SUBJECT: TREATMENT PROTOCOL -- DYSRHYTHMIAS **Date: 7/1/09**

Treat dysrhythmias ONLY if they have potential to or are causing symptoms of decreased cardiac output.

BLS	ALS
O_2 and/or ventilate prn	• Monitor EKG/ O_2 Saturation prn • IV/IO 250 ml fluid bolus with clear lungs SO. MR to maintain systolic BP ≥ 90 SO **A. Unstable Bradycardia with Pulse (Systolic BP<90 AND chest pain, dyspnea or altered LOC): NARROW COMPLEX BRADYCARDIA** • Atropine 0.5mg IVP for pulse <60 bpm SO. MR q3-5" to max of 3mg SO **OR** • Atropine 1mg ET for pulse <60 bpm SO. MR q3-5" to max of 6mg administered dose SO **If rhythm refractory to Atropine 1 mg:** • External cardiac pacemaker, if available, may use per *BHPO* **If capture occurs and systolic BP≥100, consider medication for discomfort**: • Morphine 2-10 mg slow IVP prn *BHPO* **For discomfort related to pacing not relieved with Morphine and BP≥100:** • Versed 1-5 mg slow IVP *BHPO* • Dopamine 400mg/250ml at 10-40mcg/kg/min IV drip, titrate to systolic BP ≥ 90 (after max Atropine or initiation of pacing) BHO **WIDE COMPLEX BRADYCARDIA** • External cardiac pacemaker, if available, may use per *BHPO* **If capture occurs and systolic BP≥100, consider medication for discomfort**: • Morphine 2-10 mg slow IVP prn *BHPO* **For discomfort related to pacing not relieved with Morphine and BP≥100:** • Versed 1-5 mg slow IVP BHPO • Dopamine 400mg/250ml at 10-40mcg/kg/min IV drip, titrate to systolic BP ≥ 90 (after initiation of pacing) BHO **If external pacing unavailable,** • May give Atropine 0.5mg IVP for pulse <60 bpm SO. MR q3-5" to max of 3mg SO **OR** • Atropine 1mg ET for pulse <60 bpm SO. MR q3-5" to max of 6mg administered dose SO **B. Supraventricular Tachycardia (SVT):** • Monitor EKG/ O_2 Saturation prn • IV/IO 250 ml fluid bolus with clear lungs SO. MR to maintain systolic BP ≥ 90 SO • VSM SO. MR SO • Adenosine 6mg rapid IVP, followed with 20ml NS IVP SO (Patients with history of bronchospasm or COPD BHO) • Adenosine 12mg rapid IVP followed with 20ml NS IVP SO If no sinus pause, MR x1 in 1-2" SO

**Or according to defibrillator manufacturer's recommendations

Approved:

EMS Medical Director

Treat dysrhythmias ONLY if they have potential to or are causing symptoms of decreased cardiac output.

BLS	ALS
O_2 and/or ventilate prn	**If patient unstable with severe symptoms OR rhythm refractory to treatment:** **Conscious (Systolic BP<90 and chest pain, dyspnea or altered LOC):** • Versed 1-5 mg slow IVP prn pre-cardioversion BHO If age ≥ 60 consider lower dose with attention to age and hydration status • Synchronized cardioversion at 100 J** BHO, MR at 200, 300, 360 J** BHO **Unconscious**: • Synchronized cardioversion at 100 J**SO MR at 200, 300, 360 J** SO. MR BHO **C. Unstable Atrial Fibrillation/ Atrial Flutter (Systolic BP<90 AND chest pain, dyspnea or altered LOC):** • Monitor EKG/ O_2 Saturation prn • IV/IO 250 ml fluid bolus with clear lungs SO. MR to maintain systolic BP ≥ 90 SO **In presence of ventricular response with heart rate ≥180:** **Conscious:** • Versed 1-5 mg slow IVP prn pre-cardioversion *BHPO* If age ≥ 60 consider lower dose with attention to age and hydration status • Synchronized cardioversion at 100 J** *BHPO* MR at 200, 300, 360 J***BHPO* **Unconscious**: • Synchronized cardioversion at 100 J** SO. MR at 200, 300, 360 J** SO. MR BHO **D. Ventricular Tachycardia (VT):** • Monitor EKG/ O_2 Saturation prn • IV/IO 250 ml fluid bolus with clear lungs SO. MR to maintain systolic BP ≥ 90 SO • Lidocaine 1.5 mg/kg slow IVP/IO SO. MR at 0.5mg/kg slow IVP q 8-10" to a max of 3mg/kg (including initial bolus) SO **OR** • Lidocaine 3mg/kg ET SO. MR at 1mg/kg q8-10" not to exceed 6 mg/kg administered dose (including initial bolus) SO **If patient unstable with severe symptoms:** **Conscious (Systolic BP<90 and chest pain, dyspnea or altered LOC):** • Versed 1-5 mg slow IVP prn pre-cardioversion SO If age ≥ 60 consider lower dose with attention to age and hydration status • Synchronized cardioversion at 100 J** SO. MR at 200, 300, 360 J** SO. MR BHO **Unconscious**: • Synchronized cardioversion at 100 J** SO. MR at 200, 300, 360 J** SO. MR BHO

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BLS	ALS
CPR AED if available Assist ventilation	**E. VF/ Pulseless VT:** Begin CPR. • If arrest **witnessed** by medical personnel, perform CPR until ready to defibrillate**.** • **If unwitnessed arrest, perform CPR x2 min.** • Defibrillate x1 at max setting** SO • Resume CPR for 2 minutes immediately after shock • Perform no more than 10 second rhythm check, and pulse check if rhythm is organized • Defibrillate for persistent VF/pulseless VT prn SO • Continue CPR for persistent VF/pulseless VT. Repeat 2 minute cycle followed by rhythm/pulse check, followed by defibrillation/medication, if indicated • IV/IO SO Do not interrupt CPR to establish IV/IO Once IV/IO established, if no pulse after rhythm/pulse check: • Epinephrine 1:10,000 1mg IVP MR q3-5" SO • Intubate SO Avoid interruption of CPR • NG/OG prn SO • $EtCO_2$ monitoring, if available SO • If return of pulses: obtain 12-Lead SO **If unable to establish IV or IO:** • Epinephrine 1:1,000 2mg ET/ETAD – tracheal placement via port 2 (white), MR q3-5"SO **OR** • Epinephrine 1:1,000 10mg (dilute to 20ml) ETAD - esophageal placement via port 1 (blue) MR q5" SO Pronouncement at scene *BHPO*

Notes: - For patients with an $ETCO_2$ reading of less than 10mm/Hg or patients in nonperfusing rhythms after resuscitative effort, consider early Base Hospital contact for disposition/pronouncement at scene.

-Flush IV/IO line with Normal Saline after medication administration. Medication should be administered as soon as possible after rhythm checks. The timing of drug delivery is less important than is the need to minimize interruptions in chest compressions.

-CPR ratio 30:2 compressions to ventilations until patient has been intubated, then ratio becomes 10:1.

-CPR should be performed during charging of defibrillator.

**Or according to defibrillator manufacturer's recommendations

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BLS	ALS
CPR Assist ventilation	**F. Post conversion VT/VF with pulse ≥ 60 (including witnessed spontaneous conversion, AED or witnessed ≥ x2 AICD). If initial dose already given, continue with repeat doses as appropriate.** • Monitor EKG/ O_2 Saturation prn • IV/IO 250 ml fluid bolus with clear lungs SO. MR to maintain systolic BP ≥ 90 SO • Lidocaine 1.5mg/kg IVP/IO SO. MR at 0.5mg/kg IVP/IO q8-10", to a max of 3mg/kg (including initial bolus) SO **OR** • Lidocaine 3mg/kg ET SO. MR at 1mg/kg q8-10" not to exceed 6 mg/kg administered dose (including initial bolus) SO **G. Pulseless Electrical Activity (PEA):** • Perform CPR for 2" • Perform no more than 10 second rhythm check, and pulse check if rhythm is organized • CPR for 2" if rhythm unchanged • IV/IO SO Do not interrupt CPR to establish IV/IO Once IV/IO established, if no pulse after rhythm/pulse check: • Epinephrine 1:10,000 1mg IVP/IO MR q 3-5" SO **For PEA with HR<60/min:** • Atropine 1mg IVP/IO MR q 3-5" to max 3mg SO • Intubate SO • NG/OG prn SO • $EtCO_2$ monitoring, if available, may use SO • If return of pulses: obtain 12-Lead SO **If no IV/IO established**: • Epinephrine 1:1,000 2mg ET/ETAD – tracheal placement via port 2 (white) MR q 3-5" SO **OR** • Epinephrine 1:1000 10mg (dilute to 20ml) ETAD - esophageal placement via port 1 (blue). MR q5" SO. **For PEA with HR<60/min:** • Atropine 2mg ET. MR q3-5" to max 6mg administered dose SO Consider; • $NaHCO_3$ 1mEq/kg IVP/IO SO. MR 0.5 mEq/kg IVP/IO q10" BHO Pronouncement at scene *BHPO*

Note: For patients with an $ETCO_2$ reading of less than 10mm/Hg or for patients in nonperfusing rhythms, consider early Base Hospital contact for disposition/pronouncement at scene
-Flush IV/IO line with Normal Saline after medication administration

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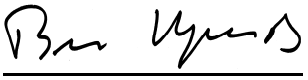

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Treat dysrhythmias ONLY if they have potential to or are causing symptoms of decreased cardiac output.

BLS	ALS
CPR Assist ventilation	**G. Asystole:** • Perform CPR for 2” • Perform no longer than 10 second rhythm check, and pulse check if rhythm is organized • CPR for 2” if rhythm unchanged • IV/IO SO Do not interrupt CPR to establish IV/IO • Once IV/IO established, if no pulse after rhythm/pulse check: • Epinephrine 1:10,000 1mg IVP/IO MR q 3-5" SO • Intubate SO • NG/OG prn SO • $EtCO_2$ monitoring, if available, may use SO • If return of pulses: obtain 12-Lead SO **If no IV/IO established**: • Epinephrine 1:1,000 2mg ET/ETAD – tracheal placement via port 2 (white) MR q 3-5" SO **OR** • Epinephrine 1:1000 10mg (dilute to 20ml) ETAD - esophageal placement via port 1 (blue). MR q5” SO. Pronouncement at scene *BHPO*

Note: For patients with an ETCO2 reading of less than 10mm/Hg or for patients in nonperfusing rhythms, consider early Base Hospital contact for disposition/pronouncement at scene
-Flush IV/IO line with Normal Saline after medication administration

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