

WEST MICHIGAN REGIONAL PROTOCOL

VENTRICULAR FIBRILLATION/ PULSELESS VENTRICULAR TACHYCARDIA PROTOCOL

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Purpose: To provide a process for the management of the patient found to be in ventricular fibrillation or pulseless ventricular tachycardia.

NOTE: This protocol will always be used in conjunction with the Cardiac Arrest Protocol once it has been determined that the patient is in Ventricular Fibrillation/Ventricular Tachycardia without pulses.

I. Management

A. Defibrillate:

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1. If AED is in place, cycle while preparing equipment
2. **Give 1 shock**
 - a. Biphasic: device specific (typically 120 to 200 J)
 - i. If manufacturer recommendation is unknown, use 200 J
 - ii. PEDIATRICS – 2 J/kg
 - b. Monophasic: 360 J,
 - i. PEDIATRICS – 2 J/kg

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B. **IMMEDIATELY resume CPR after shock**, “push hard, push fast”

C. **Perform 5 cycles of CPR (30:2)**

D. **Obtain IV/IO and advanced airway.**

1. Oral ETT, Combitube or other approved advanced airway device.
2. Avoid hyperventilation
3. Confirm airway placement and secure advanced airway devices; oral ETT's must be secured with commercial tube holders.

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E. **Check Rhythm**

1. If rhythm is **NOT SHOCKABLE**:
 - a. Asystole/PEA, refer to that protocol
 - b. If electrical activity is present, check pulse.
 - i. If no pulse is present, resume CPR and refer to asystole/PEA protocol.
 - ii. If a pulse is present, begin post resuscitation care.
2. If rhythm is **SHOCKABLE**:
 - a. Continue CPR while the defibrillator is charging
 - b. **Give 1 shock** at the same energy level as was used before

F. **IMMEDIATELY resume CPR after shock**, “push hard, push fast”

1. After an advanced airway is placed, rescuers no longer deliver “cycles” of CPR. Give continuous chest compressions without pauses for breaths. Give 8 to 10 breaths/minute. Check rhythm every 2 minutes.

G. Each medication should be administered during CPR and the 2 minute “cycle” completed. This should be followed by the rhythm check and, if necessary, a shock. This will result in a “shock – CPR/medication – rhythm check – shock...” pattern. **ONLY one medication should be administered during each “cycle”.**

H. **Administer a Vasopressor during CPR (ONLY one per cycle)**

1. **Vasopressin: (ADULTS ONLY)** 40U IVP/IO to replace first or second dose of epinephrine
2. **Epinephrine: (ADULT)** 1mg of 1:10,000 IVP/IO
(PEDS) 0.01mg/kg 1:10,000 IVP/IO
 - a. Repeat epinephrine every 3-5 minutes
 - b. In Pediatrics, if IV/IO is unsuccessful:
 - a. Epi 1:1000 0.1mg/kg ETT (dilute with normal saline)

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- I. **Check Rhythm**
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 - a. Asystole/PEA, refer to that protocol
 - b. If electrical activity is present, check pulse.
 - i. If no pulse is present, resume CPR and refer to asystole/PEA protocol.
 - ii. If a pulse is present, begin post resuscitation care.
 2. **If rhythm is SHOCKABLE:**
 - a. Continue CPR while the defibrillator is charging
 - b. **Give 1 shock at the same energy level as was used before**
- J. **IMMEDIATELY resume CPR after shock, "push hard, push fast"**
- K. **Administer an Antiarrhythmic during CPR**
1. **Amiodarone:**
 - a. **Adult:** 300mg IV, dilute with 20ml NS or D5W (May repeat 150mg dose in 5-10 min.)
 - b. **Pediatrics:** 5mg/kg IV/IO, dilute with 15ml of NS or D5W (May repeat dose every 5-10 minutes to maximum of 15mg/kg) Max dose 300mg.
 2. **If Amiodarone is not authorized by Medical Control or is not carried**
 - a. Administer **Lidocaine:**
 - i. **Adult or peds:** 1 mg/kg IVP slowly over 1 minute. (Repeat every 5 minutes to max of 3mg/kg.)
 3. **If both Amiodarone and Lidocaine are approved and carried, Amiodarone is to be used for pulseless patients, DO NOT ADMINISTER BOTH!**
- L. **Magnesium Sulfate (for Torsades de Pointes):**
- a. **Adult:** 1 to 2g IVP
 - b. **Pediatrics:** 25 to 50mg/kg
- M. **Check Rhythm**
1. If rhythm is NOT SHOCKABLE:
 - a. Asystole/PEA, refer to that protocol
 - b. If electrical activity is present, check pulse.
 - i. If no pulse is present, resume CPR and refer to asystole/PEA protocol.
 - ii. If a pulse is present, begin post resuscitation care.
 2. **If rhythm is SHOCKABLE:**
 - a. Continue CPR while the defibrillator is charging
 - b. **Give 1 shock at the same energy level as was used before**
- N. **IMMEDIATELY resume CPR after shock, "push hard, push fast"**
- O. **Continue "cycles" of "shock – CPR/medication – rhythm check – shock"**

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- P. Consider **Sodium Bicarbonate:** 1mEq/kg (adult or peds)
 - 1. **Administer only after adequate ventilation**
 - 2. **Bicarb should not be routinely used in cardiac arrest patients unless they have:**
 - a. Diabetic ketoacidosis
 - b. Tricyclic antidepressant overdose
 - c. Aspirin overdose
 - d. Cocaine overdose
 - e. Diphenhydramine (benadryl) overdose
 - f. Renal Failure Patients in arrest
 - 3. In pediatric pt's < 1 yr. old, the bicarbonate solution should be diluted to 4.2% with normal saline.
 - 4. Authorization is limited to one dose only

II. Search for and, when possible treat contributing causes:

• Hypoxia	• Tablets (drug overdose)
• Hypovolemia	• Tamponade (cardiac)
• Hydrogen ion (acidosis)	• Tension pneumothorax
• Hyperkalemia/Hypokalemia	• Thrombosis – heart (AMI)
• Hypothermia	• Thrombosis – lungs (PE)
• Hypoglycemia	

III. Transport/Terminate

- A. Patients remaining in V-Fib/V-Tach without a pulse should be packaged, loaded and transported during management of their cardiac arrest.
- B. Contact Medical Control for any additional medication orders, or if unusual circumstances present.
- C. It may be prudent to terminate care for patients that remain in fine V-Fib. Refer to the Asystole/PEA protocol under "Terminating Care on Scene" for termination process.

5/25/98
1/10/03
7/01/04
2/1/2007