EMS Services

PRE-HOSPITAL CARE

MEDICAL CONTROL

PROTOCOLS AND PROCEDURES
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**ACLS**

**ACUTE CORONARY SYNDROME**

---

**UNIVERSAL PATIENT CARE PROTOCOL**

1. Oxygen
   - 10-15 L NRB

2. Apply Cardiac Monitor

3. Obtain 12 – Lead EKG (Look for ST Elevation)
   - Communicate with ED

4. IV PROTOCOL

   **ASPIRIN**
   - 324 mg chew and swallow
   - (81 mg / tab x 4)

   **NITROGLYCERIN 0.4 mg SL every 5 minutes x3**
   - (If BP greater than 90 Systolic with IV)
   - (If BP greater than 110 Systolic without IV)
   - *Basic EMT’s may assist pt. with 1 of their own nitro.

   **(If no relief with a total of 3 NTG)**
   - MORPHINE SULFATE
   - 2 mg IV every 4-5 minutes titrated to respiratory status and pain (Max = 10 mg)

5. Reassess and Monitor

6. Continued Pain?

   **Consider Nitrous Oxide if no relief from Morphine**

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**CONTACT MEDICAL CONTROL**
## ACUTE CORONARY SYNDROME

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Age</td>
<td>• CP (pain, pressure, aching, vice like tightness)</td>
<td>• Trauma vs. Medical</td>
</tr>
<tr>
<td>• Medications</td>
<td>• Location (substernal, arm, jaw, epigastric, neck, shoulder)</td>
<td>• Angina vs. Myocardial infarction</td>
</tr>
<tr>
<td>• Past medical history (MI, Angina, Diabetes)</td>
<td>• Radiation of pain</td>
<td>• Pericarditis</td>
</tr>
<tr>
<td>• Recent physical exertion</td>
<td>• Pale, diaphoresis</td>
<td>• Pulmonary embolism</td>
</tr>
<tr>
<td>• Onset Palpatation</td>
<td>• Shortness of breath</td>
<td>• Asthma / COPD</td>
</tr>
<tr>
<td></td>
<td>• Nausea, vomiting, dizziness</td>
<td>• Pneumothorax</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Aortic dissection or aneurysm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• GE reflux or Hiatal hernia</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Esophageal spasm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Chest wall injury or pain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Pleural pain</td>
</tr>
</tbody>
</table>

### GENERAL CONSIDERATIONS:

- **Exam:** Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro
- Be suspicious of a “Silent MI” in the elderly, diabetics, and women. Diabetics and geriatric patients often have atypical pain, or only generalized complaints.
- Consider other causes of chest pain such as aortic aneurysms, pericarditis, and pulmonary embolisms.
- Oxygen administration is first, 12-Lead EKG, continuous cardiac monitoring, and an IV are indicated for patient’s who’s chest pain was relieved prior to your arrival.
- All patients complaining of chest discomfort must be administered at least 4 lpm of oxygen by nasal cannula. Administer oxygen by non-rebreather or assist the patient’s ventilations as indicated.
- Aspirin is administered to achieve a therapeutic dose of 324 mg (4 chewable, 81 mg tabs), unless allergic reaction or peptic ulcer disease.
- Nitroglycerin can be administered to a patient by EMS up to 3 doses. If the patient has already taken 3 of their own prior to your arrival, document if the patient had any changes in their symptoms or a headache after taking their own Nitroglycerin. **DO NOT** administer Nitroglycerin to a patient who took an erectile dysfunction medication (Viagra, Cialis, Levitra, etc.) within the last 48 hours due to potential severe hypotension.
- If patient has taken nitroglycerin without relief, consider potency of the medication. Check and document the expiration date of the patient’s prescribed nitroglycerin.
- Nitroglycerin can be administered to a hypertensive patient complaining of chest discomfort without Medical Direction permission.
- Nitroglycerin can be administered without an IV as long as the patient takes Nitroglycerin at home and has a BP greater than 120 mmHg or BP greater than 150 mmHg if over 70 years old.
- **DO NOT** treat the PVC’s with Lidocaine or Amiodarone, if the patient is bradycardic.
- If positive ECG changes, establish a second IV while en route to the hospital.
- Monitor for hypotension after administration of nitroglycerin and morphine.
- If pain continues after O₂, ASA and Nitro, administer Morphine 2 mg IV every 4-5 minutes up to 10 mg. Titrate to response and respirations.
- If the patient becomes hypotensive from Nitroglycerin administration, place the patient in the Trendelenburg position and administer a 200 - 400 mL Normal Saline bolus.
UNIVERSAL PATIENT CARE PROTOCOL

IV PROTOCOL

- Apply 12 – Lead EKG
  (Look for ST Elevation)
  Communicate to ED

Hypotension BP less then 90 Systolic
Altered Mental status, chest pain

No

UNIVERSAL PATIENT CARE PROTOCOL

Yes

Consider Sedation
VALIUM
2 – 5 mg slow IV

EXTERNAL TRANSCUTANEOUS PACING

ATROPINE 0.5 – 1 mg IV
Repeat every 3-5 minutes
Consider Atropine while awaiting pacer.

*Consider DOPAMINE while awaiting Pacer
2 - 20 mcg/kg/min IV
Titrate to BP greater than 90 systolic

CONTACT MEDICAL CONTROL

TRANSPORT
## ACLS

### SINUS BRADYCARDIA

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past medical history</td>
<td>HR less than 60 per min.</td>
<td>Acute MI</td>
</tr>
<tr>
<td>Medications</td>
<td>Chest pain</td>
<td>Hypoxia</td>
</tr>
<tr>
<td>Beta Blockers</td>
<td>Respiratory distress</td>
<td>Hypothermia</td>
</tr>
<tr>
<td>Calcium channel blockers</td>
<td>Hypotension</td>
<td>Sinus Brady</td>
</tr>
<tr>
<td>Digitalis</td>
<td>Altered mental status</td>
<td>Athletes</td>
</tr>
<tr>
<td>Pacemaker</td>
<td>Syncope</td>
<td>Head Injury (elevated ICP) or Stroke</td>
</tr>
</tbody>
</table>

**GENERAL CONSIDERATIONS:**

- Exam: Mental Status, Neck, Heart, Lungs, Neuro
- The use of lidocaine in heart block can worsen bradycardia and lead to asystole and death.
- Pharmacological treatment of Bradycardia is based upon the presence or absence of hypotension.
- If hypotension exists, treat.
- If blood pressure is adequate, monitor only.
- **DO NOT** administer Atropine, if the patient’s rhythm is a Type II second-degree heart block or a third degree heart block.
- Transcutaneous pacing is the treatment of choice for Type II second-degree heart blocks and third degree heart blocks.
- If the patient is critical and an IV is not established, initiate pacing with Medical Direction permission.
- If the patient converts to another rhythm, refer to the appropriate protocol and treat accordingly.
ARRHYTHMIAS / ACLS

NARROW – COMPLEX TACHYCARDIA

UNIVERSAL PATIENT CARE PROTOCOL

IV PROTOCOL

Stable

Vagal Maneuvers

ADENOSINE 6 mg IV push followed by
20 mL NS rapid flush
(Not for atrial fibrillation)

No Response
1 – 2 minutes

ADENOSINE 12 mg IV followed by
20 mL NS rapid flush

No Response
1 – 2 minutes

Repeat ADENOSINE 12 mg IV, push
followed by 20 mL NS rapid flush

No Response

Monitor and Reassess

If rhythm changes,
Go to Appropriate Protocol

CONTACT MEDICAL CONTROL

TRANSPORT

Unstable

May go directly to Cardioversion

Consider Sedation
VALIUM
2 – 5 mg slow IV

CARDIOVERSION Synchronized
50 – 100 J

No Response
1 – 2 minutes

Repeat Synchronized CARDIOVERSION
200, 300, 360 J

CONTACT MEDICAL CONTROL

TRANSPORT
### NARROW – COMPLEX TACHYCARDIA

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Past medical history</td>
<td>• HR greater than 150 per min</td>
<td>• Heart disease (WPW, Valvular)</td>
</tr>
<tr>
<td>• Medications (Aminophylline, Diet pills, Thyroid supplements, Decongestants, Digoxin)</td>
<td>• QRS 0.12 sec</td>
<td>• Sick Sinus Syndrome</td>
</tr>
<tr>
<td>• Diet (caffeine, chocolate)</td>
<td>• Dizziness, CP, SOB</td>
<td>• Myocardial infarction</td>
</tr>
<tr>
<td>• Drugs (nicotine, cocaine)</td>
<td>• Potential presenting rhythm</td>
<td>• Electrolyte imbalance</td>
</tr>
<tr>
<td>• History of palpitations / heart racing</td>
<td>• Sinus Tachycardia</td>
<td>• Exertion, pain, emotional stress</td>
</tr>
<tr>
<td>• Syncope / near syncopane</td>
<td>• Atrial fibrillation / flutter</td>
<td>• Fever</td>
</tr>
<tr>
<td>• HR greater than 150 per min</td>
<td>• Multifocal atrial tachycardia</td>
<td>• Hypoxia</td>
</tr>
<tr>
<td>• QRS 0.12 sec</td>
<td></td>
<td>• Hypovolemia or anemia</td>
</tr>
<tr>
<td>• Dizziness, CP, SOB</td>
<td></td>
<td>• Drug effect / overdose</td>
</tr>
<tr>
<td>• Potential presenting rhythm</td>
<td></td>
<td>• Hyperthyroidism</td>
</tr>
<tr>
<td>• Sinus Tachycardia</td>
<td></td>
<td>• Pulmonary embolus</td>
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<td>• Atrial fibrillation / flutter</td>
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<td></td>
</tr>
<tr>
<td>• Multifocal atrial tachycardia</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### GENERAL CONSIDERATIONS:

- **Exam:** Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro
- **Adenosine may not be effective in identifiable atrial flutter / fibrillation, yet is not harmful.**
- **Continuous pulse oximetry is required for all SVT patients.**
- **Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.**
- **If the patient converts to another rhythm, refer to the appropriate protocol and treat accordingly.**
- **Examples of vagal maneuvers include bearing down, coughing, or blowing into a syringe. DO NOT perform a carotid massage.**
- **If possible, the IV should be initiated in either the left or right AC.**
- **Consider applying the Combo patches prior to Adenosine administration.**
- **When administering Adenosine, raise the patient’s arm and immediately follow the bolus with 20 mL rapid bolus of normal saline.**
- **Record 3-Lead EKG strips during Adenosine administration.**
- **Perform a 12-Lead EKG prior to and after Adenosine conversion or cardioversion of SVT.**
- **If the patient converts into ventricular fibrillation or pulseless ventricular tachycardia, immediately DEFIBRILLATE, refer to the appropriate protocol and treat accordingly. Be sure to switch the Life Pak 12 to PADDLES before defibrillating.**
- **Give a copy of the EKGs and code summaries to the receiving facility upon arrival.**

### Synchronized Cardioversion (mono and biphasic monitors)

<table>
<thead>
<tr>
<th>If:</th>
<th>Sequence:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atrial Fibrillation</td>
<td>100 to 200 J, 300 J, 360 J</td>
</tr>
<tr>
<td>Stable monomorphic VT</td>
<td>100 to 200 J, 300 J, 360 J</td>
</tr>
<tr>
<td>Other SVT Atrial Flutter</td>
<td>50 J, 100 to 200 J, 300 J, 360 J</td>
</tr>
<tr>
<td>Polymorphic VT (irregular form and rate and unstable)</td>
<td>Treat as VF with high-energy shock (defibrillation doses)</td>
</tr>
</tbody>
</table>
ARRHYTHMIAS / ACLS

WIDE – COMPLEX TACHYCARDIA

UNIVERSAL PATIENT CARE PROTOCOL

- Ventricular Fibrillation Protocol
- Palpate Pulse
  - Yes
  - IV PROTOCOL
  - Monitor Protocol

Stable / Regular

- If V-Tach or uncertain rhythm
  - AMIODARONE
  - 150 mg IV mixed in 50 mL D5W (over 10 minutes)
  - Monitor and obtain 12-lead EKG
  - Reassess for underlying rhythm
  - Transmit to ED.

- If unstable, prepare for immediate Cardioversion

Unstable

- Prepare for immediate Synchronized Cardioversion
  - Consider Sedation
  - VALIUM
  - 2 – 5 mg slow IV
  - Synchronized CARDIOVERSION
  - 50 - 100 J (or biphasic equivalent)

- AMIODARONE
  - 150 mg IV mixed in 50 mL D5W (over 10 minutes)
  - If Torsades de pointes – give Magnesium Sulfate 2 gm. IV over 5 to 60 minutes
  - Repeat Synchronized CARDIOVERSION

- CONTACT MEDICAL CONTROL

TRANSPORT
ACLS ACLS/ARRHYTHMIAS

WIDE – COMPLEX TACHYCARDIA

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Past medical history / medications, diet, drugs</td>
<td>• Ventricular tachycardia on ECG (Runs or sustained)</td>
<td>• Artifact / Device failure</td>
</tr>
<tr>
<td>• Syncope / near syncope</td>
<td>• Conscious, rapid pulse</td>
<td>• Cardiac</td>
</tr>
<tr>
<td>• Palpitations</td>
<td>• Chest pain, shortness of breath</td>
<td>• Endocrine / Metabolic</td>
</tr>
<tr>
<td>• Pacemaker</td>
<td>• Dizziness</td>
<td>• Drugs</td>
</tr>
<tr>
<td>• Allergies: lidocaine / novacaine</td>
<td>• Rate usually 150 - 180 bpm for sustained V-Tach</td>
<td>• Pulmonary</td>
</tr>
</tbody>
</table>

GENERAL CONSIDERATIONS:

• Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro
• For witnessed / monitored ventricular tachycardia, try having patient cough or deliver a precordial thump.
• Polymorphic V-Tach (Torsades de Pointes) may benefit from the administration of Magnesium Sulfate.
• If the patient converts to another rhythm, refer to the appropriate protocol and treat accordingly.
• If the patient relapses back into wide complex tachycardia / ventricular tachycardia, initiate synchronized cardioversion with the joules setting that previously cardioverted the patient.
• Record EKG strips during Amiodarone administration.
• Perform a 12- Lead EKG prior to and after Amiodarone conversion or synchronized cardioversion of wide complex tachycardia / ventricular tachycardia.
• Perform a Code Summary and attach it to the patient run report.
• Be sure to treat the patient and not the monitor.
• Magnesium Sulfate can be mixed with NS or D5W.
• Amiodarone is only compatible with D5W.

Synchronized Cardioversion (mono and biphasic monitors)

<table>
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<tr>
<th>If</th>
<th>Sequence</th>
</tr>
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<tbody>
<tr>
<td>Atrial Fibrillation</td>
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<tr>
<td>Stable monomorphic VT</td>
<td>100 to 200 J</td>
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</tr>
<tr>
<td>Polymorphic VT (irregular form and rate ) and unstable</td>
<td>Treat as VF with high-energy shock (defibrillation doses)</td>
</tr>
</tbody>
</table>
CARDIAC ARREST / ACLS

CARDIAC ARREST

UNIVERSAL PATIENT CARE PROTOCOL

Withhold Resuscitation Contact Medical Control

Yes

Criteria for Death / DNR

Yes

No

*** If down time less than 4 min. Defibrillator / AED immediately

*** If down time over 4 min. CPR x 5 cycles / 2 minutes, then check pulse and rhythm

CPR x 5 cycles / 2 minutes

Attach Cardiac Monitor Defibrillator / AED

Deliver Shock x 1 if indicated

CPR x 5 cycles / 2 minutes

Airway Protocol

Deliver Shock x 1 if indicated

Maintain CPR / Airway

Follow AED Prompts (If applicable)

Continue CPR

IV / IO PROTOCOL

CONTACT MEDICAL CONTROL

TRANSPORT

AT ANY TIME

Return of Spontaneous Circulation

GO TO POST RESUSCITATION CARDIAC CARE PROTOCOL

CONTACT MEDICAL CONTROL

Go to Appropriate Protocol

Review DNR Comfort Care Guidelines

Contact Medical Control

Yes

No

CONTACT MEDICAL CONTROL

Withhold Resuscitation Contact Medical Control

Yes

Criteria for Death / DNR

Yes

No

*** If down time less than 4 min. Defibrillator / AED immediately

*** If down time over 4 min. CPR x 5 cycles / 2 minutes, then check pulse and rhythm

CPR x 5 cycles / 2 minutes

Attach Cardiac Monitor Defibrillator / AED

Deliver Shock x 1 if indicated

CPR x 5 cycles / 2 minutes

Airway Protocol

Deliver Shock x 1 if indicated

Maintain CPR / Airway

Follow AED Prompts (If applicable)

Continue CPR

IV / IO PROTOCOL

CONTACT MEDICAL CONTROL

TRANSPORT
ACLS/ARRHYTHMIAS

CARDIAC ARREST

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
</table>
| • Events leading to arrest  
  • Estimated downtime  
  • Past medical history  
  • Medications  
  • Existence of terminal illness  
  • Signs of lividity, rigor mortis  
  • DNR or Living Will | • Unresponsive  
  • Apneic  
  • Pulseless | • Medical vs. Trauma  
  • V. fib vs. Pulseless V. tach  
  • Asystole  
  • Pulseless electrical activity(PEA) |

GENERAL CONSIDERATIONS:

- Exam: Mental Status
- Success is based on proper planning and execution. Procedures require space and patient access. Make room to work.
- If witnessed arrest - administer a precordial thump. If unwitnessed, 2 min CPR x 5 cycles / 2 min.
- Reassess airway frequently and with every patient move.
- Maternal Arrest - treat mother per appropriate protocol with immediate notification to Medical Control and rapid transport.
- If the patient converts to another rhythm, refer to the appropriate protocol and treat accordingly.
- Attempt to obtain patient history from family members or bystanders.
  1) estimated down time  
  2) medical history  
  3) complaints prior to arrest  
  4) bystander CPR prior to EMS arrival  
  5) AED / CPR prior to EMS arrival
- Administer Dextrose only if the patient has a Glucose Level less than 80 with associated symptoms and is to be administered as soon a hypoglycemia is determined.
- DO NOT administer Narcan until the patient has been resuscitated and is known or suspected to have used narcotics.
- Reassess the patient if the interventions do not produce any changes.
- If indicated, refer to the Termination of Resuscitative Efforts Protocol.

**During CPR Remember:**

- Push hard and fast  
- Ensure full chest recoil  
- Minimize interruptions in chest compressions  
- One cycle of CPR:  
  30 compressions then 2 breaths  
  5 “cycles” = 1-2 min.  
- Avoid hyperventilation  
- Secure airway and confirm placement

| Push hard and fast | After an advanced airway is placed, rescuers no longer deliver “cycles” of CPR. Give continuous chest compressions without pauses for breaths. Give 8 - 10 breaths / min. Check rhythm every 2 min. | Search for and treat possible contributing factors:  
  Hypoxia, Hypovolemia, Hydrogen (acidosis), Hypo-Hyperkalemia, Hypoglycemia, Hypothermia, Toxins, Tamponade (cardiac), Tension Pneumothorax, Thrombosis (coronary or pulmonary), Trauma |
|-------------------|---------------------------------|-------------------------------------------------|

Endotrachael Guidelines - Adult and Peds

1) Lidocaine, Epi, Atropine, Narcan and Vasopressin can be given down the ET Tube  
2) The optimal dose of most drugs given by ET is unknown  
3) ET drugs deliver low blood levels. All drugs except Epi are given 2-3x’s normal dose.
4) Epi in low levels may produce transient, detrimental vasodilatation thus Epi down the ET Tube are given 10 x’s the normal dose
5) Instill the drug while briefly holding compressions, follow with 5 mL (smaller with neonates) of NS flush, followed by 5 positive-pressure ventilations.
ASYSTOLE / PULSELESS ELECTRICAL ACTIVITY (PEA)

Resume CPR for 5 cycles

EPINEPHRINE
1 mg IV / IO 1:10,000 Solution Repeat every 3-5 minutes
OR
VASOPRESSIN 40 units IV / IO. Give ONE Dose
**** Meds given IV / IO when available during CPR

IF PEA HR less than 60
CONSIDER
ATROPINE 1 mg IV
Repeat every 3-5 minutes
TO 3 DOSES

Consider Termination if Jurisdiction Authorizes

CONTACT MEDICAL CONTROL

TRANSPORT

Withhold Resuscitation
CONTACT MEDICAL CONTROL

Yes

Criteria for Death / DNR

Criteria for DNR

No

CPR for 5 cycles

Airway Protocol

IV / IO PROTOCOL

Apply Cardiac Monitor (AED)

Yes

Review DNR Comfort Care Guidelines
CONTACT MEDICAL CONTROL

REVISED 03/2007, 06/2007

Southwest General Health Center /EMS Services
Revised 03/2007, 06/2007
### CARDIAC ARREST / ACLS

#### ASYSTOLE / PULSELESS ELECTRICAL ACTIVITY (PEA)

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
</table>
| - Past medical history  
- Medications  
- Events leading to arrest  
- End stage renal disease  
- Estimated downtime  
- Suspected hypothermia  
- Suspected overdose  
- DNR or Living Will  
- Tricyclics  
- Digitalis  
- Beta blockers  
- Calcium channel blockers | - Pulseless  
- Apneic  
- No electrical activity on ECG  
- Cyanosis | - Medical or Trauma  
- Hypoxia  
- Potassium (hypo / hyper)  
- Acidosis  
- Hypothermia  
- Device (lead) error  
- Death  
- Hypovolemia  
- Cardiac tamponade  
- Drug overdose (Tricyclics, Digitalis, Beta blockers, calcium channel blockers)  
- Massive Myocardial infarction  
- Tension pneumothorax  
- Pulmonary embolus |

### CONSIDER TREATABLE CAUSES

| - Hypovolemia  
- Hypoxia  
- Hydrogen ion (acidosis)  
- Hypo-hyperkalemia  
- Hypoglycemia  
- Hypothermia | - Tamponade, cardiac  
- Tension Pneumothorax  
- Thrombosis (coronary or pulmonary)  
- Trauma  
- Toxins |

### GENERAL CONSIDERATIONS:

- Exam: Mental Status
- Always confirm asystole in more than one lead.
- Consider each possible cause listed in the differential. Survival is based on identifying and correcting the cause!
- Discussion with Medical Control can be a valuable tool in developing a differential diagnosis and identifying possible treatment options.
- If the patient converts to another rhythm, refer to the appropriate protocol and treat accordingly.
- Early identification and treatment of reversible causes of PEA, increases the chance of a successful outcome.
- Consider volume infusion for all patients in PEA. Be alert for fluid overload.
- Treat as ventricular fibrillation if you cannot differentiate between asystole and fine ventricular fibrillation.
- Medical Direction must be contacted prior to administering antidotes for all poisonings / overdoses except for narcotic overdoses.
- Dextrose 50% should only be administered to a patient with a confirmed blood glucose level less than 80 with associated symptoms.
- Vasopressin 40 units IV / IO / ET may be given x 1 to replace first or second dose of Epi.
CARDIAC ARREST / ACLS

VENTRICULAR FIBRILLATION (V-FIB)
PULSELESS VENTRICULAR TACHYCARDIA

UNIVERSAL PATIENT CARE PROTOCOL

Withhold Resuscitation and review DNR Comfort Care Guidelines

Yes

Criteria for Death / DNR

***If down time less than 4 min. Defibrillator / AED immediately
***If down time over 4 min. CPR x 5 cycles / 2 minutes, then check pulse and rhythm

Apply Cardiac Monitor
Defibrillator / AED

Defibrillate 360 J or biphasic equivalent

Resume effective CPR x 5 cycles / 2 minutes, then check pulse & rhythm

AIRWAY PROTOCOL

Confirm V-Fib / Pulseless V-Tach

EPINEPHRINE 1 mg IV / IO
1:10,000 Solution
Repeat every 3-5 minutes
OR
VASOPRESSIN 40 units IV / IO GIVE ONE DOSE
**** Meds given IV / IO when available during CPR (before and after shock)

Defibrillate 360 J or biphasic equivalent

Continue effective CPR x 5 cycles / 2 minutes then check pulse & rhythm

Give Antiarrhythmic during CPR

Defibrillate 360 J after 5 cycles of CPR or biphasic equivalent

Continue effective CPR x 5 cycles / 2 minutes then check pulse & rhythm.
Continue CPR/Defib/Drug sequence as stated above

AMIODARONE
300 mg IV
May repeat @ 150 mg IV
In 3-5 minutes
OR
LIDOCAINE
1-1.5 mg/kg IV
Repeat 0.5 – 0.75 mg/kg
In 3-5 minutes
CONSIDER
MAGNESIUM SULFATE
1 - 2 g slow IV
(Torsades, ONLY)

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TRANSPORT

CONTACT MEDICAL CONTROL

TRANSPORT

Southwest General Health Center /EMS Services
Revised 03/2007, 06/2007
VENTRICULAR FIBRILLATION (V – FIB)
PULSELESS VENTRICULAR TACHYCARDIA

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated down time</td>
<td>Unresponsive, apneic, pulseless</td>
<td>Asystole</td>
</tr>
<tr>
<td>Past medical history</td>
<td>Ventricular fibrillation or ventricular tachycardia on ECG</td>
<td>Artifact / Device failure</td>
</tr>
<tr>
<td>Medications</td>
<td></td>
<td>Cardiac</td>
</tr>
<tr>
<td>Events leading to arrest</td>
<td></td>
<td>Endocrine / Metabolic</td>
</tr>
<tr>
<td>Renal failure / dialysis</td>
<td></td>
<td>Drugs</td>
</tr>
<tr>
<td>DNR or Living Will</td>
<td></td>
<td>Pulmonary</td>
</tr>
</tbody>
</table>

GENERAL CONSIDERATIONS:

- Exam: Mental Status
- Effective CPR should be as continuous as possible with a minimum of 5 cycles or 2 minutes.
- Reassess and document at least two methods of confirming endotracheal tube placement and end tidal CO₂ frequently, after every move, and at discharge.
- Polymorphic V-Tach (Torsades de Pointes) may benefit from administration of magnesium sulfate.
- If the patient converts to another rhythm, or has a return of circulation, refer to the appropriate protocol and treat accordingly.
- If the patient converts back to ventricular fibrillation or pulseless ventricular tachycardia after being converted to ANY other rhythm, defibrillate at the previous setting used.
- Defibrillation following effective CPR is the definitive therapy for ventricular fibrillation and pulseless ventricular tachycardia.
- Vasopressin 40 units IV / IO / ET may be given x1 to replace first or second dose of Epi.
- Magnesium Sulfate should be administered early in the arrest if hypomagnesium (chronic alcoholic or malnourished patients) is suspected.
- Magnesium Sulfate can be mixed with NS or D5W.
- Amiodarone is the antiarrhythmic of choice in treating VF, Pulseless VT. Lidocaine is considered an alternative if amiodarone is not available.
- Amiodarone is only compatible with D5W.
CARDIAC ARREST / ACLS

POST – RESUSCITATION CARDIAC CARE

UNIVERSAL PATIENT CARE PROTOCOL

Continue Ventilatory Support with 100% OXYGEN

IV PROTOCOL

Apply Cardiac Monitor

Vital Signs

Hypotension

Consider Fluid Bolus

DOPAMINE
2 – 20 mcg/kg/min IV
Tritrate to effect

Ventricular Ectopy

AMIODARONE
150 mg IV
mixed in 50 ml D5W
over 10 minutes if not previously given
OR

LIDOCAINE
1-1.5 mg/kg IV

If rhythm converts,
LIDOCAINE DRIP
2-4 mg/minute

If arrest reoccurs, revert to appropriate protocol

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Bradycardia

Treat per Bradycardia Protocol

CONTACT MEDICAL CONTROL

TRANSPORT

B EMT-B
I EMT-I
P EMT-P
M MED CONTROL
### POST – RESUSCITATION CARDIAC CARE

<table>
<thead>
<tr>
<th>History</th>
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<th>Differential Diagnosis</th>
</tr>
</thead>
</table>
| • Respiratory arrest
• Cardiac arrest    | • Return of pulse  | • Continue to address specific differentials associated with the original dysrhythmia |

**GENERAL CONSIDERATIONS:**

- Exam: Mental Status, Neck, Skin, Lungs, Heart, Abdomen, Extremities, Neuro
- Most patients immediately post resuscitation will require ventilator assistance.
- The condition of post-resuscitation patients fluctuates rapidly and continuously, and they require close monitoring.
- Appropriate post-resuscitation management can best be planned in consultation with Medical Control.
- This is the period of time between restoration of spontaneous circulation and the transfer of care at the emergency department. The focus is aimed at optimizing oxygenation and perfusion.
- Post resuscitation SVT should initially be left alone, but routinely monitor the patient. Follow Narrow Complex Tachycardia Protocol or contact Medical Control if the patient becomes hypotensive.
- If the patient is profoundly bradycardic, refer to the Sinus Bradycardia Protocol and treat accordingly.
- Adequate oxygenation is the key to a good outcome.
- Amiodarone is only compatible with D5W.