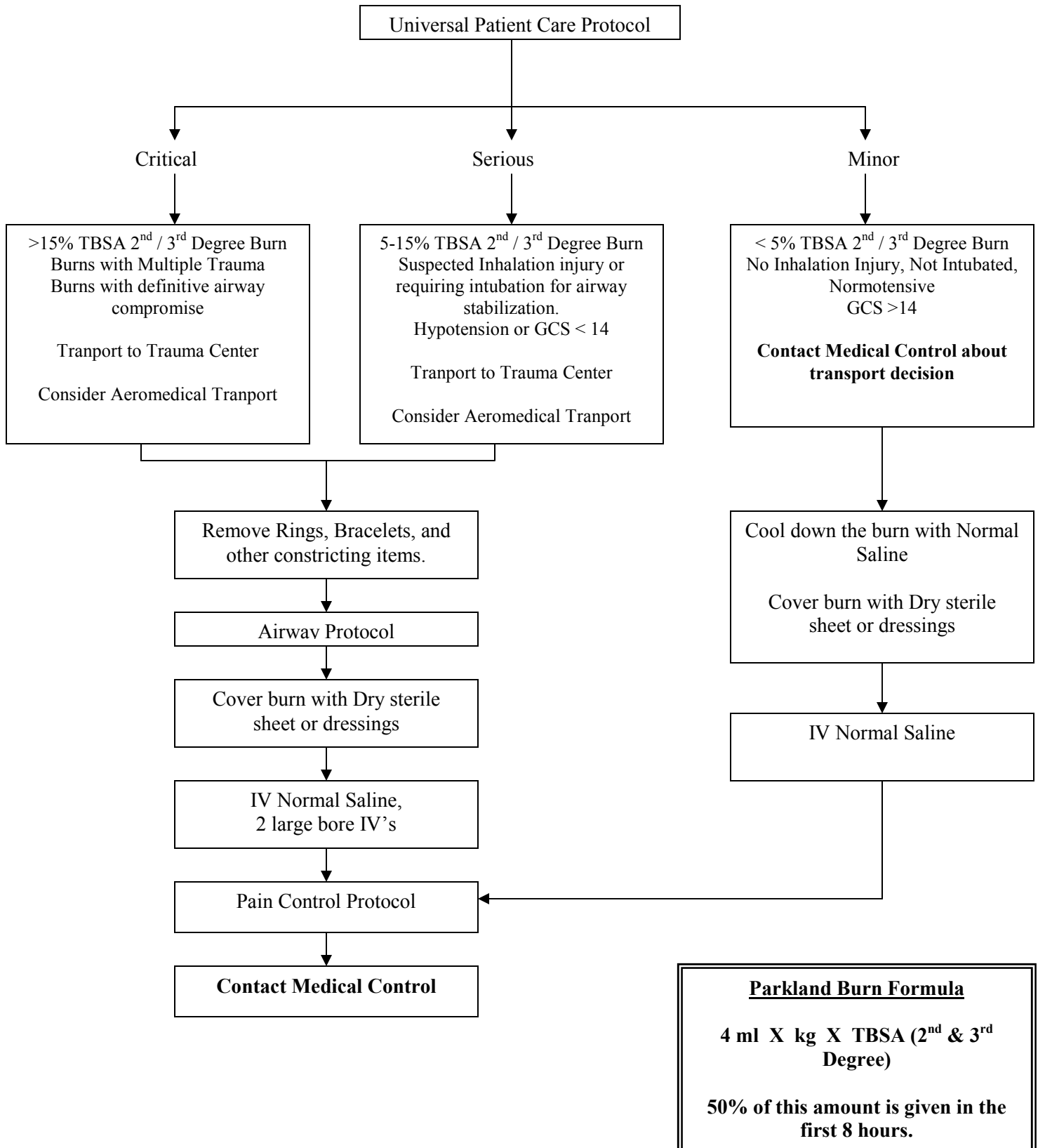
Transport

Go to Thermal Burn Protocol

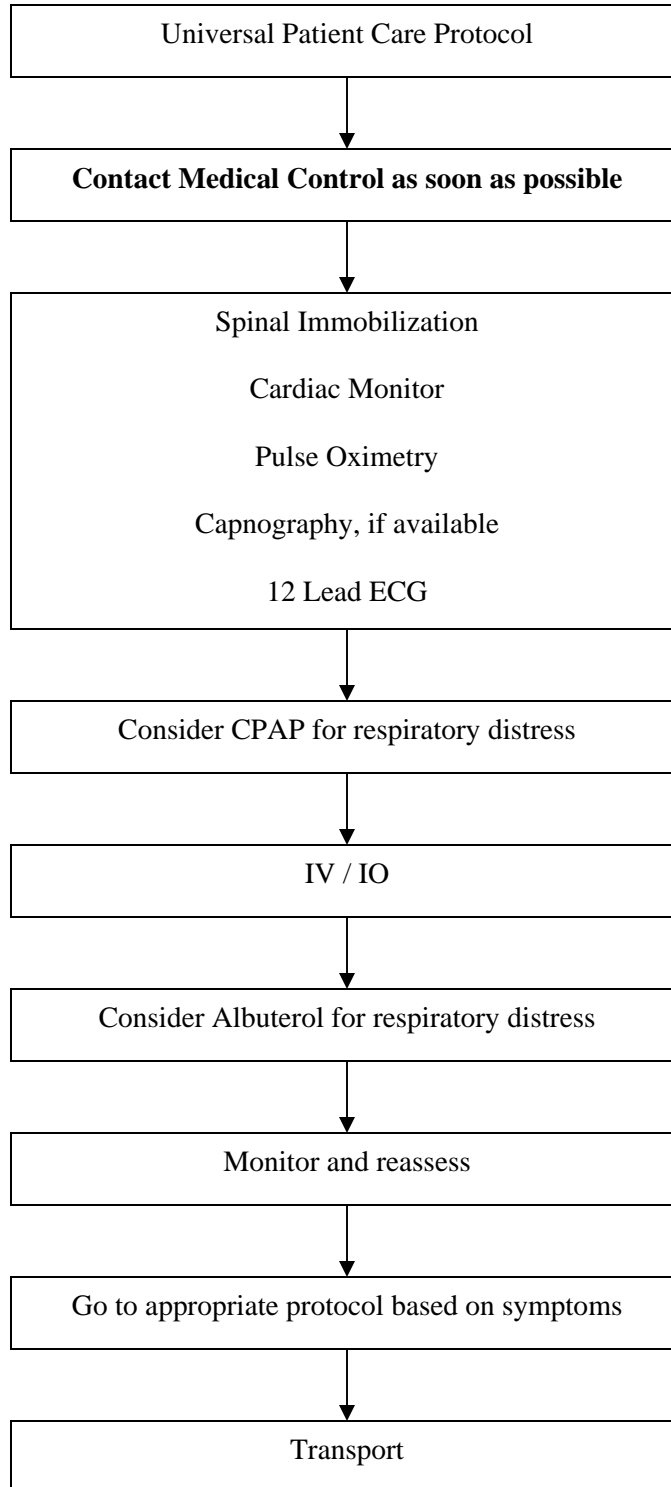
Contact Medical Control

Harrison County Hospital EMS

BURNS: THERMAL



Drowning or Near Drowning



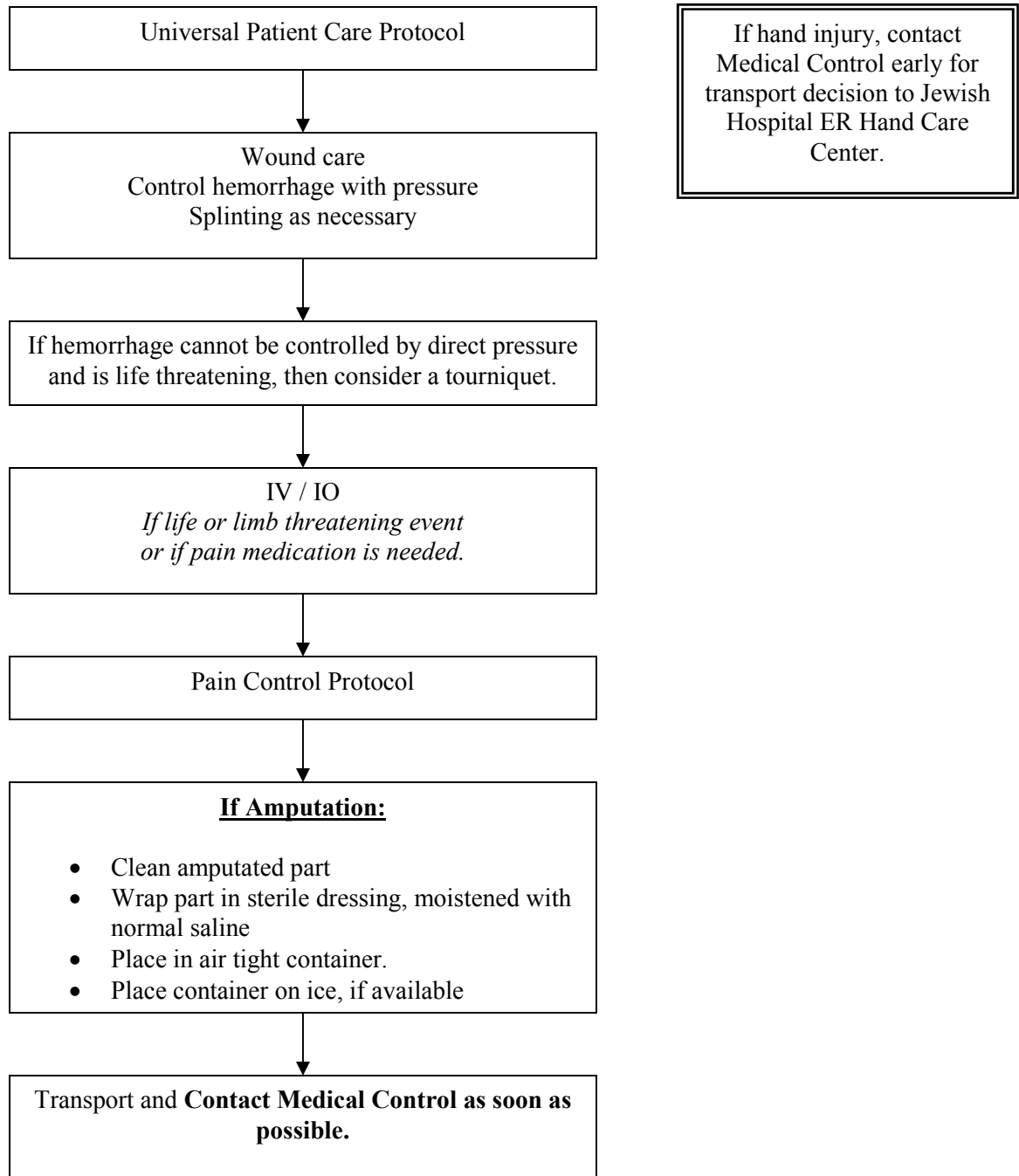
For pressure injuries,

**Contact Medical Control
early for transport
decision.**

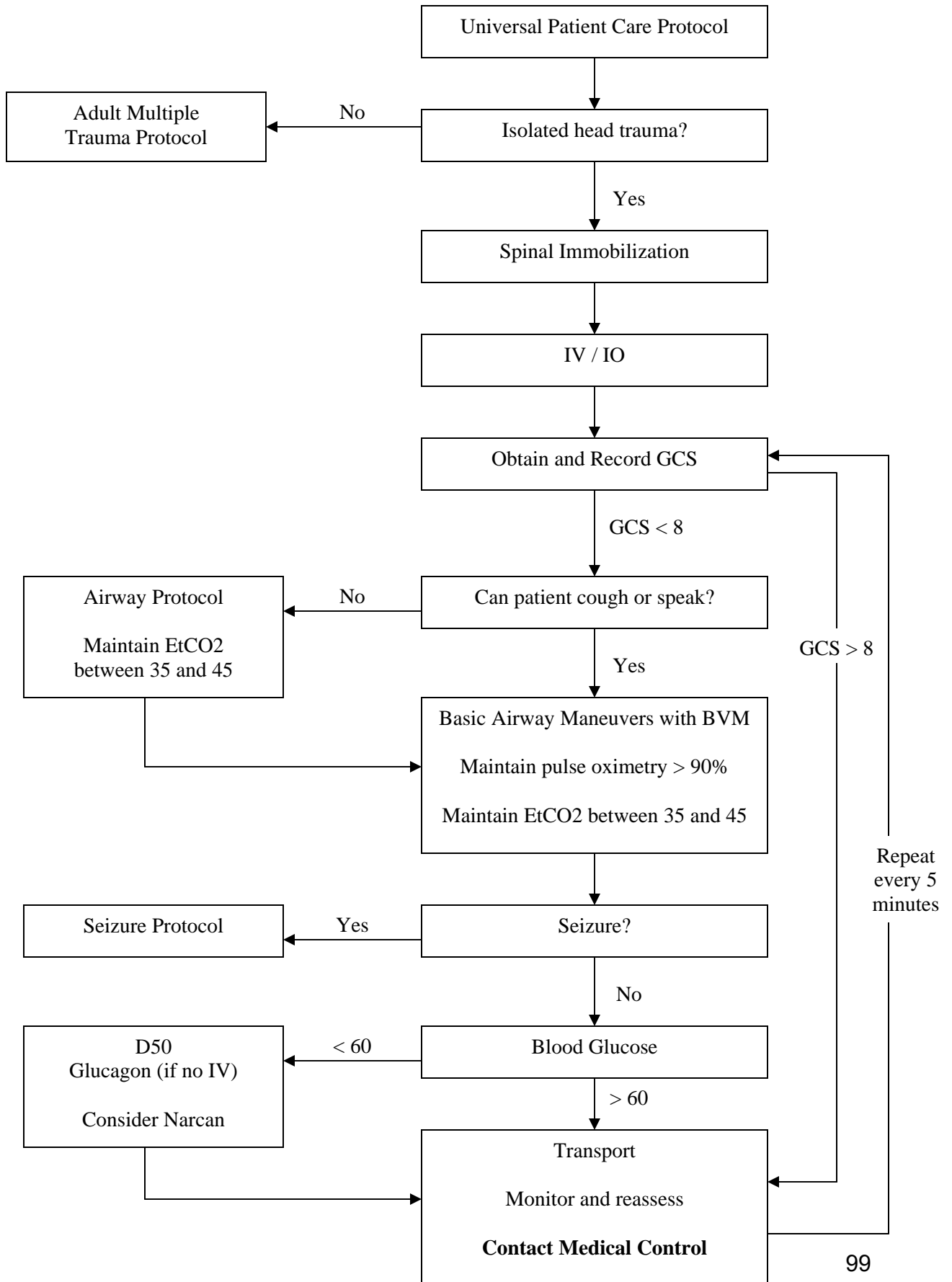
If unable to contact
Medical Control, transport
to a trauma center or
consider aeromedical
transport.

Harrison County Hospital EMS

Extremity Trauma, Isolated

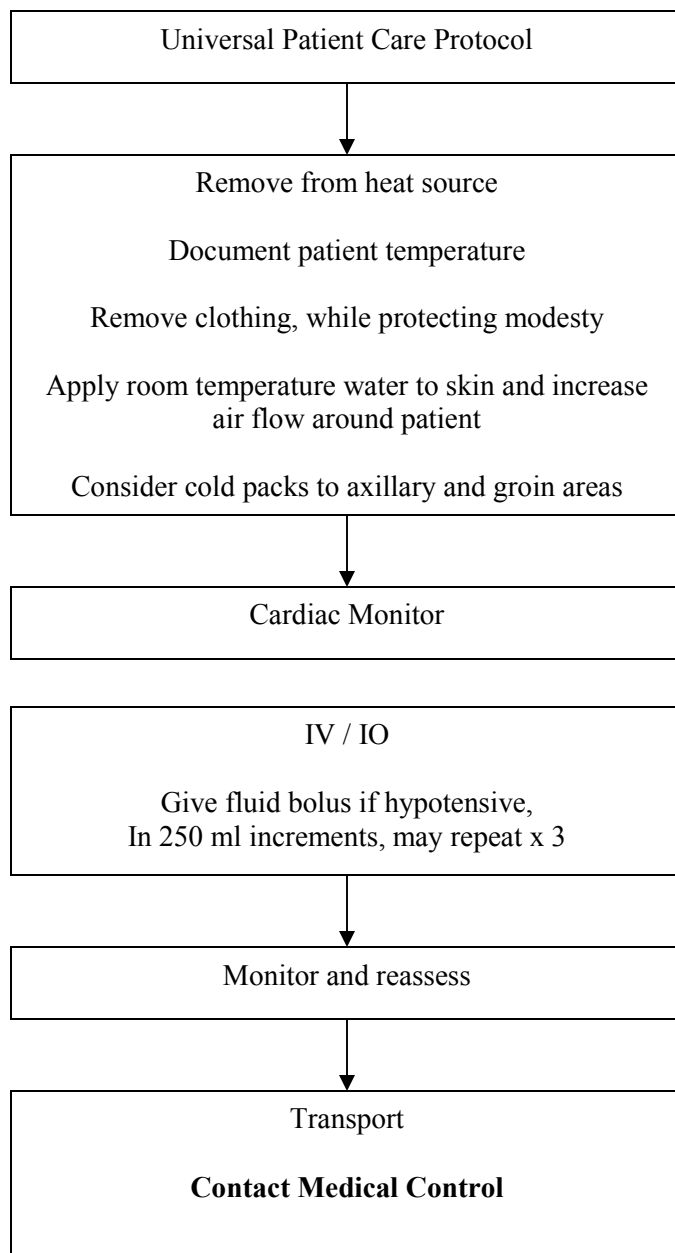


Head Trauma: Adult



Harrison County Hospital EMS

Hyperthermia

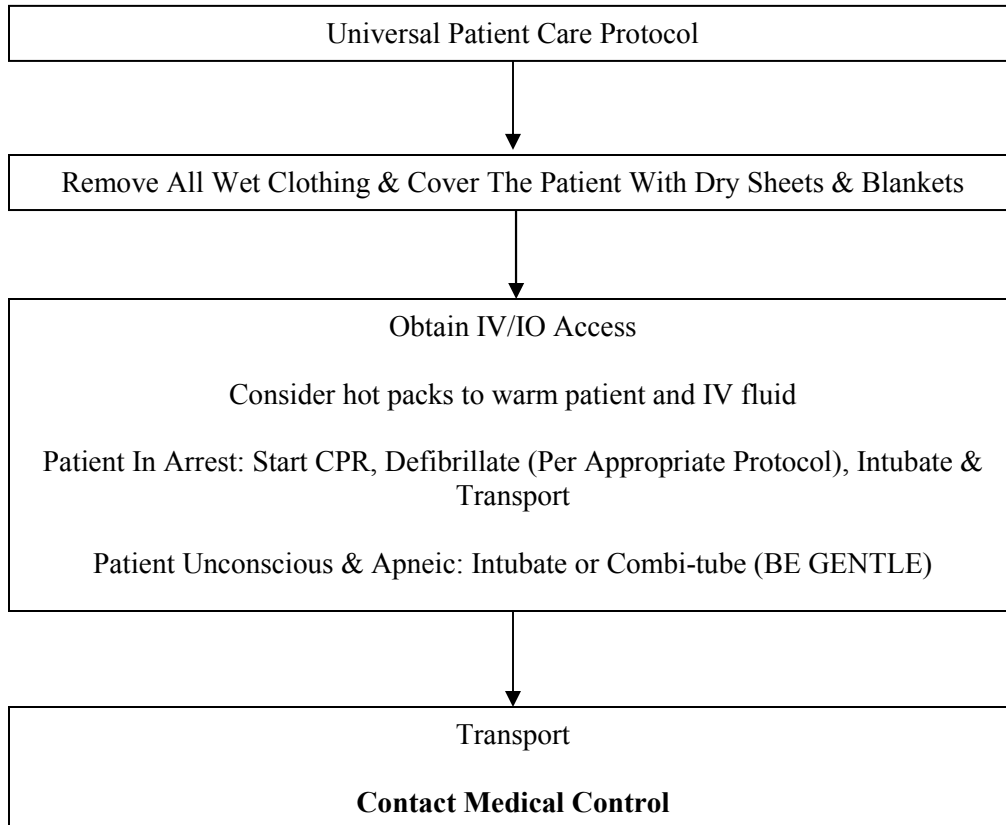


Harrison County Hospital EMS

Hypothermia

Remember

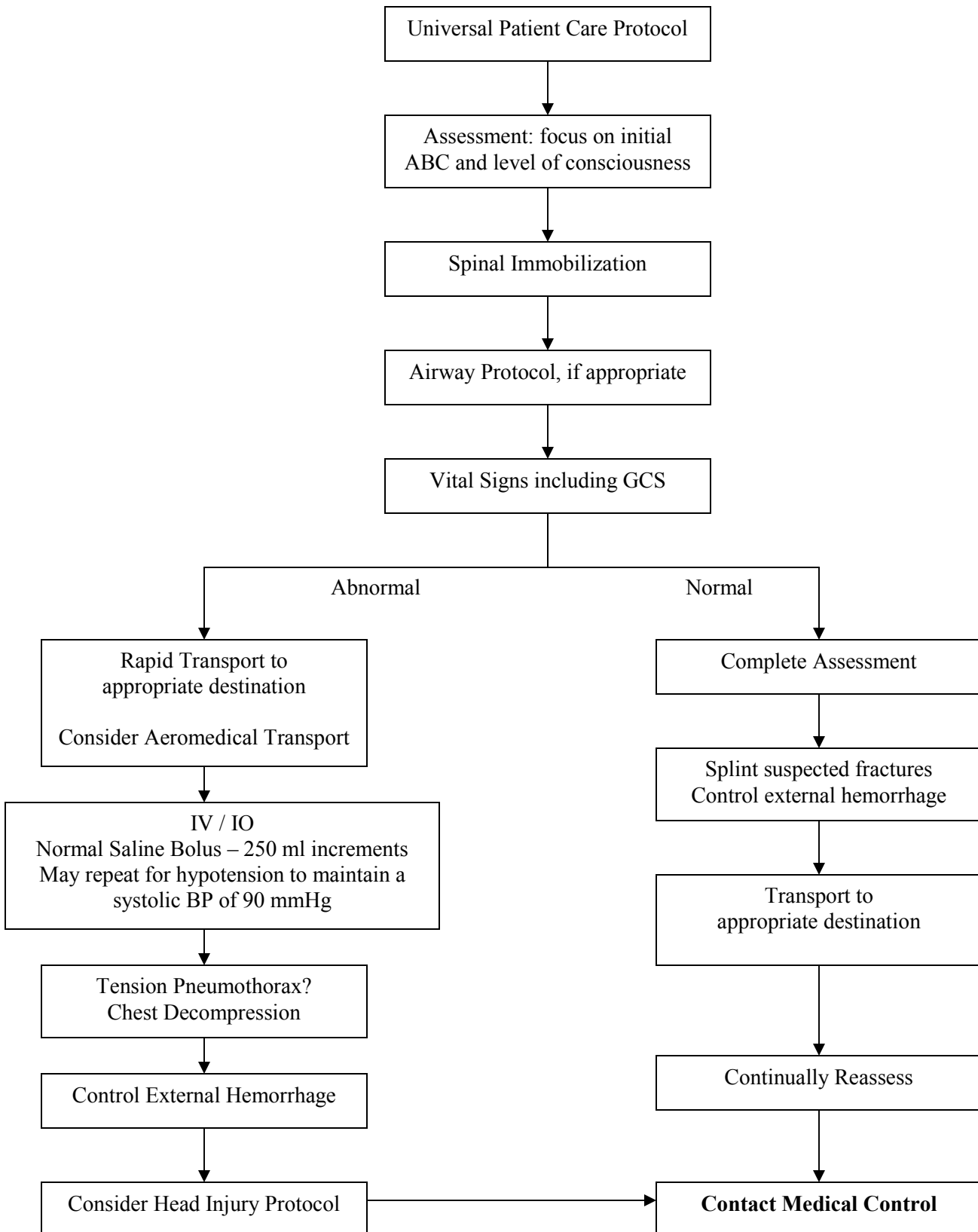
Intubation or Rough Movement Can Cause VENTRICULAR FIBRILLATION



Remember resuscitation efforts must be continued until the patient is warm.

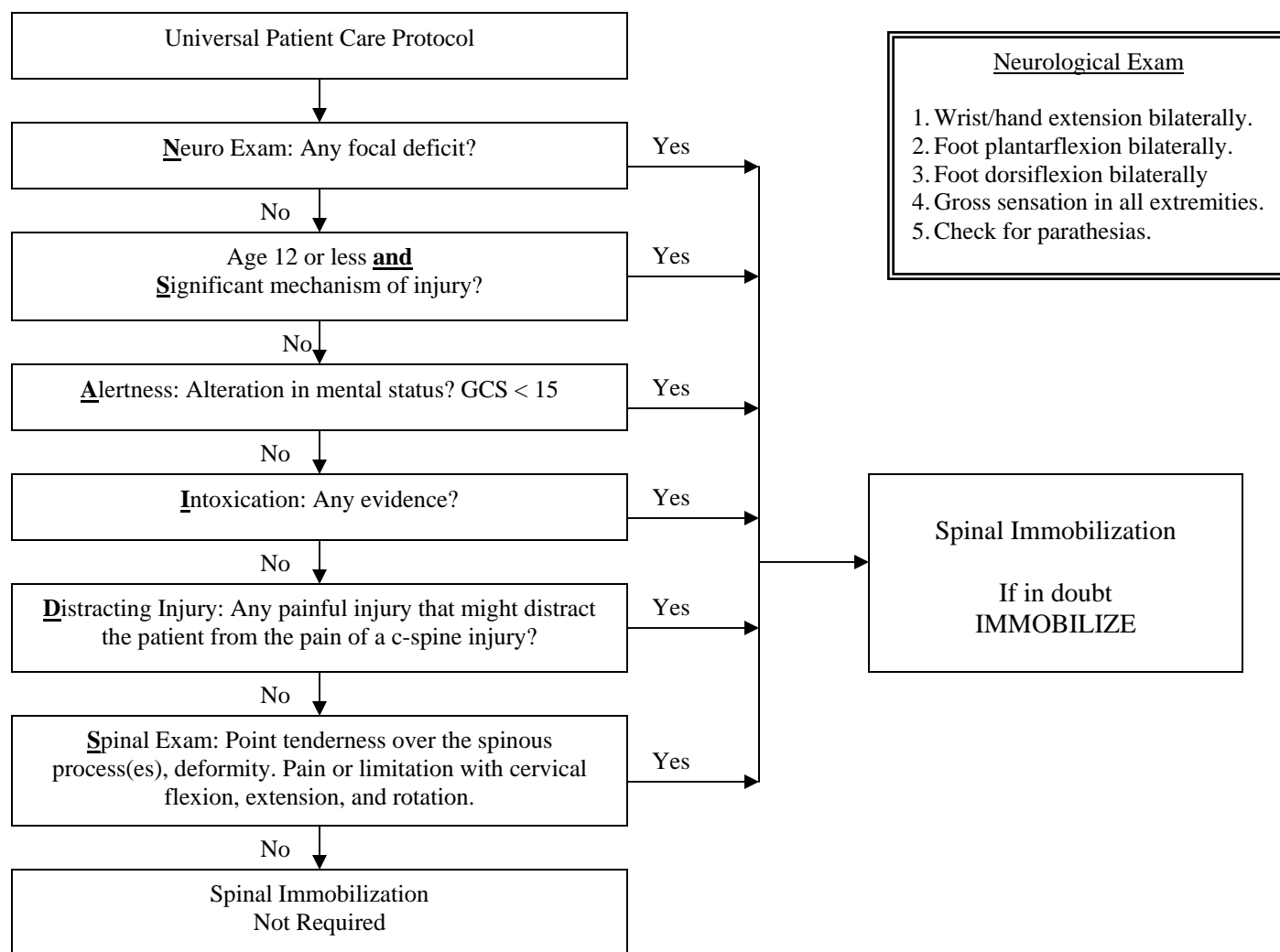
Harrison County Hospital EMS

Multiple Trauma: Adult



Harrison County Hospital EMS

Selective Spinal Immobilization



Notes

- The acronym “NSAIDS” should be used to remember the steps in this protocol: Neuro Exam, Significant mechanism of injury, Alertness, Intoxication, Distracting injury, Spinal exam.
- Long spine boards (LSB) have both risks and benefits for patients and have not been shown to improve outcomes. The best use of the LSB may be for extricating the unconscious patient or providing a firm surface for CPR.
- Utilization of the LSB should occur in consideration of the individual patient’s benefit vs. risk.
- Patients who should be immobilized with a LSB include: Patients with blunt trauma and distracting injury, intoxication, altered mental status or neurologic complaint (e.g. numbness or weakness), and non-ambulatory blunt trauma patients with spinal pain, tenderness or spinal deformity.
- Patients with penetrating trauma and no evidence of spinal injury do not require spinal immobilization. Patients who are ambulatory at the scene of blunt trauma in general do not require immobilization via LSB.
- Patients who are combative and fight against spinal immobilization are at risk for further injury. In this case, attempt to keep cervical collar in place while securing patient to cot with cot straps.
- For situations that do not fall into the categories above, at the clinicians discretion, a cervical collar may be placed on the patient and then the patient may be safely secured to the cot with the appropriate cot straps.

Harrison County Hospital EMS

Trauma Triage Destination Determination

Does Not Apply To Interfacility Transfers

Complies with 836 IAC 1-2.1

Transport to the most appropriate facility for an unmanageable airway or uncontrolled hemorrhage.

NOTE: At any time you may contact HCH Medical Control for consultation.

Universal Patient Care Protocol

- GCS Less than or equal to 13; or
- Systolic BP < 90mmHg; or
- Respiratory Rate <10 or >29 or needs ventilatory support.

Yes

No

- Penetrating injuries from head, neck, torso & extremities proximal to elbow or knee; or
- Chest wall instability or deformity; or
- 2 or more long bone fractures; or
- Crushed, degloved, mangled or pulseless extremity; or
- Amputation proximal to wrist or ankle; or
- Pelvic fracture; or
- Open or depressed skull fracture; or
- Paralysis

Yes

- Age < or = 16: Transport to Kosairs Childrens Hospital
- Age > or = 17: Transport to University of Louisville Hospital
- All burns go to University of Louisville Hospital

Contact Destination Hospital

No

- Falls:
 - Adult >20 feet
 - Children >10 feet or 2 or 3 times the height of the child; or
- High risk auto crash
 - Intrusion, including roof: >12 inches occupant site; >18 inches any site
 - Ejection (partial or complete) from automobile
 - Death in same passenger compartment
 - Vehicle telemetry data consistent with a high risk of injury
- Auto vs pedestrian/bicyclist thrown, run over or >20 mph impact; or
- Motorcycle crash > 20 mph

Yes

Transport to a trauma center or hospital capable of timely and thorough evaluation and initial management of potentially serious injuries. Consider consultation with medical control.

Contact Destination Hospital

No

- Older at risk adults; or
 - Risk of injury/death increases after age 55 years
 - SBP <110 may represent shock after age 65
 - Low impact mechanisms (e.g. ground level falls) may result in severe injury
- Children
 - Age 16 or under go to Kosairs Childrens Hospital
 - Age 17 and above go to University of Louisville Trauma Center
- Anticoagulants or bleeding disorders
 - Patients with head injury are at high risk for rapid deterioration
- Burns
- Pregnancy >20 weeks

Yes

Transport to a trauma center or hospital capable of timely and thorough evaluation and initial management of potentially serious injuries. Consider consultation with medical control.

Contact Destination Hospital

No

Transport to the nearest appropriate facility. If patient refuses to be transported to the closest appropriate hospital but wishes to be transported to a hospital of their choosing, document on Refusal Form (letter D) and PCR.

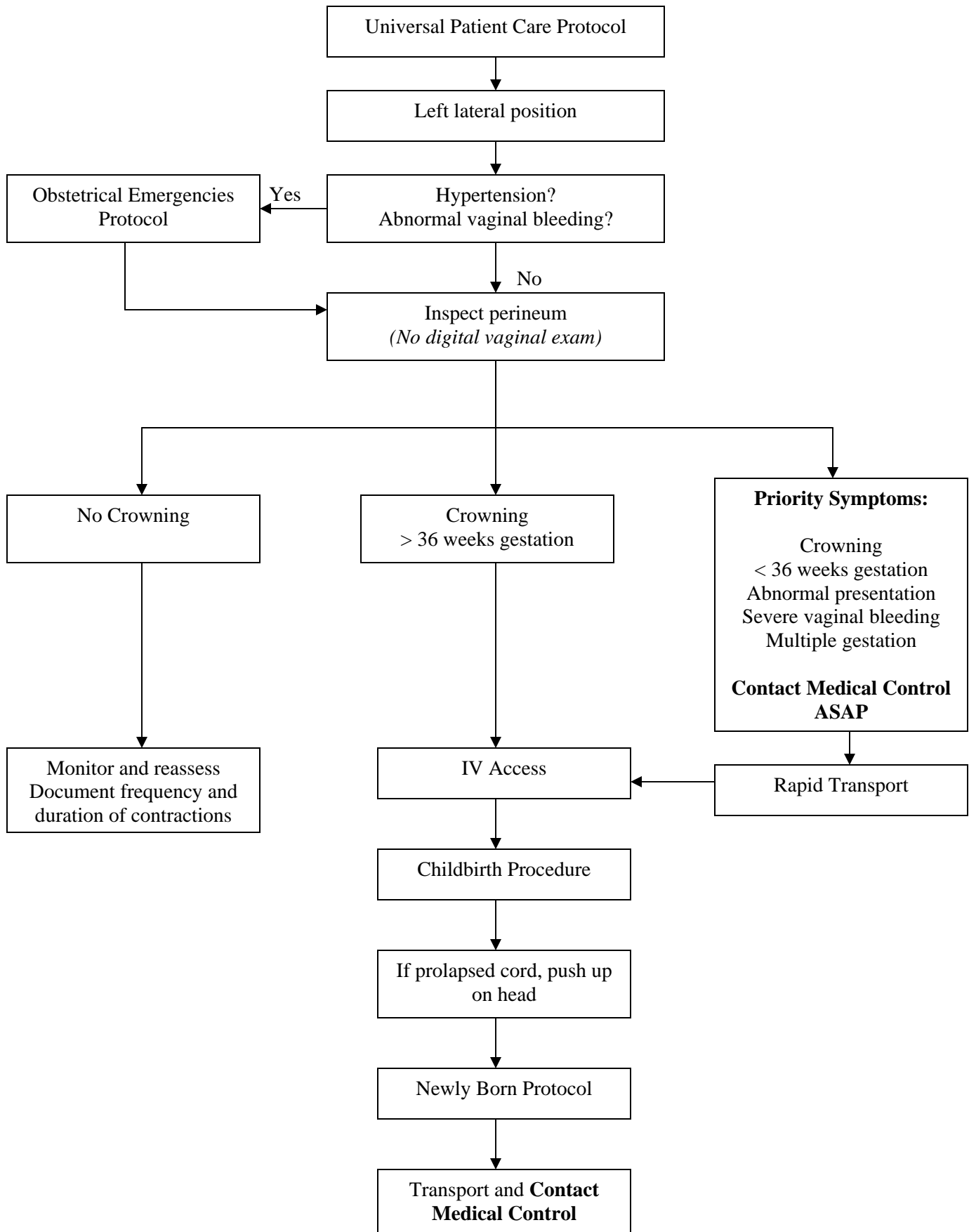
Approved:

Stephen Bodney, M.D.
Medical Director

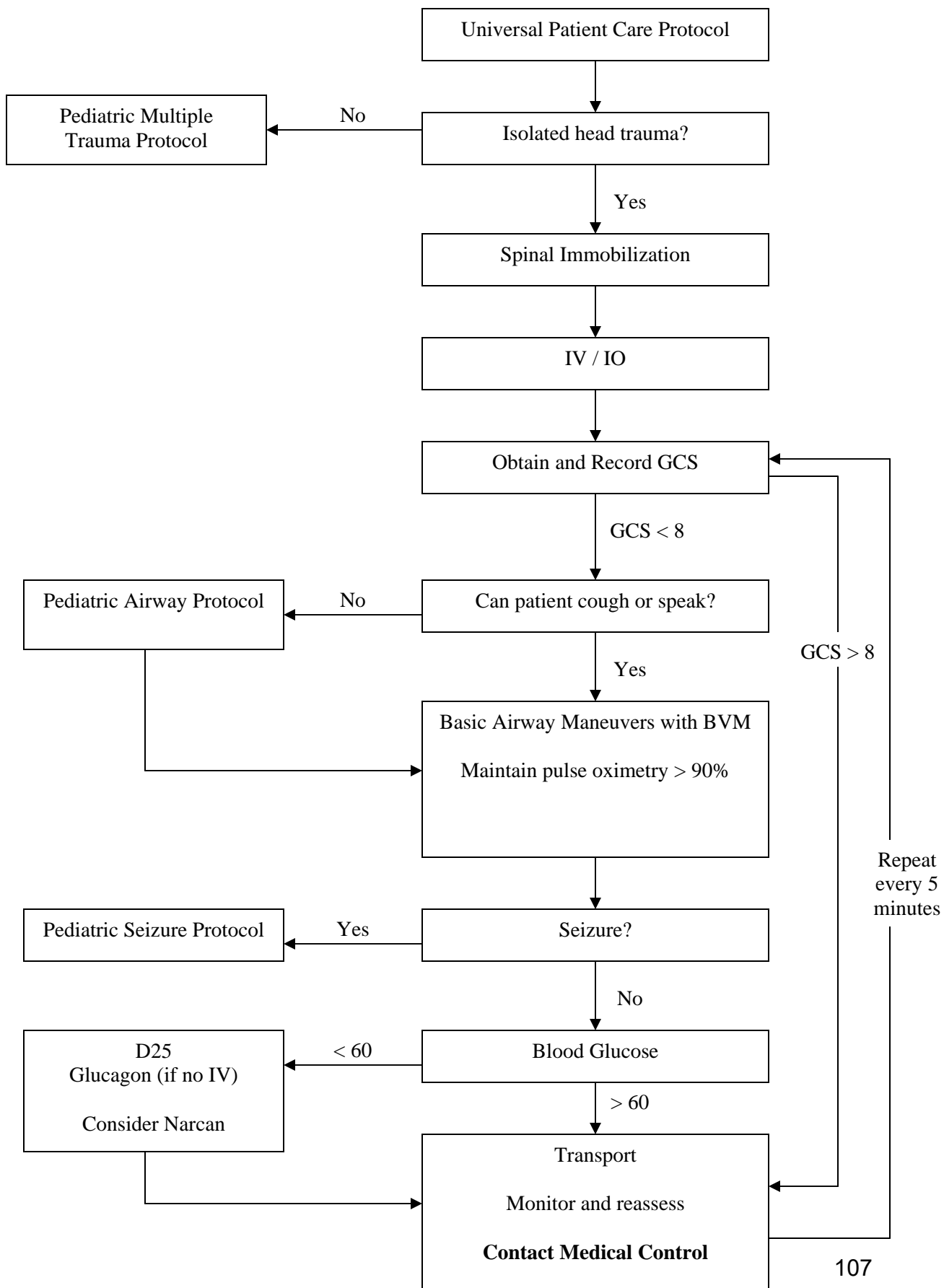
Date

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Childbirth / Labor

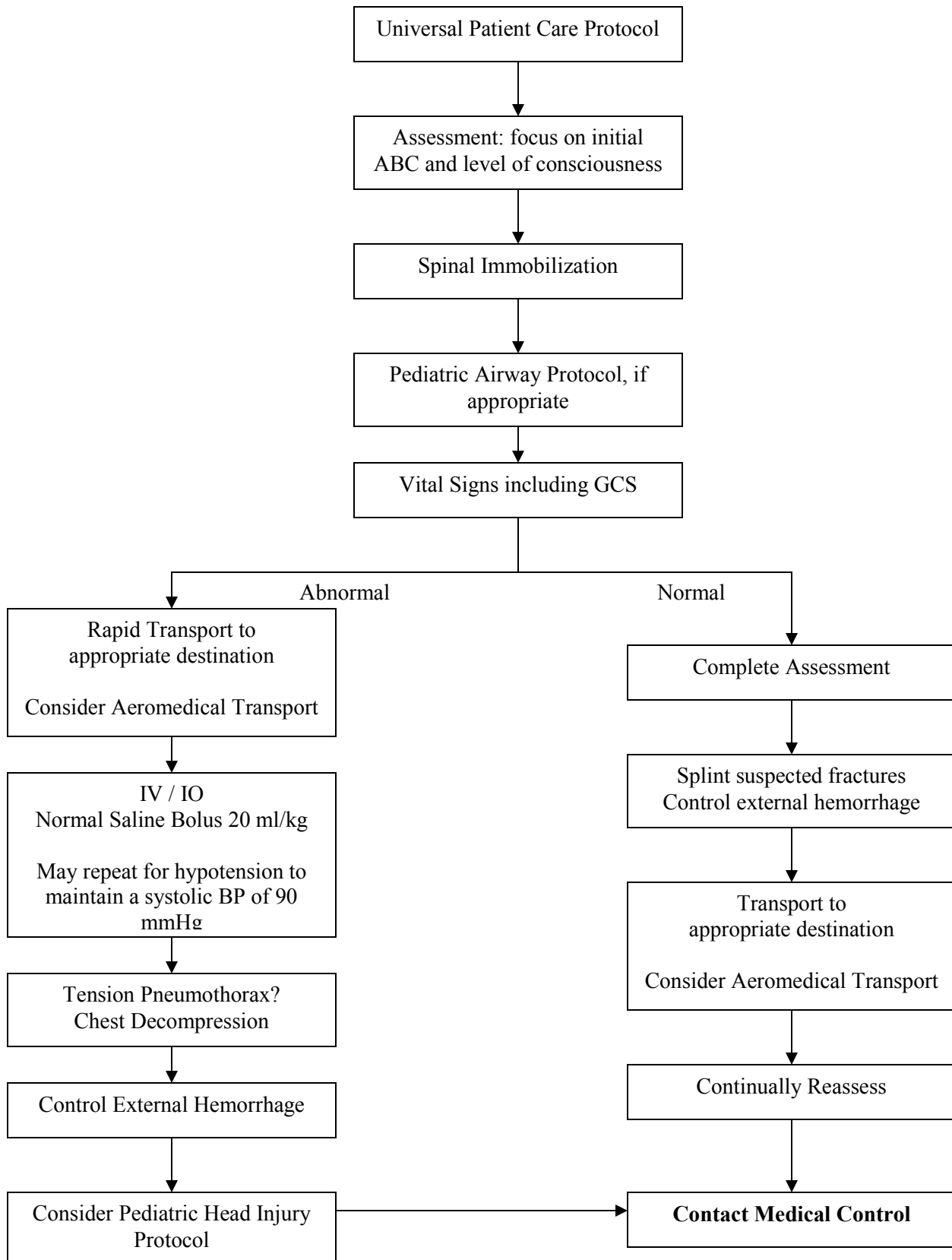


Head Trauma: Pediatric



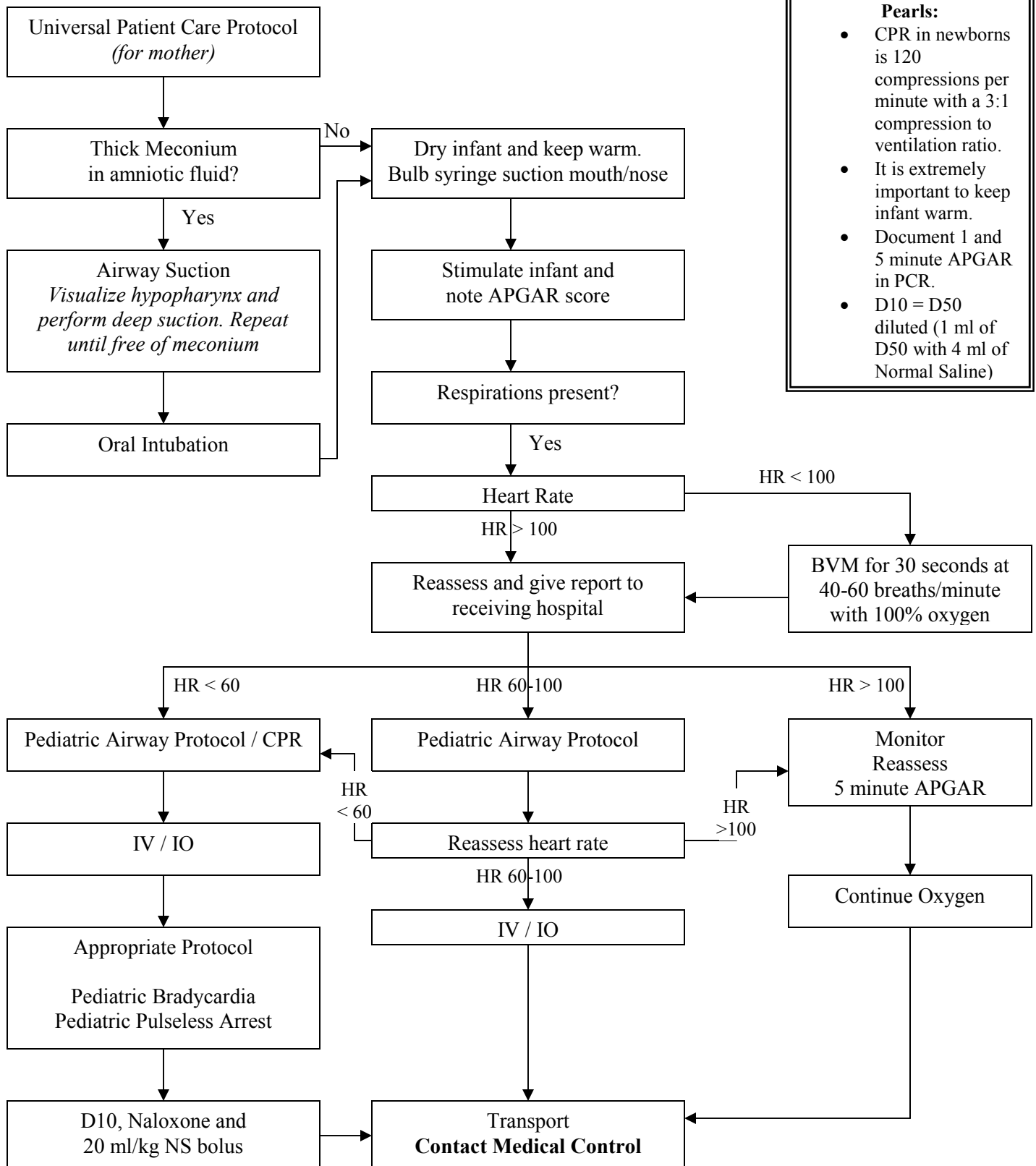
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Multiple Trauma: Pediatric



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Newly Born

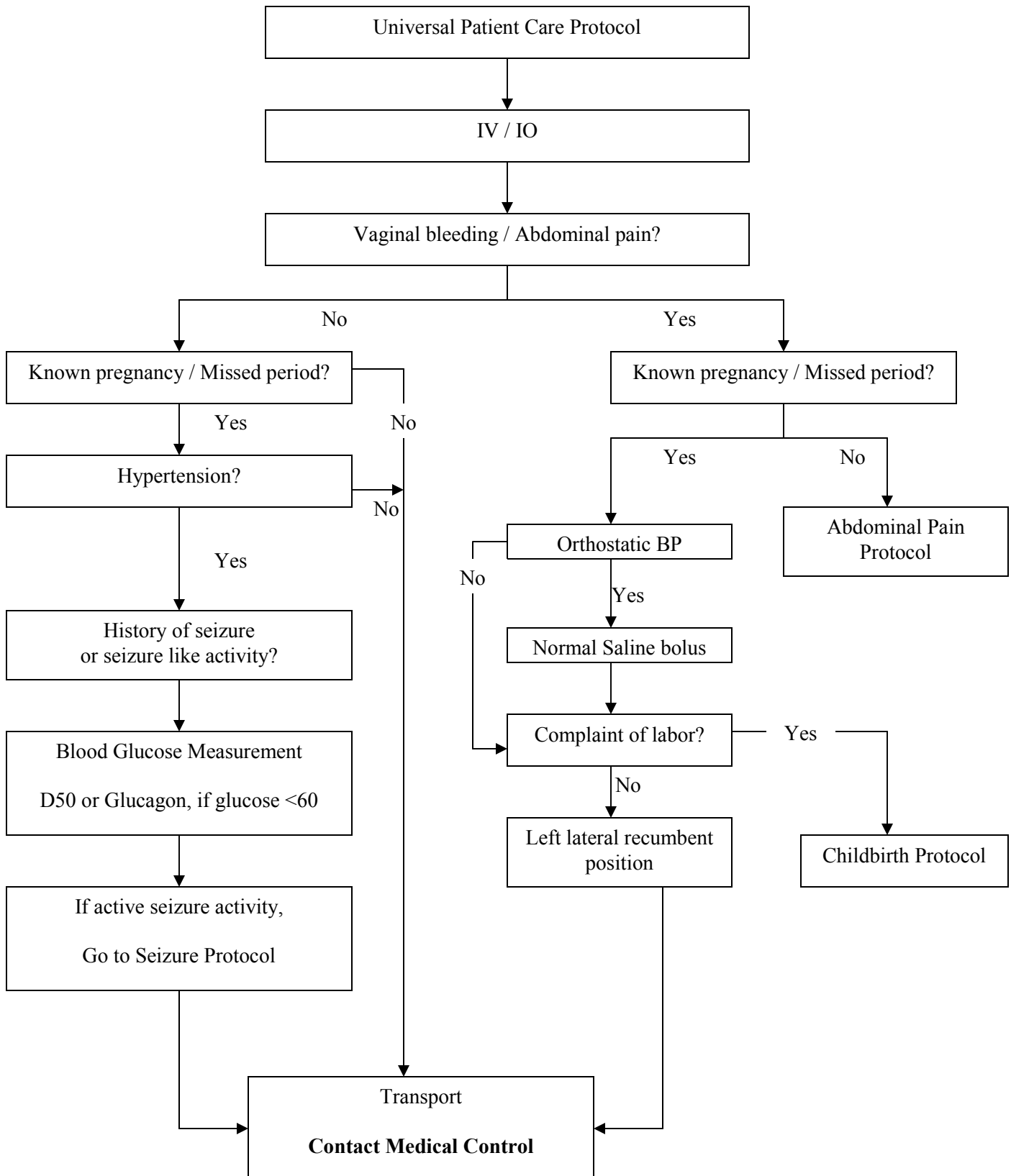


Pearls:

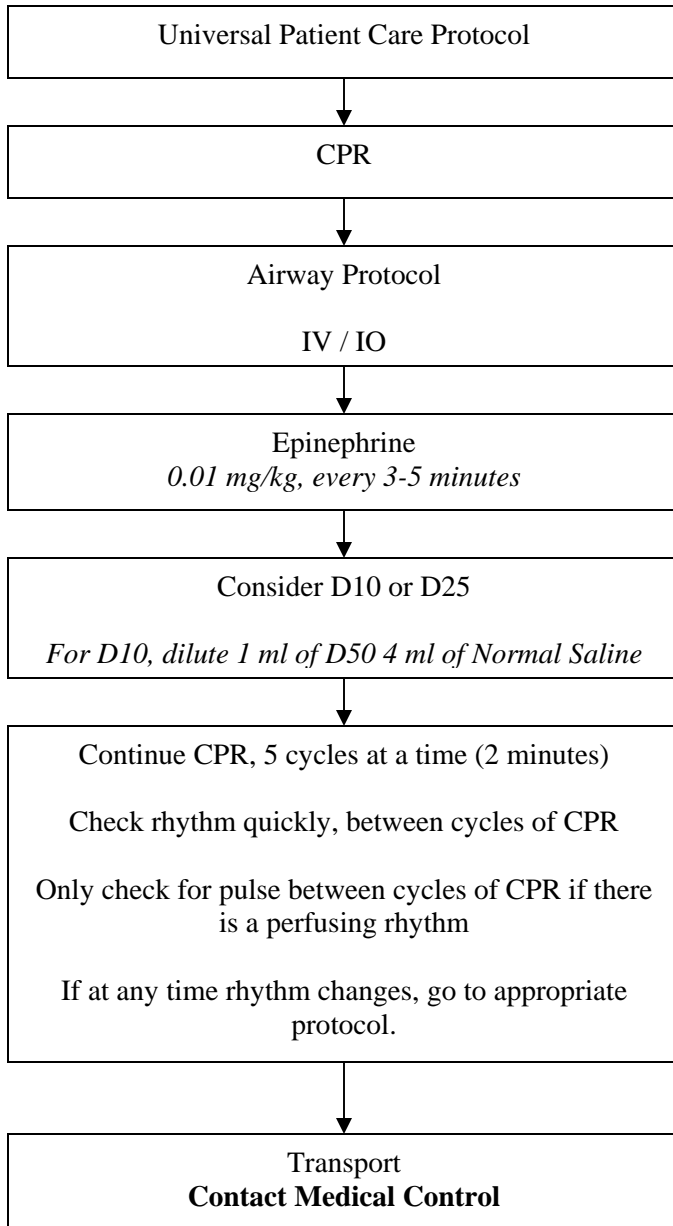
- CPR in newborns is 120 compressions per minute with a 3:1 compression to ventilation ratio.
- It is extremely important to keep infant warm.
- Document 1 and 5 minute APGAR in PCR.
- D10 = D50 diluted (1 ml of D50 with 4 ml of Normal Saline)

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Obstetrical Emergency



Pediatric: Asystole / PEA

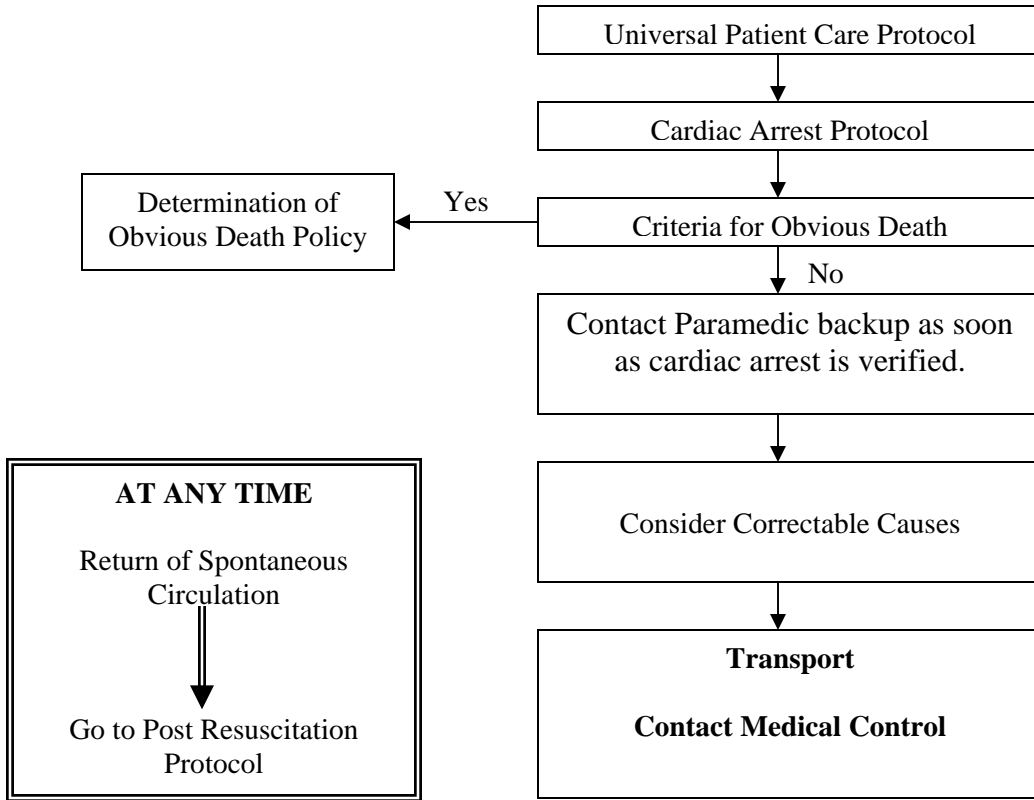


Consider causes early in all PEA patients:

Hypovolemia	Tension Pneumothorax
Hypoxia	Tamponade, cardiac
Hydrogen ion	Toxins
Hypo/Hyperkalemia	Thrombosis, pulmonary
Hypothermia	Thrombosis, coronary

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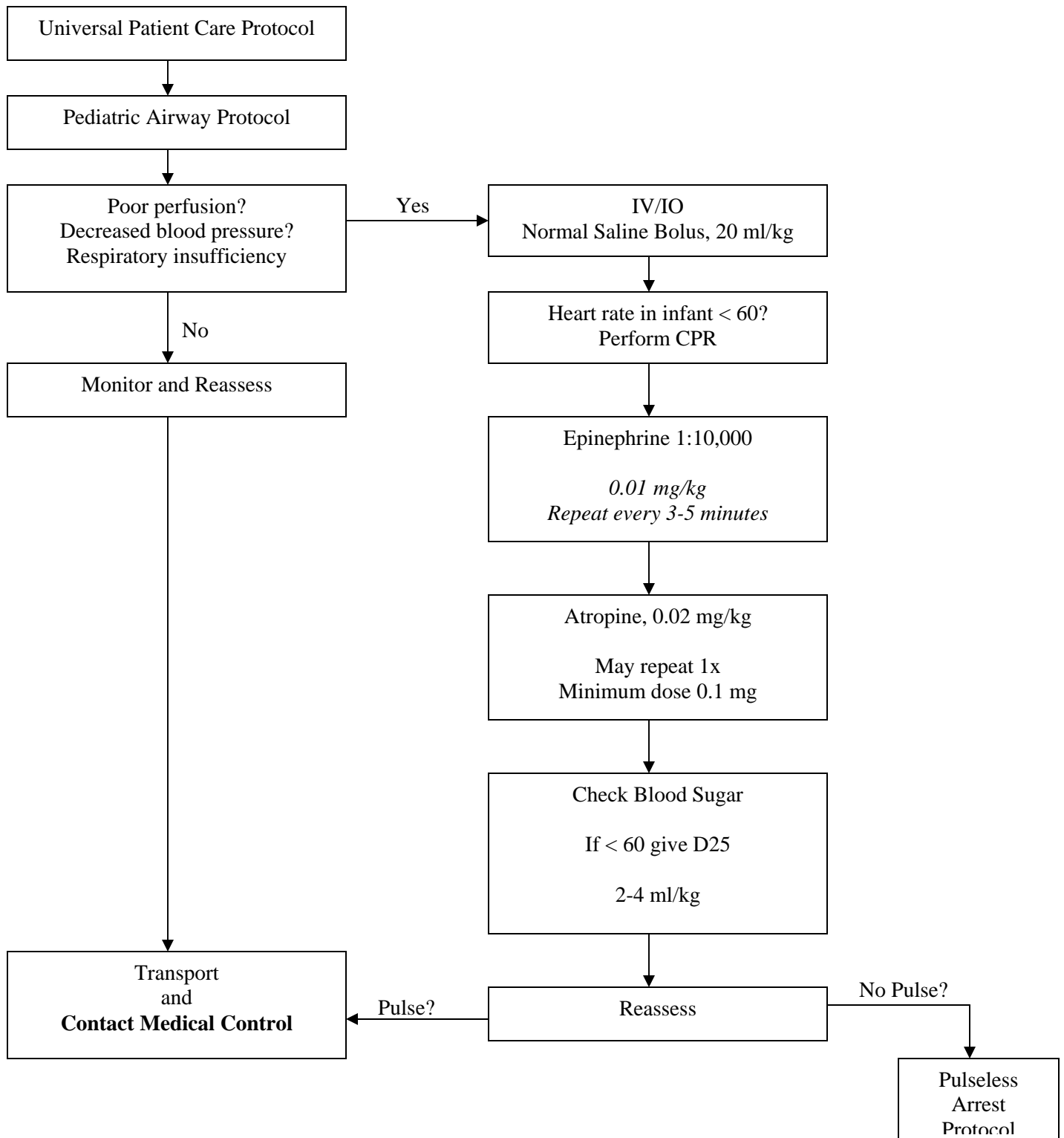
Asystole/PEA - Pediatric Advanced EMT



Correctable Causes:

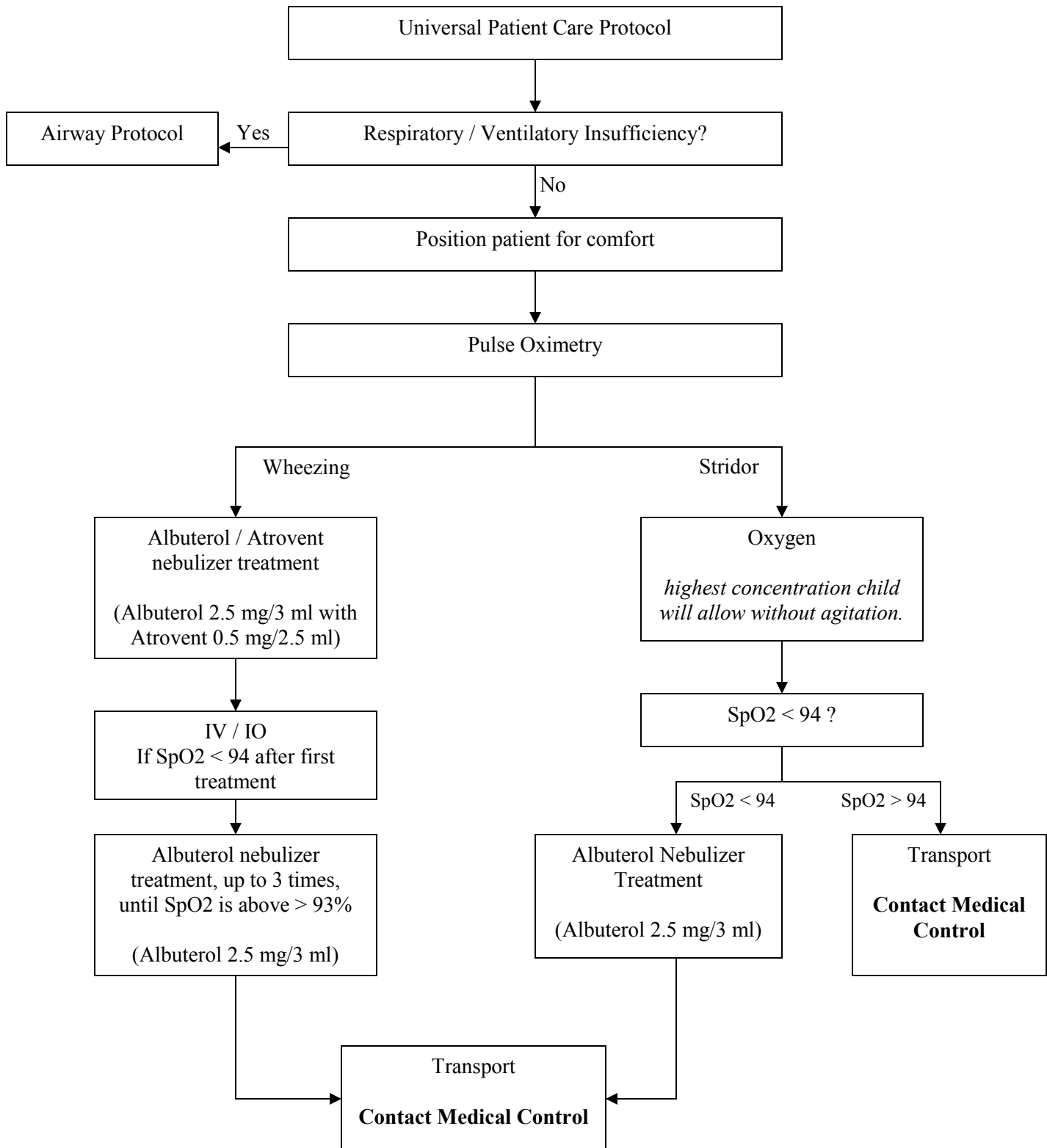
Hypovolemia	Tension Pneumothorax
Hypoxia	Tamponade, Cardiac
Hydrogen Ion	Toxins
Hypo-/Hyperkalemia	Thrombosis, pulmonary
Hypothermia	Thrombosis, coronary

Pediatric Bradycardia



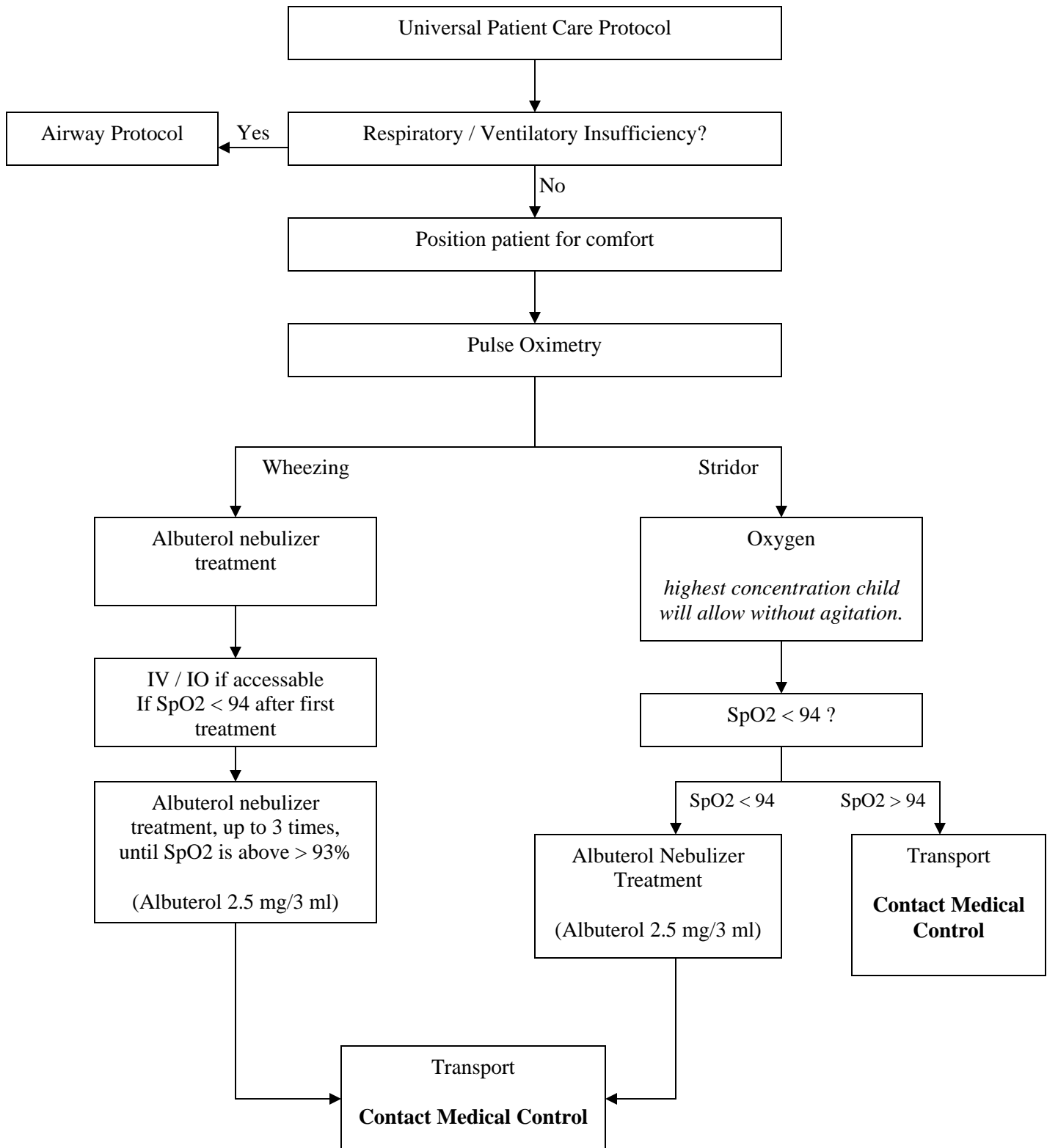
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Pediatric Respiratory Distress



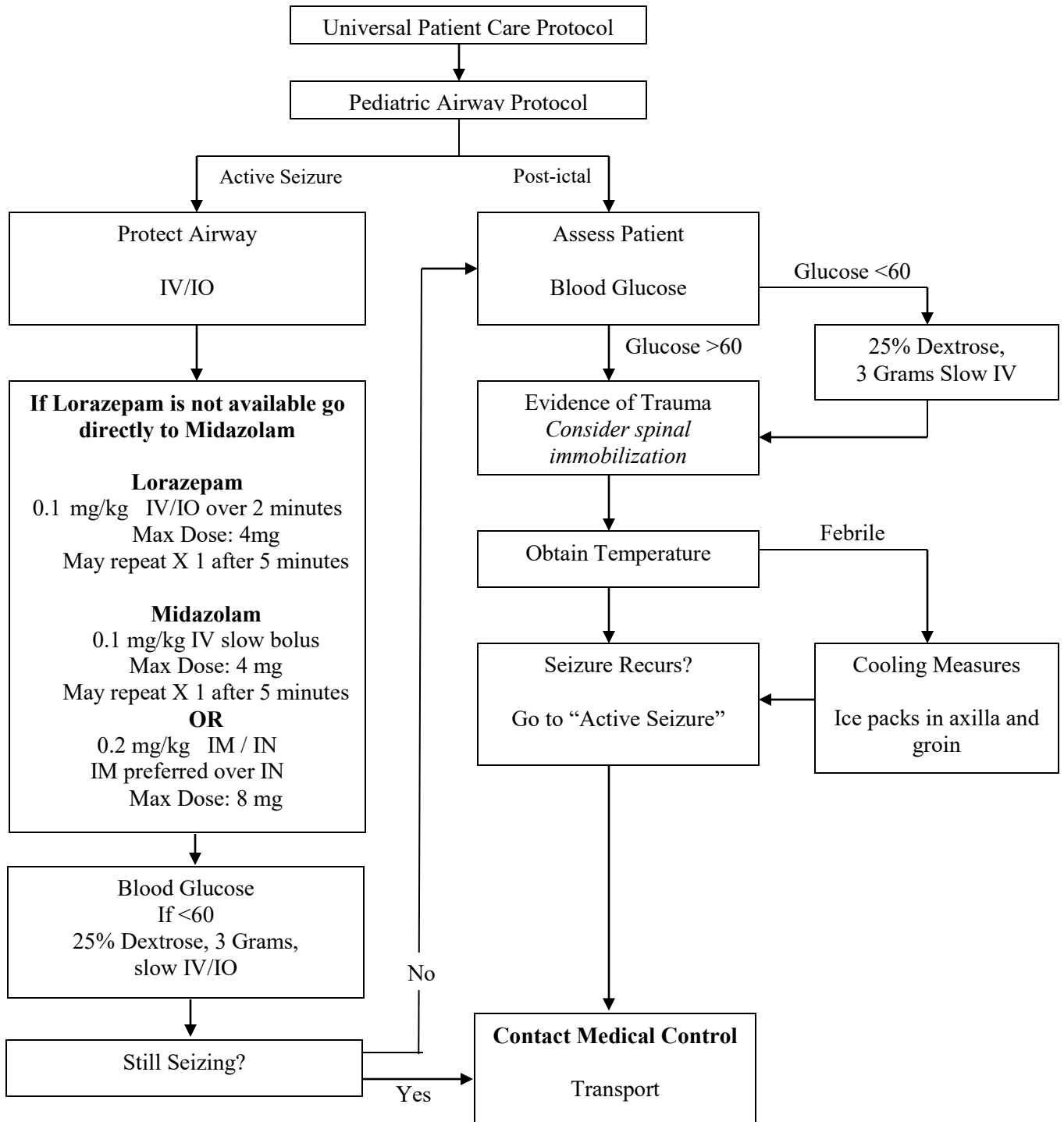
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Pediatric Respiratory Distress Advanced EMT



Harrison County Hospital EMS

Pediatric Seizure < 40 kg (88 lbs.)



Pediatric Supraventricular Tachycardia

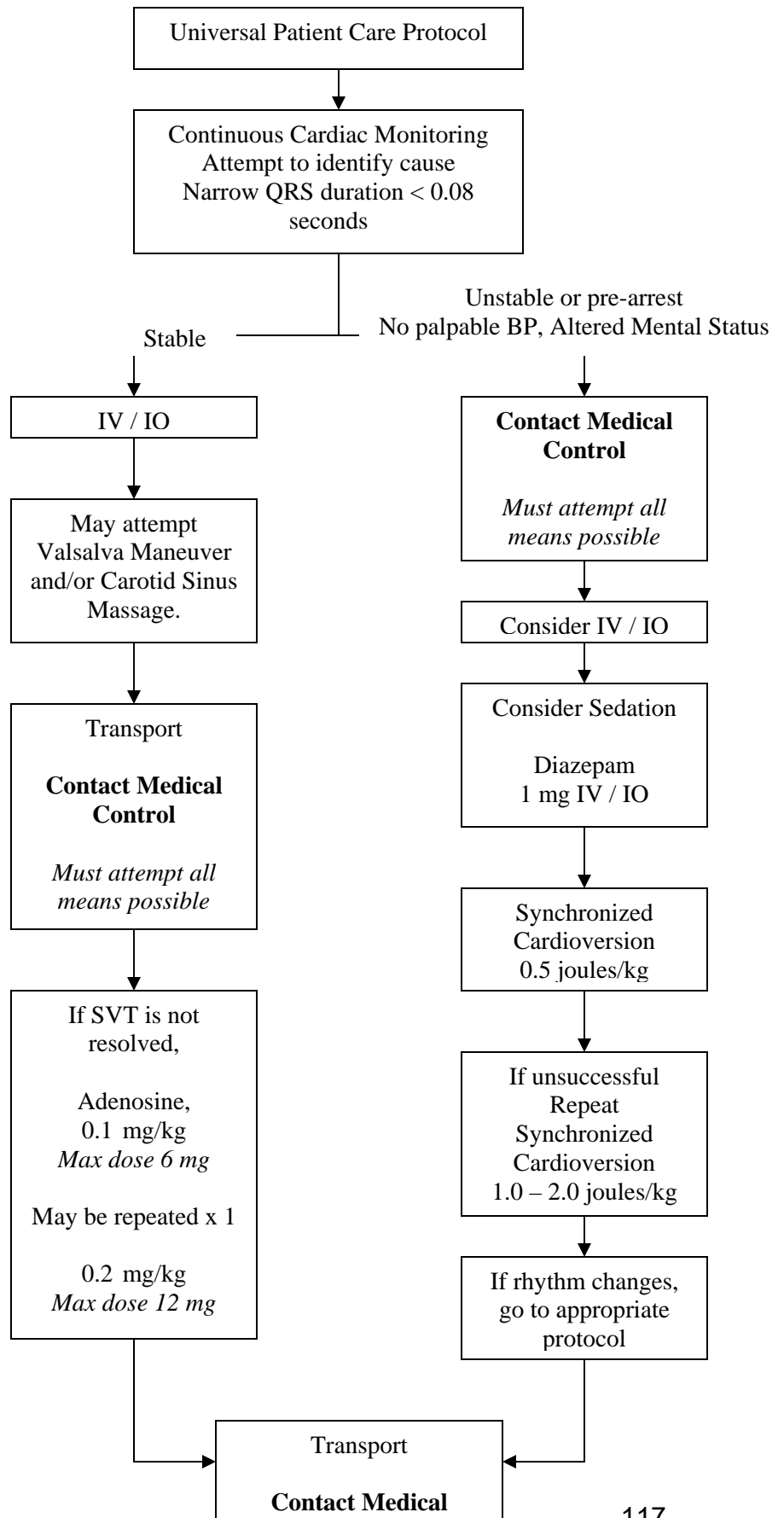
Definitions

Supraventricular Tachycardia

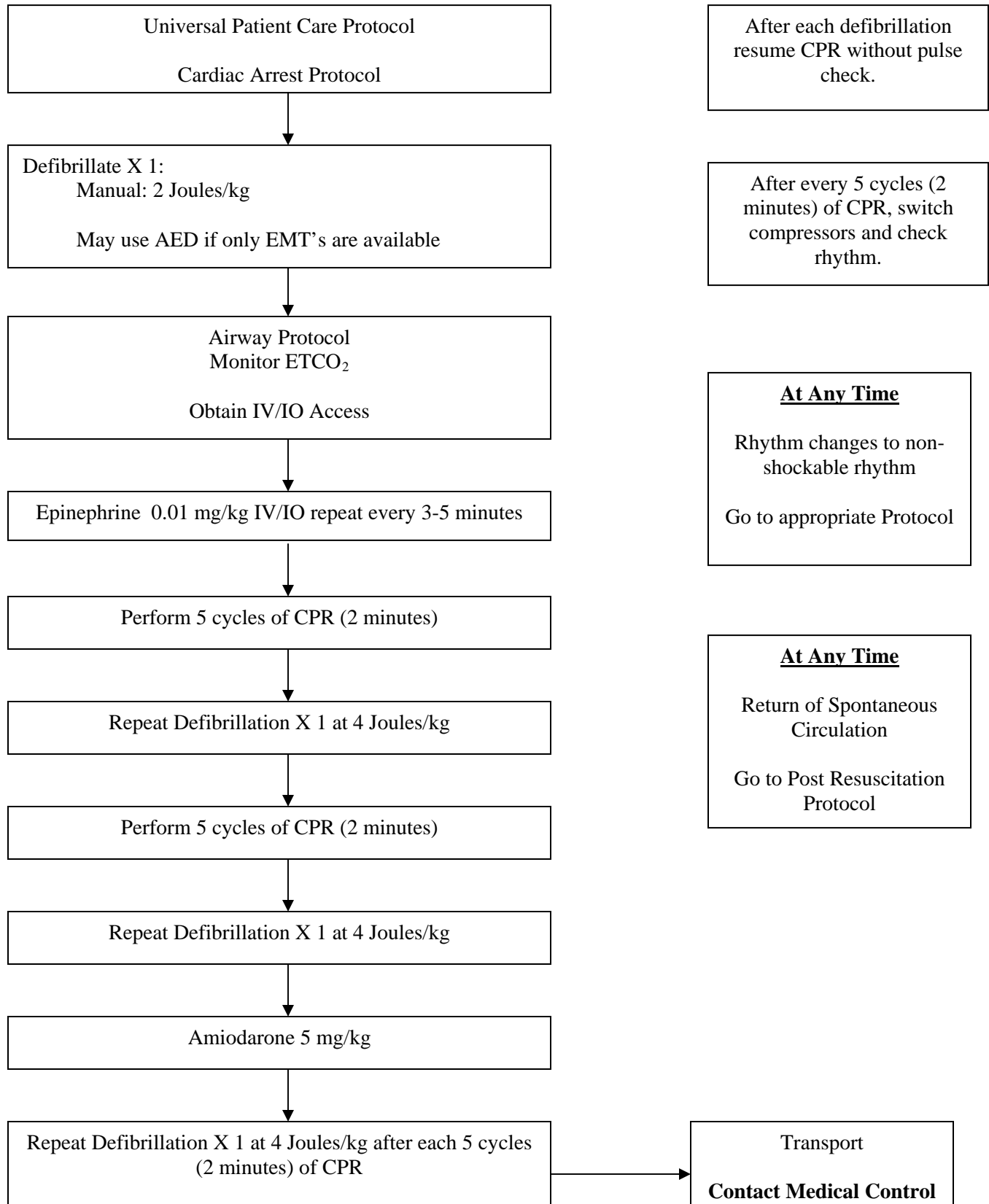
- birth – 1 year,
 - HR > 220/bpm
- 1 year – puberty,
 - HR > 180/bpm

With any of the following:

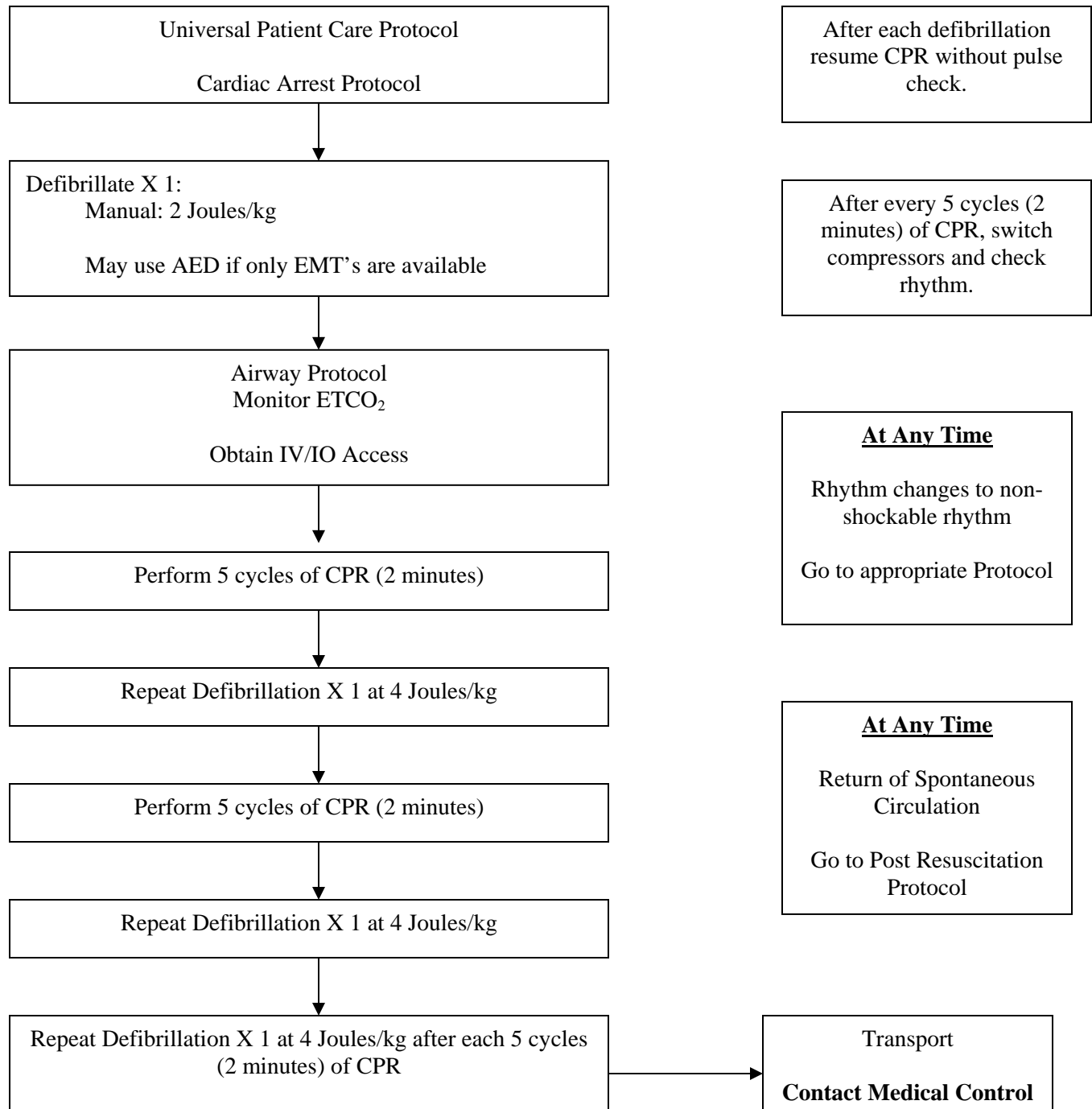
- Pale or cyanosis
- Diaphoresis
- Tachypnea
- Vomiting
- Hypotension
- Altered level of consciousness
- Pulmonary congestion
- syncope



Harrison County Hospital EMS
Pediatric Ventricular Fibrillation / Pulseless Ventricular Tachycardia



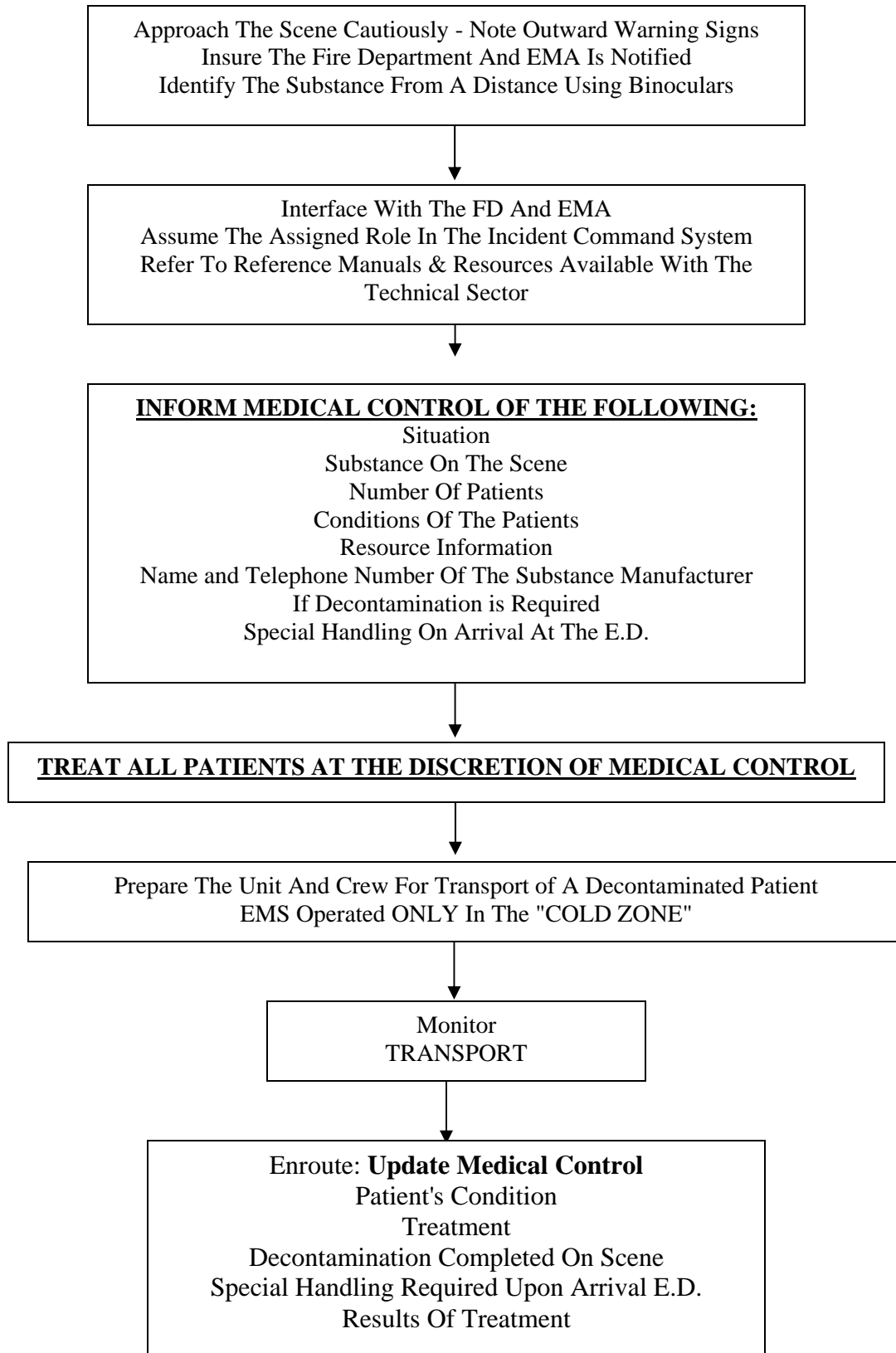
Harrison County Hospital EMS
Pediatric Ventricular Fibrillation / Pulseless Ventricular Tachycardia
Advanced EMT



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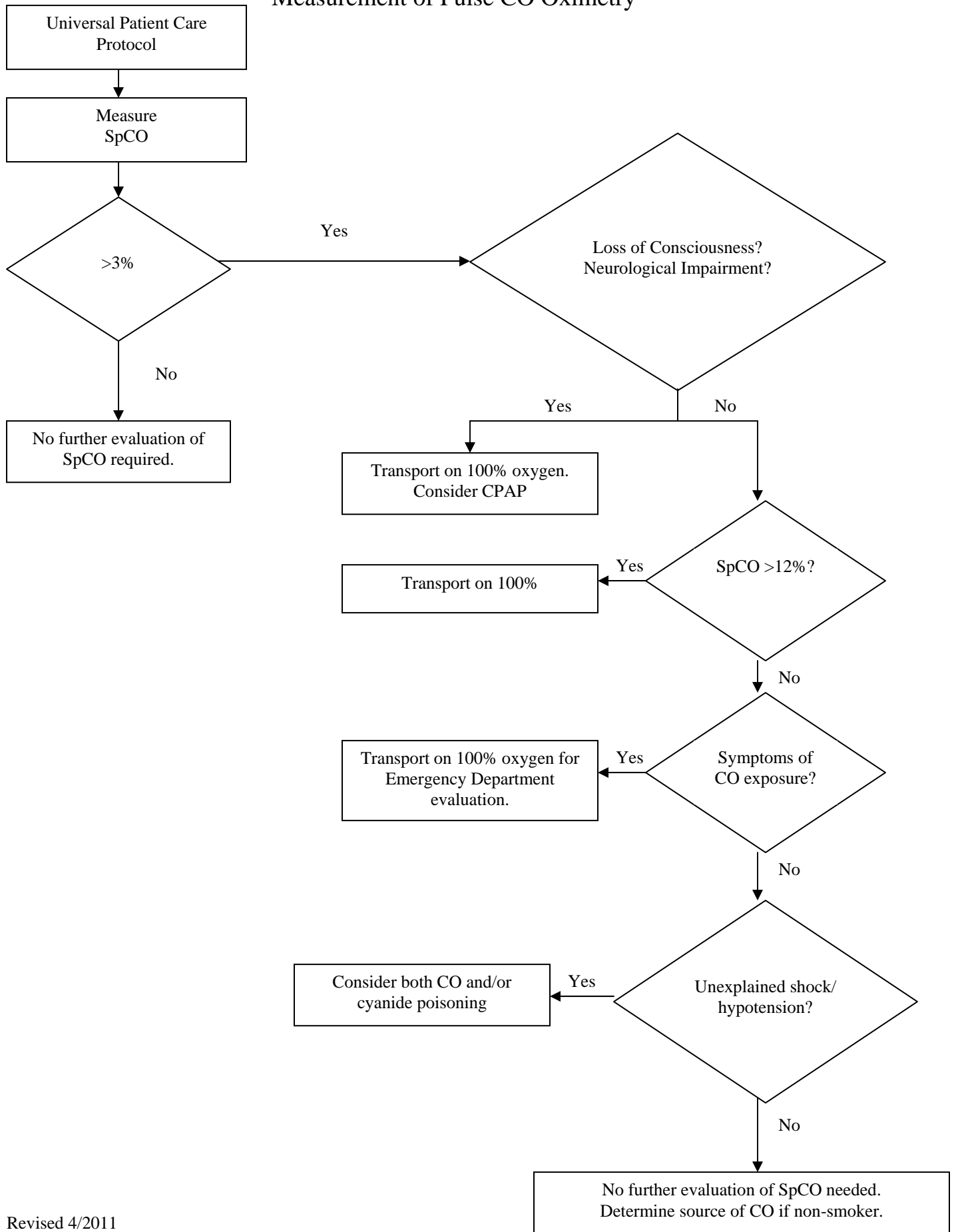
Hazardous Materials

Hazardous Materials Are Any Substance That Have The Potential
For Harm To Life, The Environment, And Property



Harrison County Hospital EMS

Measurement of Pulse CO Oximetry



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Amiodarone (Cordarone)

This chart is provided as a guide to dosing for wide QRS Tachycardia. See Tachycardia protocol for full information. It is the responsibility of each clinician to make sure they are giving the proper dose of medication.

Drip Rate Formula

(To find drops/min)

$$\frac{\text{Volume to be infused} \times \text{drop factor}}{\text{Duration of infusion (minutes)}} = \text{gtts/min}$$

Calculation:

Give 150mg of Amiodarone over 10 minutes. Using a 10 drop IV administration set, connect to a 100ml partial fill, D5W. Add 150 mg of Amiodarone. Run as a piggyback to the primary IV line. The calculation is as follows:

$$\text{gtts/min} = \frac{100 \text{ ml} \times 10}{10 \text{ minutes}} = \frac{1000}{10} = 100 \text{ gtts/min or 25 drops every 15 seconds}$$

Procedure:

1. Set up a 100 ml partial fill D5W with a 10 drop administration set.
2. Draw up 150 mg of Amiodarone in a syringe.
3. Add the 150 mg of Amiodarone to a 100 ml partial fill D5W.
4. Attach the 100 ml partial fill D5W to the primary IV line at a medication port. If a needled port is used, tape the partial fill line to the primary line after insertion of the needle.
5. Calculate the flow rate, as above, of the secondary infusion in drops per minute.
6. Raise the secondary infusion bag above the level of the primary IV bag.
7. Clamp the tubing of the primary infusion to allow the piggyback medication to infuse. Open the piggyback line flow clamp. Adjust flow rate to desired dose.
8. Label the bag with the medication.
9. When piggyback is completed, restart the primary infusion.

Apgar Scoring

Apgar scoring is performed on a neonate at 1 minute and 5 minutes after birth. The purpose of the score is to get a general idea of the health of the new born infant. A complete apgar score will range from 0 to 10. Ideally, the apgar score will improve between the 1 minute and 5 minutes scores.

Sign	0	1	2
A ppearance (skin color)	Blue, pale	Body pink, blue extremities	Completely pink
P ulse Rate (heart rate)	Absent	< 100/minute	> 100/minute
G rimace (irritability)	No Response	Grimace	Cough, sneeze, cry
A ctivity (muscle tone)	Limp	Some flexion	Active motion
R espirations (respiratory effort)	Absent	Slow, irregular	Good, crying

Burn Resources

Fluid Formula

Parkland Burn Formula

$$\text{PW} \times \text{TBSA} \times 4.0 \text{ cc}$$

Pts Wt kg x % TBSA x 4.0cc LR infused over 24 hours with half given in the first 8 hours.

First 8 Hours

$$\text{PW} \times \text{TBSA} \times 4.0 \text{ cc, divide by 2}$$

Hourly Rate for first 8 hours

$$\text{PW} \times \text{TBSA} \times 4.0 \text{ cc} / 2 / 8$$

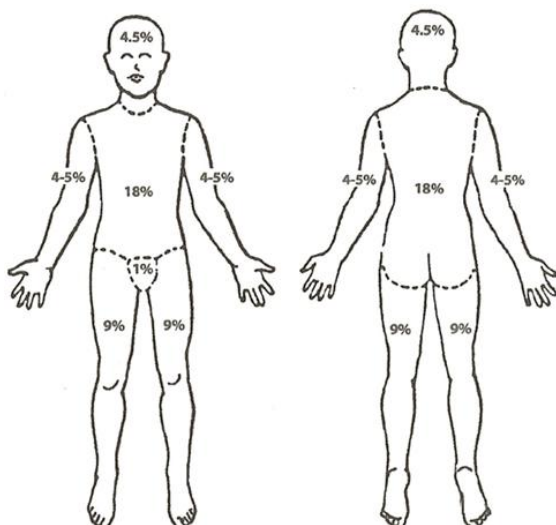
Example: 80 kg patient with 50% TBSA
 $(80 \times 50 \times 4) / 2 / 8 = 1000 \text{ cc/hr}$

Remember:

Weight in kg (2.2 lbs = 1.0 kg)

Example: 220 lbs adult = 100 kg

(Reminder, if two IV's are running, divide total amount to be infused each hour by 2)



Wt (kg)	% TBSA	per hr for 1 st 8 hrs of care	60 gtt set, gtt/min	10 gtt set, gtt/min
10	10	25	25	4
10	20	50	50	8
10	30	75	75	13
10	40	100	100	17
10	50	125	125	21
20	10	50	50	8
20	20	100	100	17
20	30	150	150	25
20	40	200	200	33
20	50	250	250	42
30	10	75	75	13
30	20	150	150	25
30	30	225	225	38
30	40	300	300	50
30	50	375	375	63
40	10	100	100	17
40	20	200	200	33
40	30	300	300	50
40	40	400	400	67
40	50	500	500	83
50	10	125	125	21
50	20	250	250	42
50	30	375	375	63
50	40	500	500	83
50	50	625	625	104
60	10	150	150	25
60	20	300	300	50
60	30	450	450	75
60	40	600	600	100
60	50	750	750	125
70	10	175	175	29
70	20	350	350	58
70	30	525	525	88
70	40	700	700	117
70	50	875	875	146
80	10	200	200	33
80	20	400	400	67
80	30	600	600	100
80	40	800	800	133
80	50	1000	1000	167
90	10	225	225	38
90	20	450	450	75
90	30	675	675	113
90	40	900	900	150
90	50	1125	1125	188
100	10	250	250	42
100	20	500	500	83
100	30	750	750	125
100	40	1000	1000	167
100	50	1250	1250	208

Harrison County Hospital EMS

Critical Care Drug List

This list contains medications that might be encountered in a Critical Care Transfer. Drug dosages are listed as a guideline. This list is not all inclusive and the transferring physicians order should be followed. If there is a question regarding dosage, contact the transferring physician.

Drug	Adult	Pediatric
<u>Ativan</u> (Lorazepam) <u>Indications/Contraindications</u> <ul style="list-style-type: none"> A benzodiazepine used in the treatment of anxiety and status epilepticus. 	<ul style="list-style-type: none"> IV: 4mg, can be followed by a second dose of 4mg in 10-15 minutes. Infusion: 0.5 – 8mg/hour (the dose is highly variable based on the intended usage). 	<ul style="list-style-type: none"> IV: Maximum dose 4mg, can be followed by a maximum dose of 4mg in 10-15 minutes
<u>Cardizem</u> (Diltiazem) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> A calcium channel blocker that slows conduction through the AV node. 	<ul style="list-style-type: none"> Dilute 125 mg in 100 ml of solution. Infuse 5-15 mg/hour, titrated to heart rate. 	N/A
<u>Dobutamine</u> (Dobutrex) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Synthetic catecholamine that primarily stimulates beta 1 adrenergic receptors. 	<ul style="list-style-type: none"> 2 – 20 mcg/kg/min IV drip 	<ul style="list-style-type: none"> 2 – 20 mcg/kg/min IV drip
<u>Heparin Sodium</u> <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> An anticoagulant that inhibits the clotting cascade. 	<ul style="list-style-type: none"> 12 IU/kg/hr IV drip 	N/A
<u>Insulin</u> <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> A naturally occurring hormone that helps the body use glucose. 	<ul style="list-style-type: none"> 0.1 units/kg/hr IV drip 	<ul style="list-style-type: none"> 0.1 – 0.2 units/kg/hr IV drip

This formulary is provided as a reference only. It does not contain all of the contraindications and potential adverse reactions for each listed drug. It is the responsibility of each EMS professional to be knowledgeable about the use of each drug in this formulary.

Harrison County Hospital EMS

Critical Care Drug List

This list contains medications that might be encountered in a Critical Care Transfer. Drug dosages are listed as a guideline. This list is not all inclusive and the transferring physicians order should be followed. If there is a question regarding dosage, contact the transferring physician.

Drug	Adult	Pediatric
<u>Integrilin</u> (Eptifibatide) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Inhibits platelet aggregation 	<ul style="list-style-type: none"> 0.5 – 2.0 mcg/kg/min IV drip 	N/A
<u>Labetalol</u> (Normodyne) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> An alpha and beta adrenergic blocker used to lower blood pressure. 	<ul style="list-style-type: none"> Mix 200 mg in 250 ml of D5W. Infuse at a rate of 2 – 8 mg/hr, titrated to supine blood pressure. 	N/A
<u>Mannitol</u> (Osmitol) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> An osmotic diuretic used to decrease cerebral edema. 	<ul style="list-style-type: none"> 0.5 – 1.0 g/kg in a 20% solution over 5-10 minutes. 	<ul style="list-style-type: none"> 0.2 – 0.5 g/kg IV infusion over 30 – 60 minutes.
<u>Neosynephrine</u> (Phenylephrine Hydrochloride) <u>Indications/Contraindications</u> <ul style="list-style-type: none"> Alpha-1 adrenergic agonist. It is a potent vasoconstrictor. 	<ul style="list-style-type: none"> Maximum single dose 1mg 	<ul style="list-style-type: none"> 5-10 mcg/kg IV
<u>Nitroglycerin</u> (Tridil and others) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> A vasodilator used for chest pain in the presence of a myocardial infarction. 	<ul style="list-style-type: none"> 200 – 400 mcg/ml infused at a rate of 10 – 20 mcg/min. Increase 5 – 10 mcg/min every 5 – 10 minutes until desired effect is achieved. 	N/A

This formulary is provided as a reference only. It does not contain all of the contraindications and potential adverse reactions for each listed drug. It is the responsibility of each EMS professional to be knowledgeable about the use of each drug in this formulary.

Harrison County Hospital EMS

Critical Care Drug List

This list contains medications that might be encountered in a Critical Care Transfer. Drug dosages are listed as a guideline. This list is not all inclusive and the transferring physicians order should be followed. If there is a question regarding dosage, contact the transferring physician.

Drug	Adult	Pediatric
<u>Nitroprusside</u> (Nipride, and others) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> An anti-hypertensive, used to reduce after load. 	<ul style="list-style-type: none"> Mix 50 or 100 mg in 250 ml D5W. Infuse at 0.1 mcg/kg/min, titrate up every 3 – 5 minutes to desired effects. Maximum dose 5 mcg/kg/min. 	N/A
<u>Norcuron</u> Vecuronium Bromide <ul style="list-style-type: none"> A non-depolarizing, neuromuscular blocking agent. 	<ul style="list-style-type: none"> IV: 80-100 mcg/kg 	<ul style="list-style-type: none"> IV: > 10 years of age, 80-100 mcg/kg < 10 years of age: N/A
<u>Levophed</u> (Norepinephrine) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> An alpha and beta 1 adrenergic agonist. 	<ul style="list-style-type: none"> Dilute 4 mg in 250 ml of D5W or D5NS Infuse at 0.5 – 1 mcg/min, titrated to desired effect. Maximum dose is 30 mcg/min. 	<ul style="list-style-type: none"> 0.1 – 2 mcg/kg/min IV / IO infusion.
<u>Oxytocin</u> (Pitocin) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> A hormone used to control post partum hemorrhage. 	<ul style="list-style-type: none"> Mix 10 – 40 units in 1000 ml NS or lactated ringers. Infuse at 10 – 40 mU/min with microdrip tubing. 	N/A
<u>Streptokinase</u> (Streptase) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> A fibrinolytic agent. 	<ul style="list-style-type: none"> 1.5 million units diluted to 45 ml. IV infusion over 1 hours 	N/A

This formulary is provided as a reference only. It does not contain all of the contraindications and potential adverse reactions for each listed drug. It is the responsibility of each EMS professional to be knowledgeable about the use of each drug in this formulary.

Harrison County Hospital EMS

Critical Care Drug List

This list contains medications that might be encountered in a Critical Care Transfer. Drug dosages are listed as a guideline. This list is not all inclusive and the transferring physicians order should be followed. If there is a question regarding dosage, contact the transferring physician.

<u>Succinylcholine</u> (Anectine) <u>Indications/Contraindications:</u> <ul style="list-style-type: none">• A depolarizing neuromuscular blocker.	<ul style="list-style-type: none">• 0.3 – 1.1 mg/kg over 10 – 30 seconds IV push• Maintenance: 0.04 – 0.07 mg/kg	<ul style="list-style-type: none">• 1 – 2 mg/kg rapid IV
<u>Tissue Plasminogen Activator</u> (t-PA, Activase and others) <u>Indications/Contraindications:</u> <ul style="list-style-type: none">• A fibrinolytic agent.	<ul style="list-style-type: none">• Follow physician orders	N/A

This formulary is provided as a reference only. It does not contain all of the contraindications and potential adverse reactions for each listed drug. It is the responsibility of each EMS professional to be knowledgeable about the use of each drug in this formulary.

Difficult Airway Evaluation

Evaluating for the difficult airway

Some patients who require endotracheal intubation have airways that make intubation difficult. Recognizing those patients who may have a difficult airway allows the paramedic to proceed with caution and to keep as many options open as possible. It also allows the paramedic to prepare additional equipment (such as a cricothyrotomy kit) that may not ordinarily be part of a standard airway kit. The mnemonic LEMON is useful in evaluating patients for signs that may be consistent with a difficult airway and should raise the paramedic's index of suspicion.

LOOK EXTERNALLY

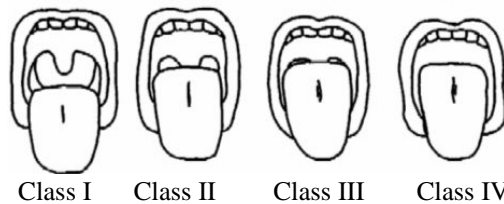
External indicators of either difficult intubation or difficult ventilation include: presence of a beard or moustache, abnormal facial shape, extreme cachexia or lack of muscle mass, lack of teeth, facial trauma, obesity, large front teeth or "buck teeth", high arching palate, receding mandible, short bull neck.

EVALUATE 3-3-2 RULE

3 fingers between the patient's teeth (patient's mouth should open adequately to permit three fingers to be placed between the upper and lower teeth)
3 fingers between the tip of the jaw and the beginning of the neck (under the chin)
2 fingers between the thyroid notch and the floor of the mandible (top of the neck)

MALLAMPATI

This scoring system is based on the work of Mallampati et al published in the Canadian Anaesthesia Society Journal in 1985. The system takes into account the anatomy of the mouth and the view of various anatomical structures when the patient opens his mouth as wide as possible. This test is performed with the patient in the sitting position, the head held in a neutral position, the mouth wide open, and the tongue protruding to the maximum. Inappropriate scoring may occur if the patient is in the supine position (instead of sitting), if the patient phonates or if the patient arches his or her tongue.



Class I = soft palate, fauces, uvula, pillars visible.
Class II = soft palate, fauces, uvula visible.
Class III = soft palate, base of uvula visible.
Class IV = soft palate not visible at all.

OBSTRUCTION?

Besides the obvious difficulty if the airway is obstructed with a foreign body, the paramedic should also consider other obstructors such as tumor, abscess, epiglottitis, or expanding hematoma.

NECK MOBILITY

Ask the patient to place their chin on their chest and to tilt their head backward as far as possible. Obviously, this will not be possible in the immobilized trauma patient.

Dopamine (Intropin)

This chart is provided as a guide to dosing. It is the responsibility of each clinician to make sure they are giving the proper dose of medication. The numbers below have been rounded to the closest whole number.

Weight Conversion Formula

$$Kg = lbs / 2.2$$

Example: 150 lbs / 2.2 = 68 kg (rounded)

Drip Rate Formula

(To find drops/min)

$$\frac{\text{Dose} \times \text{Weight (kg)} \times \text{drop factor}}{\text{Concentration in 1 ml}} = \text{gtts/min}$$

Calculated with a concentration of 3200 mcg/ml (800 mg in 250 ml)

Values below are drips/min on a 60 drop/ml (Micro Drip) set

Drops/min

Weight (lbs)	Weight (kg)	5 mcg/kg/min	10 mcg/kg/min	15 mcg/kg/min	20 mcg/kg/min
66	30	3	6	8	11
77	35	3	7	10	13
88	40	4	7	11	15
99	45	4	8	13	17
110	50	5	9	14	19
121	55	5	10	15	21
132	60	6	11	17	22
143	65	6	12	18	24
154	70	7	13	20	26
165	75	7	14	21	28
176	80	7	15	22	30
187	85	8	16	24	32
198	90	8	17	25	34
209	95	9	18	27	36
220	100	9	19	28	37
231	105	10	20	30	39
242	110	10	21	31	41

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Fentanyl Dosing Chart

(Use the smallest dose to achieve the desired effect)

This chart is provided as a guide to dosing. It is the responsibility of each clinician to make sure they are giving the proper dose of medication. The numbers below have been rounded to the lowest whole number.

Weight Conversion Formula

$$Kg = lbs / 2.2$$

Example: 150 lbs / 2.2 = 68 kg (rounded)

Weight (lbs)	Weight (kg)	Dose (1mcg/kg)	Dose (2mcg/kg)
5	2	2 mcg	4 mcg
10	4	4 mcg	8 mcg
15	6	6 mcg	12 mcg
20	9	9 mcg	18 mcg
25	11	11 mcg	22 mcg
30	13	13 mcg	26 mcg
35	15	15 mcg	30 mcg
40	18	18 mcg	36 mcg
45	20	20 mcg	40 mcg
50	22	22 mcg	44 mcg
55	25	25 mcg	50 mcg
60	27	27 mcg	54 mcg
65	29	29 mcg	58 mcg
70	31	31 mcg	62 mcg
75	34	34 mcg	68 mcg
80	36	36 mcg	72 mcg
85	38	38 mcg	76 mcg
90	40	40 mcg	80 mcg
95	43	43 mcg	86 mcg
100	45	45 mcg	90 mcg
105	47	47 mcg	94 mcg
110	50	50 mcg	100 mcg
115	52	52 mcg	104 mcg
120	55	55 mcg	110 mcg
125	57	57 mcg	114 mcg
130	59	59 mcg	118 mcg
135	61	61 mcg	122 mcg
140	64	64 mcg	128 mcg

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145	66	66 mcg	132 mcg
150	68	68 mcg	136 mcg
155	70	70 mcg	140 mcg
160	73	73 mcg	146 mcg
165	75	75 mcg	150 mcg
170	77	77 mcg	
175	79	79 mcg	
180	82	82 mcg	
185	84	84 mcg	
190	86	86 mcg	
195	89	89 mcg	
200	91	91 mcg	
205	93	93 mcg	
210	95	95 mcg	
215	98	98 mcg	
220	100	100 mcg	
225	102	102 mcg	
230	104	104 mcg	
235	107	107 mcg	
240	109	109 mcg	
245	111	111 mcg	
250	114	114 mcg	
255	116	116 mcg	
260	118	118 mcg	
265	120	120 mcg	
270	123	123 mcg	
275	125	125 mcg	
280	127	127 mcg	
285	129	129 mcg	
290	132	132 mcg	
295	134	134 mcg	
300	136	136 mcg	

Harrison County Hospital EMS

EMS Drug List

This list contains only the medications contained in the 2014 Harrison County Hospital EMS protocols. This list is not intended to indicate when to contact medical control. See the specific protocol for that information.

Drug	Adult	Pediatric
<u>Adenosine</u> (Adenocard) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Specifically for treatment or diagnosis of Supraventricular Tachycardia 	<ul style="list-style-type: none"> 6 mg rapid IV push over 1-3 seconds. If no effect after 1-2 minutes; 12 mg rapid IV push over 1-3 seconds. If no effect after 1-2 minutes; Repeat with 12 mg IV push over 1-3 seconds. Follow each dose with 10 ml Normal Saline flush. 	<ul style="list-style-type: none"> 0.1 mg/kg IV (Max 6 mg) push over 1-3 seconds. If no effect after 1-2 minutes, Repeat with 0.2 mg/kg IV (Max 12 mg) push over 1-3 seconds. Follow each dose with 5 ml to 10 ml Normal Saline flush.
<u>Albuterol</u> (Proventil) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Beta-Agonist nebulized treatment for use in respiratory distress with bronchospasm. 	<ul style="list-style-type: none"> 2.5 mg (3 cc) in nebulizer continuously, if no history of cardiac disease and heart rate < 150. 	<ul style="list-style-type: none"> 2.5 mg (3 cc) in nebulizer continuously, if no history of cardiac disease and heart rate < 200.
<u>Amiodarone</u> (Cordarone) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Antiarrhythmic used in Ventricular Fibrillation. Avoid in patients with heart block or profound Bradycardia. 	<u>V-fib / pulseless V-tach</u> <ul style="list-style-type: none"> 300 mg IV push Repeat dose of 150 mg IV push for recurrent episodes <u>V-tach with a pulse</u> <ul style="list-style-type: none"> 150 mg in 100cc D5W over 10 minutes 	<u>V-fib / pulseless V-tach</u> <ul style="list-style-type: none"> 5 mg/kg IV push
<u>Aspirin</u> <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> An antiplatelet drug for use in cardiac chest pain 	<ul style="list-style-type: none"> 81 mg chewable (baby) Aspirin. Give 4 tablets to equal 324 mg. 	<p>N/A</p>

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<u>Atropine Sulfate</u> <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Anticholinergic drug used in bradycardia. For Endotracheal Tube use of this drug, double the dose) 	<ul style="list-style-type: none"> 0.5 – 1.0 mg IV every 3-5 minutes, up to 3 mg. 	<ul style="list-style-type: none"> 0.02 mg/kg IV, IO (Max 1.0 mg per dose) Minimum 0.1 mg per dose May repeat dose X 1
<u>Atrovent (Ipratropium)</u> <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Anticholinergic that results in bronchodilation. Medication used in addition to albuterol to assist in patients with asthma and COPD. 	<ul style="list-style-type: none"> 500 mcg, combined with nebulized albuterol. 	<ul style="list-style-type: none"> 500 mcg, combined with nebulized albuterol.
<u>Benadryl Diphenhydramine</u> <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Antihistamine for control of allergic reactions. 	<u>Mild or Moderate Allergic Reaction</u> <ul style="list-style-type: none"> 25 mg IV <u>Severe Allergic Reaction</u> <ul style="list-style-type: none"> 25 – 50 mg IV 	<ul style="list-style-type: none"> 1 mg/kg IV / IO Do not give if < 10 kg or < 3 months old. Maximum dose 25 mg
<u>Brethine (Terbutaline)</u> <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> A bronchodilator used for bronchospasm secondary to asthma or COPD. 	<ul style="list-style-type: none"> 0.25 mg SQ May repeat X 1 in 15 – 30 minutes. 	N/A
<u>Dextrose 25%</u> <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Use in unconscious or hypoglycemic states. 	N/A	<ul style="list-style-type: none"> 2-10 ml/kg IV or IO starting at low dose Repeat based on blood glucose results

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<u>Dextrose 50%</u> <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Use in unconscious or hypoglycemic states. 	<ul style="list-style-type: none"> One ampule or 25 gram IV bolus Repeat based on blood glucose results. 	N/A
<u>Dopamine</u> (Intropin) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> A vasopressor used in shock or hypotensive states. 	<ul style="list-style-type: none"> 2 – 20 mcg/kg/min IV / IO titrated to BP systolic of 90 mmHg <p style="text-align: center;"><u>ROSC</u></p> <ul style="list-style-type: none"> 5 – 10 mcg/kg/min IV / IO titrated to maintain a mean arterial pressure of 90 – 100 mmHg. 	<ul style="list-style-type: none"> 2 – 20 mcg/kg/min IV / IO titrated to BP systolic appropriate for age.
<u>Epinephrine 1:1,000</u> (Adrenaline) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Vasopressor used in moderate allergic reactions and respiratory distress. 	<p style="text-align: center;"><u>Moderate Allergic Reaction</u></p> <ul style="list-style-type: none"> 0.3 – 0.5 mg SC <p style="text-align: center;"><u>Respiratory Distress</u></p> <ul style="list-style-type: none"> 0.3 mg SC, if < 40 years old and no cardiac history. 	<ul style="list-style-type: none"> 0.01 mg/kg IV or IO Maximum dose is 0.3 mg
<u>Epinephrine 1:10,000</u> (Adrenaline) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Vasopressor used in cardiac arrest and severe allergic reaction. 	<p style="text-align: center;"><u>Pulseless Arrest</u></p> <ul style="list-style-type: none"> 1.0 mg IV / IO Repeat every 3 – 5 minutes May be given by endotracheal tube in double the IV dose. <p style="text-align: center;"><u>Severe Allergic Reaction</u></p> <ul style="list-style-type: none"> 0.5 mg IV / IO 	<p style="text-align: center;"><u>Pulseless Arrest</u></p> <ul style="list-style-type: none"> 0.01 mg/kg IV / IO Repeat every 3 – 5 minutes May be given by endotracheal tube in double the IV dose.
<u>Fentanyl</u> (Sublimaze) Narcotic Analgesic <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Narcotic pain relief Avoid if BP < 110 	<ul style="list-style-type: none"> 2 mcg/kg IV / IO Maximum dose 150 mcg 	<ul style="list-style-type: none"> 1 - 2 mcg/kg IV / IO Maximum dose 150 mcg

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<u>Glucagon</u> <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> • Drug acting to release glucose into blood stream by glycogen breakdown. • Use in patients with no IV access. 	<ul style="list-style-type: none"> • 1 mg IM • Follow up blood glucose determination in 15 minutes. 	<ul style="list-style-type: none"> • 0.5 mg IM • Follow up blood glucose determination in 15 minutes. • Age > 3 years.
<u>Glucose Oral</u> <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> • Use in conscious hypoglycemic states. 	<ul style="list-style-type: none"> • One tube • Repeat based on blood glucose results 	<ul style="list-style-type: none"> • One tube • Repeat based on blood glucose result. • Minimal age = 3 years
<u>Lasix</u> (Furosemide) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> • A loop diuretic used in pulmonary edema. 	<ul style="list-style-type: none"> • 40 mg IV slow push • If patient is currently taking Lasix, then give that dose. 	<ul style="list-style-type: none"> • 1 mg/kg IV slow push • Maximum dose is 6 mg
<u>Lidocaine 2%</u> (Xylocaine) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> • Injectable anaesthetic used to reduce pain associated with pressure infusion of fluids into the marrow space. 	<ul style="list-style-type: none"> • 10 mg slow IO push. Do not flush for at least 30 seconds. 	<ul style="list-style-type: none"> • 0.5 mg/kg slow IO push. Do not flush for at least 30 seconds.
<u>Lidocaine 2% Topical Jelly</u> Xylocaine 2% Topical Jelly <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> • Used for local anesthesia and lubrication for placement of nasotracheal endotracheal tubes and nasopharyngeal airways. 	<ul style="list-style-type: none"> • Apply necessary amount to endotracheal tube or nasopharyngeal airway prior to insertion into the nostril. 	<ul style="list-style-type: none"> • Apply necessary amount to endotracheal tube or nasopharyngeal airway prior to insertion into the nostril.

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<u>Ativan</u> (Lorazepam) <u>Indications/Contraindications</u> <ul style="list-style-type: none"> A benzodiazepine used in the treatment of anxiety and status epilepticus. 	<ul style="list-style-type: none"> IV/IO: 2-5mg, can be followed by a second dose of 2-5mg in 5 minutes. 	<ul style="list-style-type: none"> IV/IO: 0.1 mg over 2 minutes. Maximum dose of 4mg. May repeat after 5 minutes if needed.
<u>Magnesium Sulfate</u> <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> An electrolyte used in treatment of Torsades de Pointes Ventricular Tachycardia. 	<ul style="list-style-type: none"> Dilute 1 – 2 grams in 10 ml of Normal Saline. 	<p style="text-align: center;">N/A</p>
<u>Morphine Sulfate</u> Narcotic Analgesic <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Suspected Cardiac Chest Discomfort/Pain Narcotic pain relief Possible beneficial effect in pulmonary edema Avoid if BP < 110 	<p style="text-align: center;"><u>Cardiac Chest Pain</u></p> <ul style="list-style-type: none"> 2mg IV/IO May repeat every 5 – 10 minutes up to a total of 10mg <p style="text-align: center;"><u>Pain Relief</u></p> <ul style="list-style-type: none"> 5 mg IM/IV/IO bolus May repeat every 5 minutes up to a total of 10 mg <p style="text-align: center;"><u>Pulmonary Edema</u></p> <ul style="list-style-type: none"> 2 mg IV / IO May repeat X 1 after 10 minutes 	<p style="text-align: center;"><u>Pain Relief</u></p> <ul style="list-style-type: none"> 0.1 mg/kg IV / IO Single bolus only Maximum dose 5 mg
<u>Narcan</u> Naloxone <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Narcotic Antagonist 	<ul style="list-style-type: none"> 0.5 - 2 mg IV / IO bolus titrated to patient's respiratory response. Utilize the lowest dose required for patient to protect their airway. 	<ul style="list-style-type: none"> 0.1 mg/kg IV / IO bolus titrated to patient's respiratory response. Maximum 2 mg Utilize the lowest dose required for patient to protect their airway.

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<u>Neosynephrine</u> (Phenylephrine) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> • Vasoconstrictor used with nasal intubation. • Relative Contraindication is significant hypertension. • 	<ul style="list-style-type: none"> • 2 sprays in nostril 	<ul style="list-style-type: none"> • 1 -2 sprays in nostril
<u>Normal Saline</u> Crystalloid Solution <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> • The IV fluid of choice for access or volume infusion. 	<ul style="list-style-type: none"> • TKO / KVO for IV / IO access. • Bolus in 250 ml increments for cardiac • Bolus in 500 – 1000 ml increments for volume. • Bolus in 1000 ml increments for burns or electrical injuries. 	<ul style="list-style-type: none"> • TKO / KVO for IV / IO access. • Bolus in 20 ml/kg increments for volume (may be repeated X 3)
<u>Nitroglycerine</u> <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> • Smooth muscle relaxer, used for vasodilation in angina, acute coronary syndromes, CHF. 	<p style="text-align: center;"><u>Chest Pain</u></p> <ul style="list-style-type: none"> • 1 tablet 0.4 mg SL every 5 minutes until pain free or 3 doses. • If systolic blood pressure ever < 100 mmHg, contact medical control before administration. <p style="text-align: center;"><u>Pulmonary Edema</u></p> <ul style="list-style-type: none"> • 1 tablet SL every 1 – 2 minutes if BP > 110 mmHg. • If systolic blood pressure ever < 100 mmHg, contact medical control before administration. 	<p>N/A</p>

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Drug	Adult	Pediatric
<u>Oxygen</u> <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Useful in any condition with increase in cardiac work load, respiratory distress, or illness or injury resulting in altered ventilation and/or perfusion. Required for pre-oxygenation prior to intubation. 	<ul style="list-style-type: none"> 1-4 liters/min via nasal cannula 6-15 liters/min via non-rebreather mask (sufficient to allow reservoir bag to remain full during inspiration. 10-15 liters/min via BVM (sufficient to allow reservoir bag to completely refill between ventilations. 	<ul style="list-style-type: none"> 1-4 liters/min via nasal cannula 6-15 liters/min via non-rebreather mask (sufficient to allow reservoir bag to remain full during inspiration. 10-15 liters/min via BVM (sufficient to allow reservoir bag to completely refill between ventilations.
<u>Sodium Bicarbonate</u> <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> A buffer used in acidosis to increase the pH in cardiac arrest. 	<ul style="list-style-type: none"> 1 mEq/kg IV / IO May be repeated in 10 minutes at 0.5 mEq/kg 	<ul style="list-style-type: none"> 1 mEq/kg IV / IO May be repeated in 10 minutes at 0.5 mEq/kg
<u>Thiamine</u> (Vitamin B1) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> A vitamin administered prior to giving Dextrose in patients with a possible history of malnutrition, alcoholism, thiamine deficiency or cancer. 	<ul style="list-style-type: none"> 100 mg slow IV push 	<p style="text-align: center;">N/A</p>
<u>Solu-medrol</u> (Methylprednisolone) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Steroid used in respiratory distress to reverse inflammatory and allergic reactions. 	<ul style="list-style-type: none"> 125 mg IV 	<ul style="list-style-type: none"> 2 mg/kg IV Maximum dose 125 mg

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<u>Valium</u> (Diazepam) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> A benzodiazepine used in the control of seizures and status epilepticus. 	<ul style="list-style-type: none"> 2 – 5 mg IV / IO / Rectal Maximum dose 10 mg 	<ul style="list-style-type: none"> Follow Broselow-Luten Tape OR 0.1 – 0.2 mg/kg IV / IO / Rectal every 2-5 minutes Maximum single dose 5 mg Maximum total dosage 10 mg
<u>Vasopressin</u> (Pitressin) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> A hormone used in place of and/or in addition to epinephrine in the setting of pulseless arrest. 	<ul style="list-style-type: none"> 40 units IV X 1 	<p style="text-align: center;">N/A</p>
<u>Versed</u> Midazolam <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Post intubation sedation anxiety, combativeness or restlessness, seizures. 	<ul style="list-style-type: none"> 0.01 to 0.02 mg/kg Maximum Dose 2 mg <p>If no IV/IO for seizure</p> <ul style="list-style-type: none"> 10 mg IM. DO NOT REPEAT. 	<p>If no IV/IO for seizure</p> <ul style="list-style-type: none"> 0.2 mg/kg IM. Maximum dose of 10mg. DO NOT REPEAT.
<u>Zofran</u> (Ondansetron) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Anti-Emetic used in control of nausea and/or vomiting. 	<ul style="list-style-type: none"> 4 mg IM or IV 	<ul style="list-style-type: none"> Contact Medical Control

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