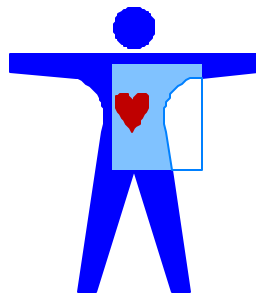


# Adult Advanced Life Support Protocols

Southern Tier Regional Emergency Medical Services



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## INTRODUCTION

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These Adult Advanced Life Support (ALS) Protocols are provided for EMT-Intermediate, EMT-CC and Paramedic use, and reflect the current minimum regional ALS treatment standards for adults.

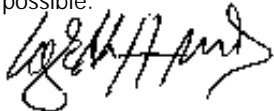
Emergency medical care is provided through the cooperative involvement of the public, law enforcement, Dispatchers, First Responders, EMTs, Advanced EMTs, nurses, physicians and hospitals. These ALS protocols provide standardized approaches to medical care for suspected diagnoses. Out of hospital EMS personnel provide emergency medical expertise through the license to practice medicine of the supervising physician providing Medical Control and through the agency's medical director's license. Medical Control is provided indirectly through the physician medical directors of each EMS provider agency, through these protocols, and through direct on-line communication with an on-line medical control physician in real time at an on-line medical control facility.

In each of the following ALS protocols, the procedures which may be performed prior to, or if unable to contact, Medical Control are specified. These are procedures and treatment orders which have received prior physician authorization through the Southern Tier Regional Emergency Medical Advisory Committee of the Southern Tier Regional Emergency Medical Services Council. The treatment limit for each level of training is indicated; no treatment or procedure beyond that point may be performed without on-line medical control authorization. Where any protocol specifies "Medical Control," direct physician supervision is required for any further medical intervention, within the limits of each individual's training, certification, and regional scope of practice.

If advanced EMS personnel are initially unable to contact Medical Control, transport should be initiated; attempts to establish on-line Medical Control should be continued, using all forms of communication (e.g., telephone, EMS radio, private dispatch radio).

It is the responsibility of EMS personnel to use their best judgment in instituting these protocols.

The Southern Tier Regional Emergency Medical Advisory Committee gratefully acknowledges all who participated in the development of these protocols. The STREMAC's Adult ALS Protocol original subcommittee consisted of Dr. William Naber, Dr. Michael Seaman, Ms. Mary Ann Teeter, Mr. Robert Rajskey, Mr. Thomas Golden, Mr. Rick Kimball, and Mr. Arthur Jones, and is responsible for the development of this document. Helpful input was also received from the region's hospitals' Medical Staff as well as the region's many EMS providers. Without all their collective effort, and that of the STREMS staff, these protocols would not have been possible.



William E. Huffner, M.D.  
Chair, Southern Tier Regional Medical Advisory Committee  
Medical Director, Southern Tier Regional EMS Council

The following procedures will be performed on all *medical* emergencies requiring Advanced Life Support:

- ALL LEVELS**
- Advanced Life Support equipment will be brought to the patient. This will include equipment appropriate for your level of training, a monitor/defibrillator, suction, medication box, oxygen, and advanced airway including an Esophageal Detector Device (EDD) or non colorimetric end tidal CO<sub>2</sub> detector and, where available, pulse oximeter.<sup>1</sup>
  - Simultaneous dispatch of Critical Care or Paramedic unit as defined in the New York State Basic Life Support Protocols.<sup>2</sup>
  - Reassurance and proper positioning of the patient.
  - Patient assessment with vital signs at least every 10 minutes and/or after every treatment.
  - Contact Medical Control at appropriate intervals.
  - Scene times should be minimized.
- EMT-I**
- Draw blood samples.
  - Establish venous access with NS or D<sub>5</sub>W (LR for Major Trauma patients) or IV Lock.
  - Do not delay transport in order to establish venous access.
- EMT-/CC/P**
- Draw blood samples.
  - Establish venous access with NS, (LR for Major Trauma patients) or IV Lock.
  - If unable to establish venous access, contact Medical Control.
  - Obtain ECG and monitor cardiac rhythm strip.

<sup>1</sup> Pulse oximetry should be used as a tool to assist with patient assessment. Under no circumstances should oxygen therapy be decreased or withheld based on oxygen saturation reading unless medical control authorizes such an action

<sup>2</sup> *Interface with Critical Care level or Paramedic shall occur as soon as possible, following the Southern Tier Interface Policy. It is far better to have dispatched a Critical Care or Paramedic unit and not need it, than to discover that one is needed and not have dispatched one.*

## IV INFUSION CHART

All IV medication infusions should be run on a microdrip tubing (60gtt/cc).

Suggested Formulation:

Lidocaine	Premix 4 mg/cc (2 gm in 500 cc d5W)	1mg/min 2mg/min 3mg/min 4mg/min	15 drops/min 30 drops/min 45 drops/min 60 drops/min												
Bretylium	Mix 500mg in 250 cc d5W (2 mg/cc)	1mg/min 2mg/min	30 drops/min 60 drops/min												
Procainimide	Mix 1 gram in 50cc d5W (20 mg/cc)	5mg/min 10mg/min 15mg/min 20mg/min	15 drops/min 30 drops/min 45 drops/min 60 drops/min												
Dopamine	Premix 1600 µg/cc	µg/ kg /mi n	Patient weight in kg.												
			2.5	5	10	20	30	40	50	60	70	80	90	100	
			2	-	-	-	1.5	2	3	4	5	5	6	7	8
			5	-	1	2	4	6	8	9	11	13	15	17	19
			10	1	2	4	8	11	15	19	23	26	30	34	38
			15	1.4	3	6	11	17	23	28	34	39	45	51	56
			20	2	4	8	15	23	30	38	45	53	60	68	75
Microdrops per minute (or ml/hr)															



## TERMINATION OF RESUSCITATION, ADULT, WITHOUT VALID PREHOSPITAL DNR

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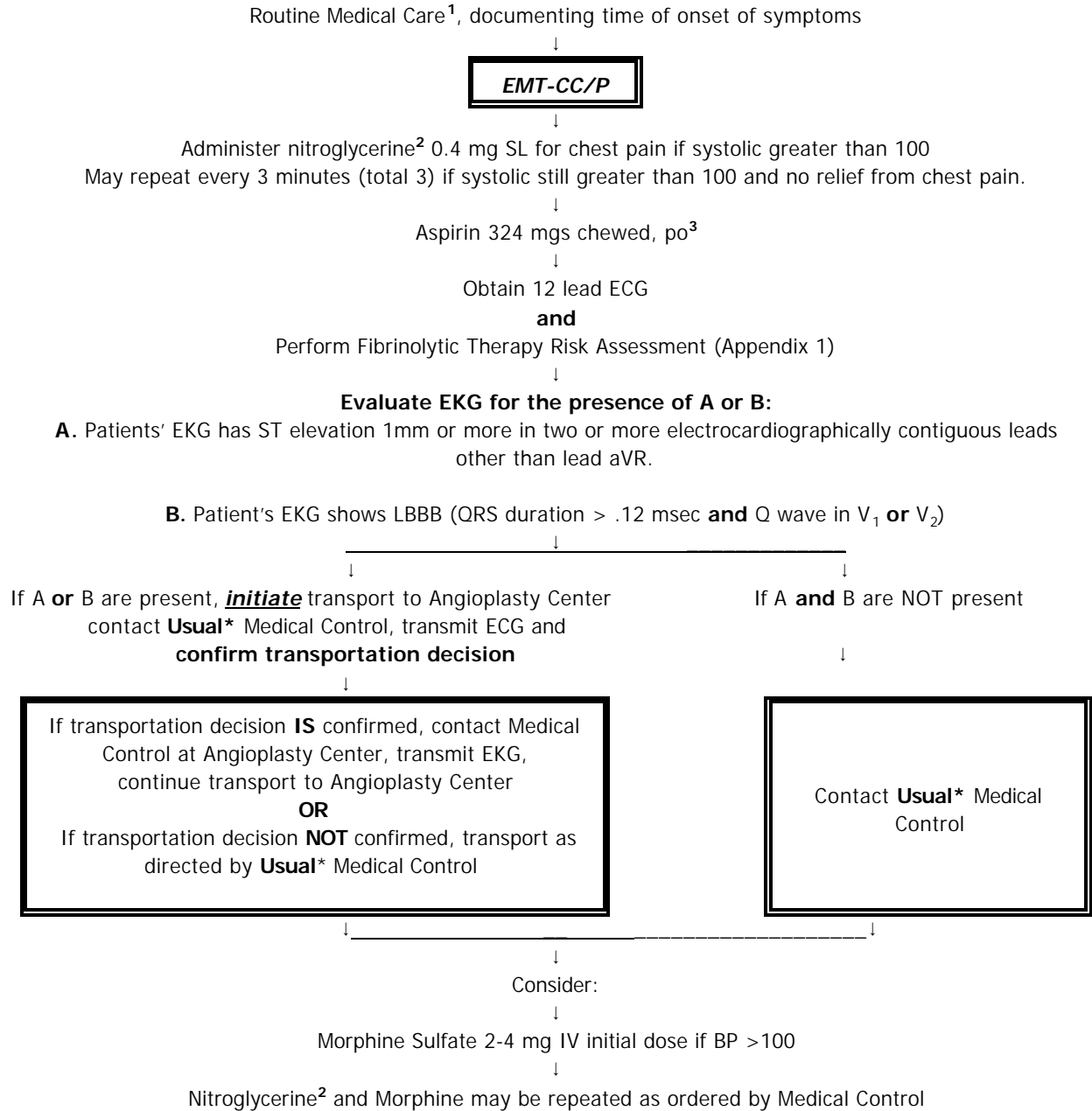
- EMT-P:* Cardiopulmonary Resuscitation may be terminated if ALL the following are present:
- G** A. Patient's age is 16 or older
  - G** B. Cardiopulmonary arrest is not associated, or suspected to be associated with:
    - ▶penetrating trauma or isolated head trauma
    - ▶hypothermia
    - ▶drug ingestion or overdose
    - ▶cold water immersion
  - G** C. No restoration of spontaneous circulation as evidenced by asystole for at least ten minutes.
  - G** D. Absence of:
    - ▶recurring ventricular tachycardia
    - ▶ventricular fibrillation
    - ▶any neurological activity
    - ▶PEA
  - G** E. ACLS performed for 20 minutes with adequate:
    - ▶CPR
    - ▶intubation
    - ▶IV access
  - G** F. All of the following agree with termination of resuscitation:
    - ▶the patient's family
    - ▶EMS Providers
  - G** G. Patient is NOT a known organ donor.
  - G** H. Medical Control authorized termination of resuscitation.

Once termination of resuscitation occurs, document the time of termination of resuscitation on the PCR. Document on the PCR, items A through H as well as the on-line Medical Control physician's name and authorization to terminate resuscitation.

If termination of resuscitation occurs during transport, continue transport to the facility giving Medical Control authorizing termination of resuscitation.

If termination of resuscitation occurs prior to moving the patient into the ambulance, law enforcement shall be contacted to address the unattended death situation and for scene evaluation. The patient's private physician should be contacted for release of the body and agreement to sign the patient's death certificate. If the patient's private physician is unavailable or refuses to sign the patient's death certificate, the County Coroner or Medical Examiner shall be contacted. Any inquiry regarding disposition of the body after the authorized removal shall be directed to the appropriate law enforcement agency.

## SUSPECTED ACUTE MYOCARDIAL INFARCTION



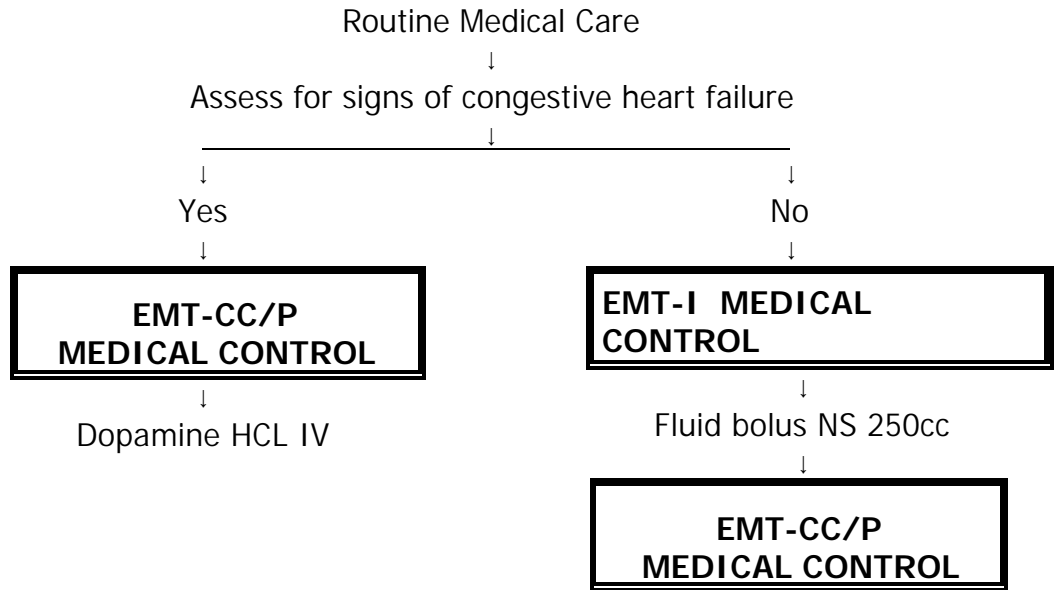
<sup>1</sup> Do not delay nitroglycerine<sup>2</sup> administration to establish venous access.

<sup>2</sup> If patient has taken Sildenafil (Viagra™) or similar class of drug in the previous 24 hours, contact Medical Control PRIOR to any nitroglycerine administration. Sildenafil (Viagra™) and similar drugs are absolutely contraindicated in patients who utilize short acting nitrates, due to the risk of developing potentially life threatening hypotension.

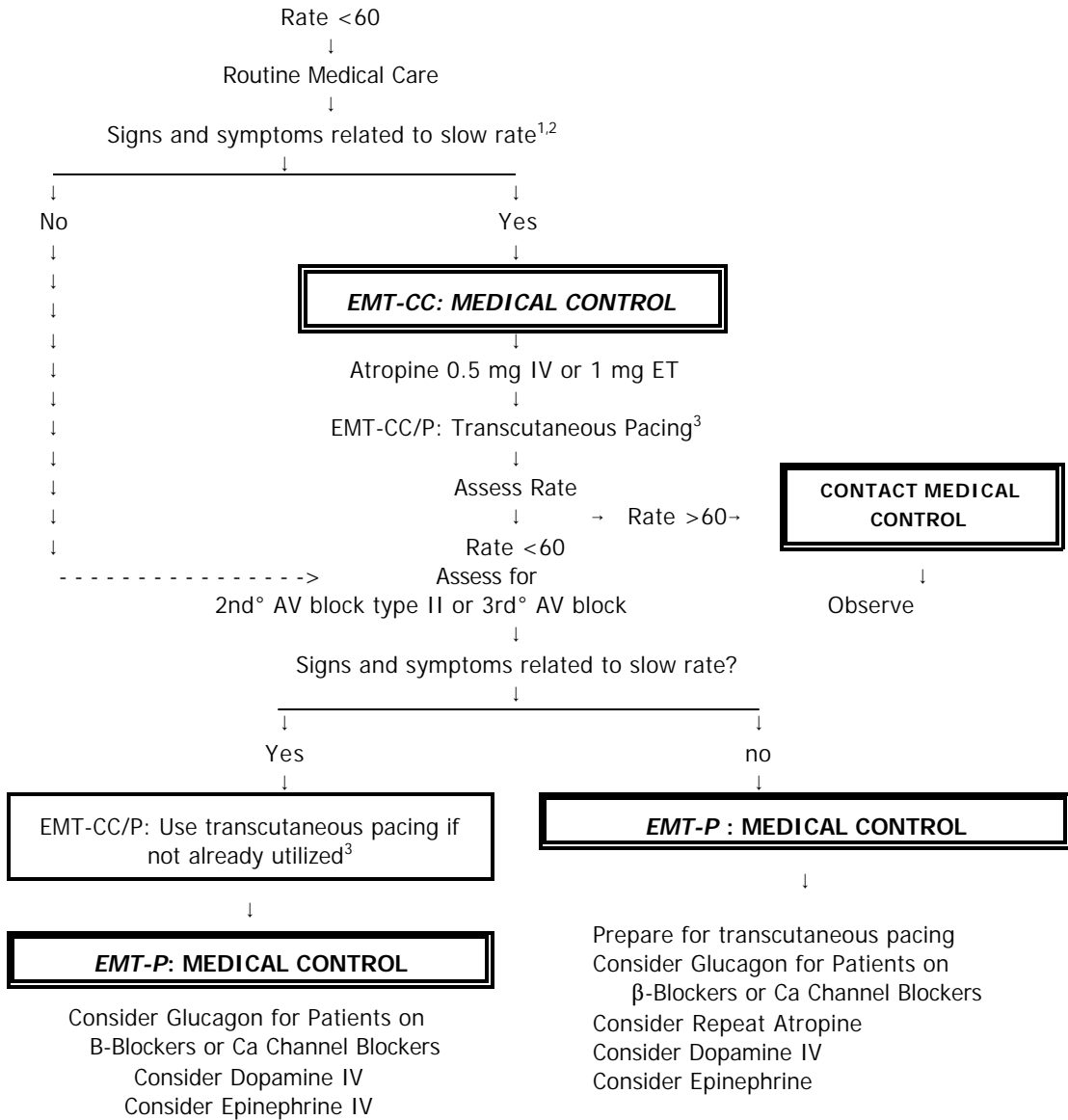
<sup>3</sup> If patient indicates an allergy to aspirin, withhold aspirin, contact medical control and administer **only** with medical control authorization.

\* **Usual Medical Control means Medical Control that would have been contacted had the patient not met the criteria for inclusion in this protocol.**

## Non-Traumatic HYPOTENSION/SHOCK



# BRADYCARDIA

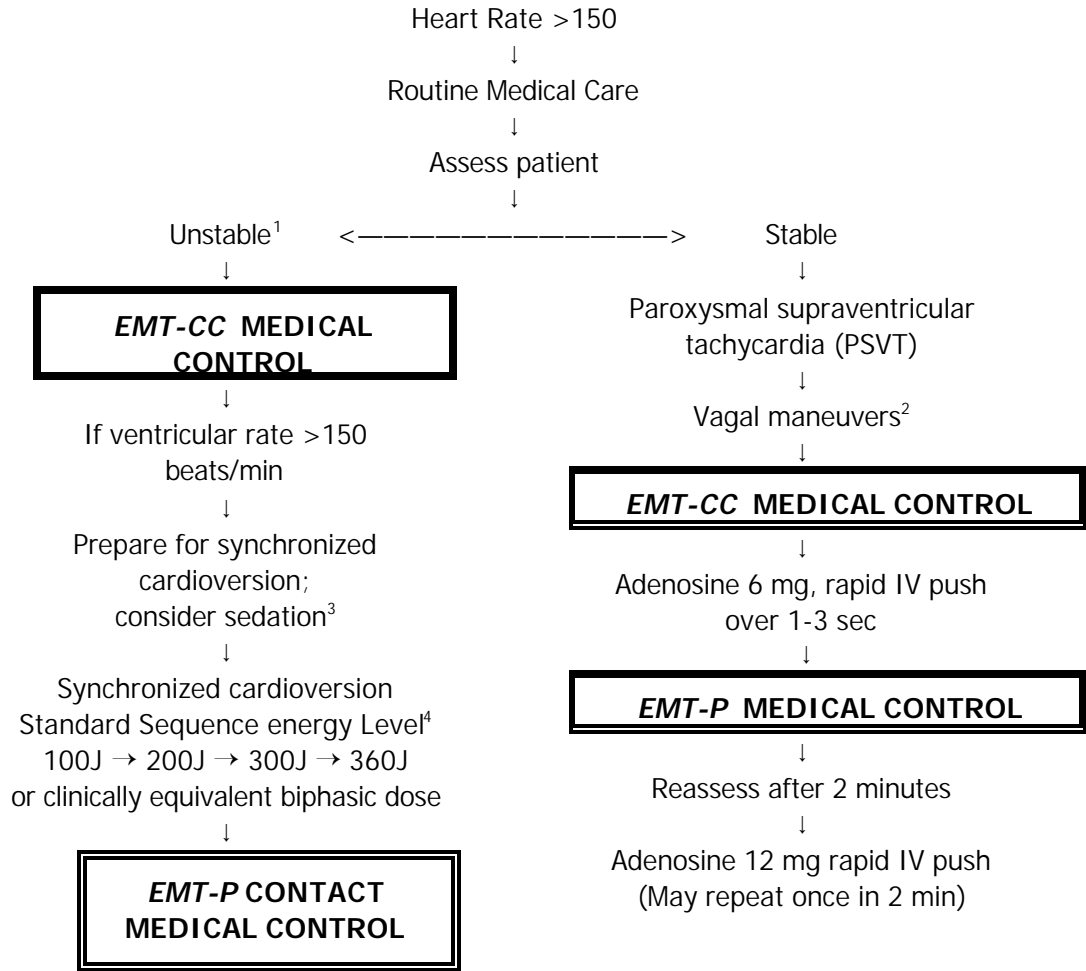


<sup>1</sup> Signs include abnormally low BP, shock, pulmonary congestion, CHF, Acute MI; Symptoms include chest pain, dyspnea, altered mental status.

<sup>2</sup> EMT-P: do not delay Transcutaneous Pacing (if available) while awaiting IV access or for atropine to take effect if the patient has serious signs or symptoms related to slow rate.

<sup>3</sup> Sedation should be considered for conscious patients: Contact Medical Control, Consider: Lorazepam 2mg IM, or diluted 1:1 with normal saline and given over 1 minute IV **OR** Diazepam 2-5mg IV

## SUPRAVENTRICULAR TACHYCARDIA



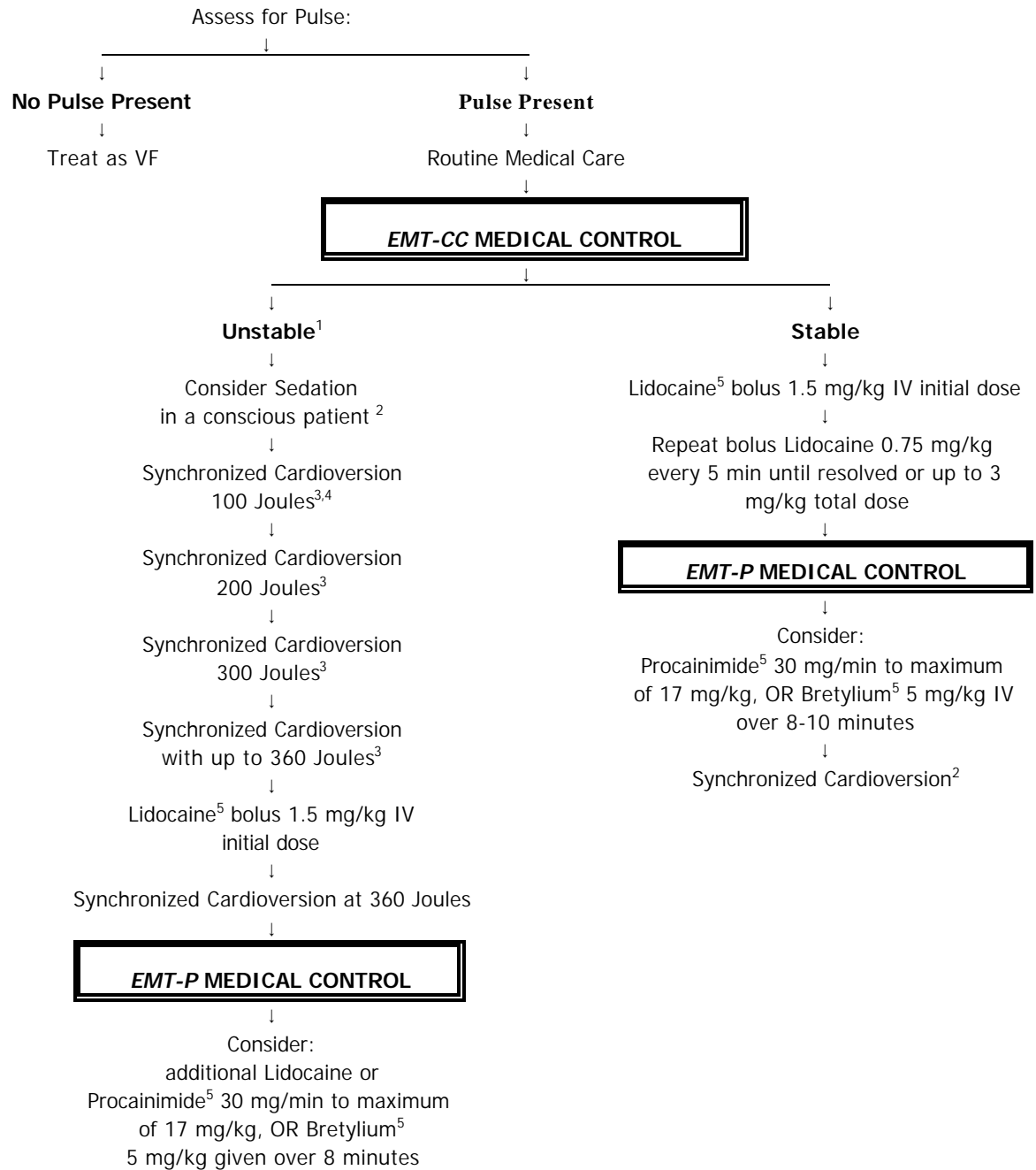
<sup>1</sup>Unstable condition must be related to the tachycardia. Signs and symptoms may include chest pain, shortness of breath, shock, CHF, pulmonary congestion, acute MI, altered mental status, low BP not related to hypovolemia.

<sup>2</sup>Carotid sinus massage is not recommended in the prehospital setting.

<sup>3</sup> Sedation should be considered for conscious patients: Contact Medical Control. Consider: Lorazepam 2 mg. IV **OR** Diazepam 2-5mg IV.

<sup>4</sup>Atrial flutter often responds to lower dose, 50J

## VENTRICULAR TACHYCARDIA



<sup>1</sup>Unstable indicates symptoms, chest pain, dyspnea, hypotension (systolic blood pressure <90mm Hg), congestive heart failure.

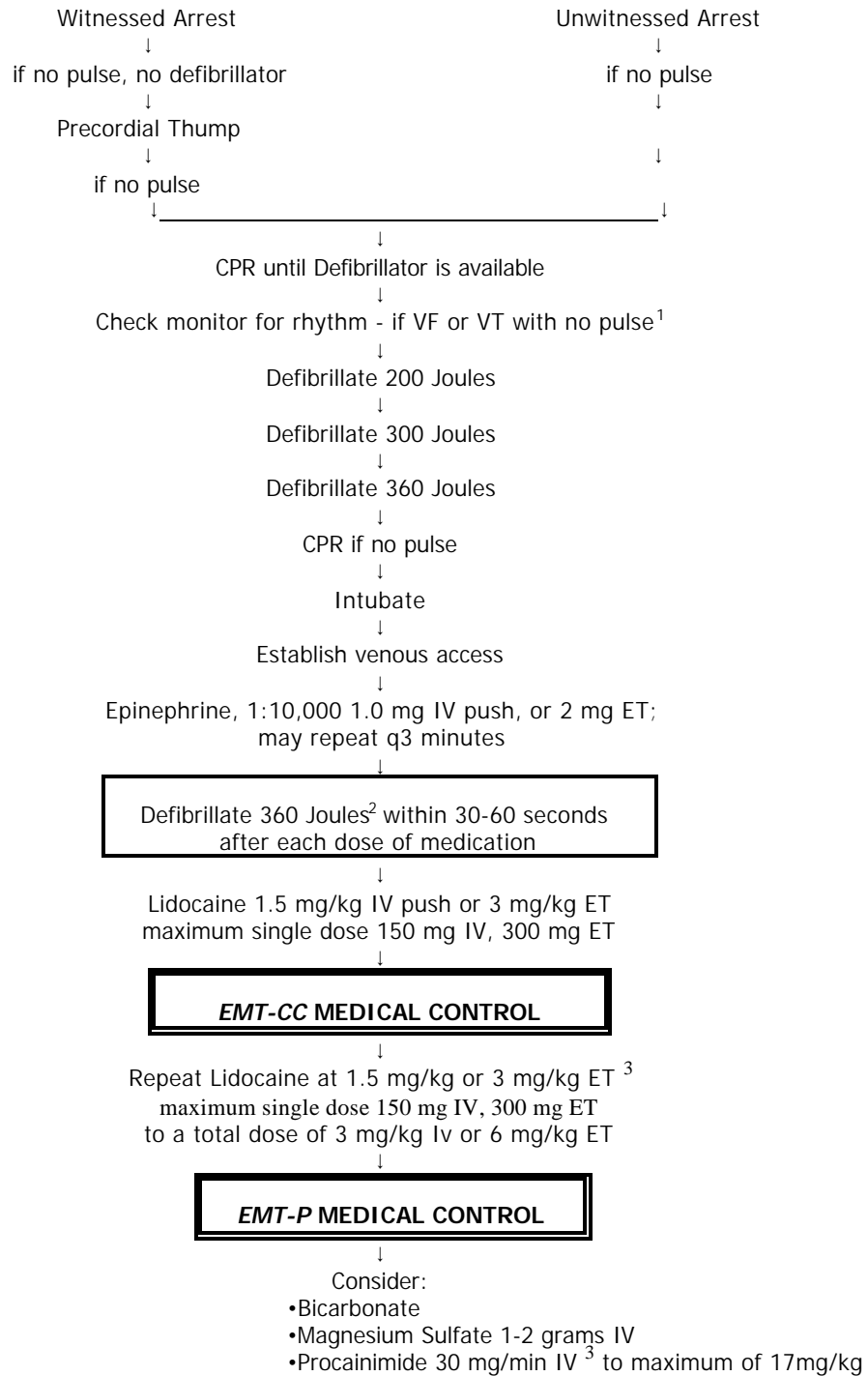
<sup>2</sup> Sedation should be considered for conscious patients: Contact Medical Control, Consider: Lorazepam 2 mg IV **OR** Diazepam 2-5mg IV.

<sup>3</sup>If hypotension, pulmonary edema, or unconsciousness is present, defibrillation should be done to avoid delay associated with synchronization.

<sup>4</sup>If unconscious or if unable to synchronously cardiovert, defibrillate at Joules per protocol.

<sup>5</sup>Once VT has resolved, contact Medical Control to consider intravenous (IV) infusion of antiarrhythmic agent that has aided resolution of VT.

## VENTRICULAR FIBRILLATION/Pulseless VT



<sup>1</sup> Pulseless VT should be treated identically to VF.

<sup>2</sup> Check pulse and rhythm after each defibrillation and medication administration. If VF recurs after transiently converting (rather than persists without ever converting), use whatever energy level has previously been successful for defibrillation.

<sup>3</sup> Once VF/VT has resolved, consider administration of intravenous (IV) infusion of antiarrhythmic agent that has aided resolution of VF/VT.

## PULSELESS ELECTRICAL ACTIVITY

Routine Medical Care<sup>1,2</sup>

↓

Epinephrine, 1:10,000, 1.0 mg IV push or ET 2 mg  
May be repeated every 3 minutes if no response

↓

**EMT-CC  
CONTACT MEDICAL CON-  
TROL**

↓

If rhythm rate <60, use Transcutaneous Pacing  
and give Atropine 1.0mg IV / 2 mg ET  
may repeat every 3 minutes to a maximum of 3.0 mg IV, 6.0 mg ET

↓

Fluid challenge of 250cc NS  
if there are no contraindications.

↓

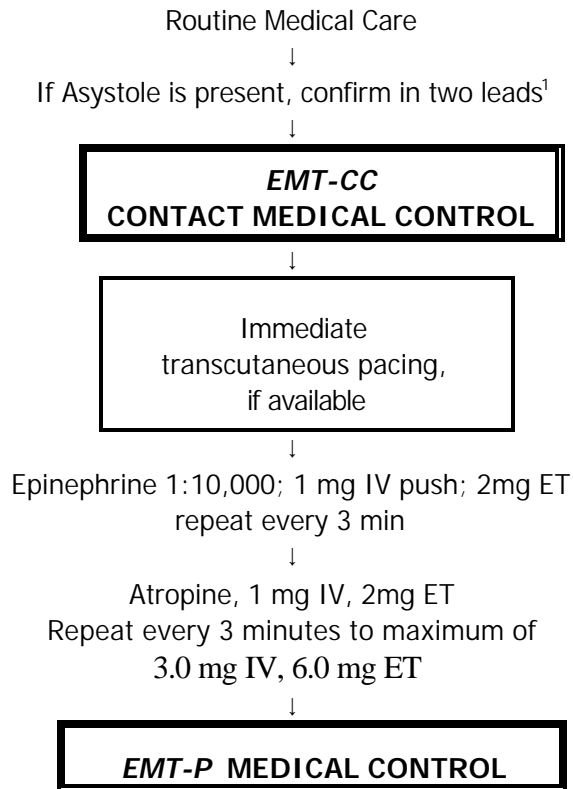
**EMT-P  
MEDICAL CONTROL**

<sup>1</sup>For Bradycardic PEA, consider Transcutaneous Pacing (EMT-P only)

<sup>2</sup>Consider possible causes and treatments:

(parentheses = possible therapies and treatments)

- |  |   |
|--|---|
| <ul style="list-style-type: none"><li>•Hypovolemia (volume infusion)</li><li>•Hypoxia (ventilation)</li><li>•Tension pneumothorax (needle decompression)</li><li>•Hypothermia (see Hypothermia protocol)</li><li>•Massive pulmonary embolism</li></ul> | <ul style="list-style-type: none"><li>•Drug overdose such as tricyclics, digitalis, beta-blockers, calcium channel blockers</li><li>•Hyperkalemia (consider sodium bicarb admin)</li><li>•Acidosis (consider sodium bicarb administration)</li><li>•Massive acute myocardial infarction (see MI Protocol)</li></ul> |
|--|---|



<sup>1</sup>Consider possible causes (and relay to Medical Control): hypothermia, drug overdose, hypoxia, pre-existing acidosis, hypokalemia or hyperkalemia.

END OF SECTION 1

[CLICK HERE TO CONTINUE  
TO SECTION 2](#)