# Suffolk County Program Agency Educational Material for Cardiac Patients

This is a collection of educational material as pertains to the care, management and transport destination by EMS providers in Suffolk County for patients with cardiac disorders.

Please remember that not all patients who are experiencing an acute cardiac disorder have symptoms of chest pain, and these patients may have other symptoms such as dyspnea, syncope, dizziness, fatigue, weakness, nausea or vomiting. The performance of a 12-lead EKG in these patients is advised in order to evaluate the patient for STEMI.

Following a 12-lead EKG acquisition by an EMT-Basic or an EMT-Critical Care, the provider is required to transmit the 12-lead EKG and to make telephone contact with Suffolk County Medical Control **at once**. Both are required.

If a **STEMI patient** is identified with 12-lead EKG findings by an EMT-Paramedic, the EMT-Paramedic is required to transmit the 12-lead EKG and to make telephone contact with Suffolk County Medical Control **at once**. The 12-lead EKG is also required to be transmitted to the receiving hospital. The EMS providers are required to make an advanced notification communication to the receiving hospital as soon as possible and before they begin transport, to pass along information regarding a suspected STEMI. As STEMI patients are at a high risk for sudden arrhythmia, it is recommended that the patient have defibrillator pads placed onto the patient's chest during EMS transport in case sudden ventricular fibrillation cardiac arrest should occur.

Currently there are 9 hospitals in Suffolk County who are designated **New York State DOH Percutaneous Coronary Intervention Centers**. All suspected STEMI patients shall be transported to one of these facilities within 30 minutes. If the ground transport time for a STEMI patient to reach a PCI Center is estimated to be greater than 30 minutes, the use of Air Medical Services should be considered and contact with Medical Control is required.

The current listing of PCI Centers in Suffolk County is: Good Samaritan University Hospital, Huntington Hospital, Long Island Community Hospital, Mather Hospital, Peconic Bay Medical Center, South Shore University Hospital, St. Catherine of Siena Hospital, Stony Brook Southampton Hospital, and Stony Brook University Hospital.

The use of Acetaminophen, Ibuprofen, Toradol, and Ketamine is **not authorized** in patients presenting with a cardiac complaint, and specifically not authorized for suspected STEMI patients. The relief of pain for cardiac patients shall be with the administration of Morphine or Fentanyl under the relief of pain protocol.

In cardiac patients, all levels of EMS providers may administer Aspirin 324 mg PO chewed (unless the patient has a documented allergy to aspirin or there is suspicion of an active GI bleeding disorder). The administration of Aspirin by EMS providers has been shown to decrease morbidity and mortality in acute coronary syndrome patients due to the anti-platelet effects of Aspirin. If there is any question on whether or not a patient has taken an Aspirin prior to EMS contact, the EMS providers should administer Aspirin 324 mg PO chewed. The patient may have been advised by the Emergency Medical Dispatcher to self-administer Aspirin - and if that occurs, this satisfies the EMS protocol as Dispatchers are part of the EMS provider team.

For Cardiac – Adult: Bradycardia/Heart Blocks – Symptomatic. **Bradycardia that warrants rate increasing treatment by EMS is defined as HR < 50 beats per minute, and the patient must be symptomatic**. Symptomatic presentation includes chest pain, dyspnea, altered mental status, pulmonary edema, cardiac ischemia or infarction, or hypotension. Contact with Suffolk County Medical Control is strongly advised for EKG rhythm interpretation in these patients. A 12-lead EKG is required to be performed as soon as possible. For Cardiac – Pediatric: Bradycardia. **Please be aware that pediatric bradycardia is likely to be the result of difficulty with ventilation and from hypoxia**. The EMS providers shall pay specific attention to checking and managing the child's airway and to supporting the child's ventilation with performing Bag-Valve-Mask ventilation with supplemental oxygen administration. Attention to the child's airway and ventilation status shall be performed first in this protocol by all levels of EMS provider. Please be aware that there is a wide range of normal heart rates for children of different ages. Also, please be aware that some children who have a cardiac history or a history of cardiac surgery may have a slow heart rate without symptoms. Last, athletic children may have slow heart rates without symptoms. Contact with Suffolk County Medical Control is required by all EMT-Critical Care's prior to consideration of use of medications to treat pediatric bradycardia. Contact with Suffolk County Medical Control is required by all ALS providers prior to consideration of the use of transcutaneous pacing in pediatric patients.

For Cardiac – Adult: Tachycardia – Narrow Complex. **Tachycardia warranting rate control treatment by EMS is defined as HR > 150 beats per minute**. Unstable patients are to receive synchronized cardioversion (100J if regular rhythm and 200J if irregular rhythm) and unstable is defined as patients who have significant cardio-pulmonary compromise, hypotension or altered level of consciousness. Cardioversion may be performed 2 times for unstable patients under standing orders and then contact with Medical Control is required. Stable patients may be administered medication to control heart rate if the HR is > 150 beats per minute and the patient is symptomatic. Adenosine is the medication to be administered if there is a regular rhythm (SVT) and Diltiazem or Metoprolol is the medication to be administered if there is an irregular rhythm (atrial fibrillation or atrial flutter). Please be aware that there is no EKG rhythm interpretation in the New York State protocol, however cardiac monitoring and vascular access are required and EKG rhythm interpretation is strongly encouraged in order to determine SVT, atrial fibrillation, atrial flutter or sinus tachycardia. **Sinus tachycardia shall not be treated with medication administration or with cardioversion**, and the reason for the patient's elevated heart rate should be assessed, such as anxiety, pain, fever, sepsis, blood or fluid loss. Suffolk County Medical Control may be contacted at any time for assistance with rhythm interpretation and patient management. The EMT-Critical Care is authorized to perform synchronized cardioversion under standing orders, but must contact Medical Control to administer sedation for the procedure. The EMT-Paramedic is authorized to perform synchronized cardioversion and to administer sedation for the procedure under standing orders. The use of Adenosine 6mg IV with rapid NS flush is meant to treat **Supra-Ventricular Tachycardia (SVT)**, with a repeat administration of Adenosine 12mg IV if needed. The use of Diltiazem 0.25mg/kg (max 25mg per administration) infused over 2 minutes (as a slow IV push) is the first medication to be administered for **Rapid Atrial Fibrillation/Atrial Flutter** – unless the patient is on a prescribed beta-blocker then the patient shall be administered Metoprolol 5mg IV infused over 2 minutes (as a slow IV push). Repeat dosing for stable patients with persistent tachycardia is not authorized for the EMT-Critical Care under standing orders and contact with Medical Control is required. The EMT-Paramedic may administer a second dose of either Diltiazem or Metoprolol after 15 minutes time if the patient's HR remains > 150 beats per minute, but do not combine the two different medications (in other words, a second dose is administered of the same medication) under standing orders. There are Medical Control considerations for the use of Adenosine, Diltiazem, Metoprolol, the administration of Amiodarone, or cardioversion for these patients.

For Cardiac – Adult: Tachycardia – Wide Complex with a Pulse. Wide Complex is defined as a cardiac rhythm QRS complex duration of > 120 milliseconds. **Tachycardia warranting rate control treatment by EMS is defined as HR > 150 beats per minute.** Unstable patients shall be administered synchronized cardioversion at 100J up to 3 attempts (200J if irregularly irregular and wide complex rhythm). Unstable patients are defined as patients who have significant cardio-pulmonary compromise, hypotension or altered level of consciousness. Stable patients shall be administered Amiodarone 150mg in 100mL of NS over 10 minutes. Medical Control considerations for unsynchronized cardioversion, further synchronized cardioversion, Adenosine, Lidocaine, additional Amiodarone, and Magnesium 2 grams IV over 10 minutes if stable and over 2 minutes if unstable.

For Cardiac – Pediatric: Tachycardia. Please be aware that there is no rhythm interpretation in the protocol, however cardiac monitoring is required and contact with **Suffolk County Medical Control is required prior to consideration of cardioversion in the unstable pediatric patient and prior to consideration of medication administration in the stable pediatric patient**. Medical Control will assist the EMS provider in the management strategy. Many children have sinus tachycardia for many different reasons such as anxiety, pain, fever, sepsis, blood or fluid loss. The use of cardioversion or of medication administration is meant for the management of pediatric tachycardia that is from an arrhythmia such as **SVT**, and **not** for treating sinus tachycardia.

For Cardiac – Adult: **Total Artificial Heart**. **Stony Brook University Hospital** is the Suffolk County Regional TAH Center. When an emergency condition exits, the patient with a Total Artificial Heart should be transported to Stony Brook University Hospital if it is no more than **20 minutes** past the closest hospital. If the patient is in cardiac arrest or has an unmanageable airway, they should be transported to the closest hospital. **Advanced notification by EMS to Stony Brook University Hospital is required as soon as possible to give the receiving facility as much advanced notification as possible.** If there is any question about the management of a patient with a Total Artificial Heart, contact Suffolk County Medical Control. If there is any question about the transport destination for a patient with a Total Artificial Heart, contact Suffolk County Medical Control. Contact with Suffolk County Medical Control is also required if EMS is transporting a patient with a TAH to a non-TAH center.

For Cardiac – Adult: **Ventricular Assist Device**. **Stony Brook University Hospital** is the Suffolk County Regional LVAD Center. When an emergency condition exists, the patient with a Ventricular Assist Device should be transported to Stony Brook University Hospital if it is no more than **20 minutes** past the closest hospital. If the patient is in cardiac arrest or has an unmanageable airway, they should be transported to the closest hospital. **Advanced notification by EMS to Stony Brook University Hospital is required as soon as possible to give the receiving facility as much advanced notification as possible.** If there is any question about the management of a patient with a Ventricular Assist Device, contact Suffolk County Medical Control. If there is any question about the transport destination for a patient with a Ventricular Assist Device, contact Suffolk County Medical Control. Contact with Suffolk County Medical Control is also required if EMS is transporting a patient with an LVAD to a non-LVAD center.

All EMS providers in Suffolk County are encouraged to review the New York State Collaborative Adult and Pediatric Protocols and the Suffolk County BLS and ALS Policy Manual.

In any EMS patient care situation, Suffolk County Medical Control may be contacted as a Resource at any time.

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