

***EMERGENCY MEDICAL TECHNICIAN
PREHOSPITAL A.E.D. GUIDELINES
2005***

**The Charlotte Hungerford Hospital
Emergency Medical Technician – AED Protocols 2005**

Signature Page

Dr. Eric D. Salk, M.D., MPH, F.A.C.E.P.
Medical Director

Dennis J. Brown, PA-C, MPH, NREMT-P
EMS Coordinator

Frederick V. Rosa, EMT-P, EMS-I
EMS Liaison

Introduction

The information contained in these protocols has been compiled from sources believed to be reliable. Significant efforts have been made to make sure this document is accurate. Despite our best efforts, there may be typographical errors or omissions. The Charlotte Hungerford Hospital Department of Emergency Medical Services is not liable for any loss or damage that may result from these errors.

Communications

Medical Control will be obtained from any one of the Region Five Hospitals, depending on where the patient is being transported. If the patient is going to be transported to a hospital other than the above listed, then your sponsor Hospital will be utilized as Medical Control.

Charlotte Hungerford Hospital can be reached by telephone at the following numbers:

(860) 496-6650 Emergency Department
(860) 496-6666 Hospital Operator

Danbury Hospital can be reached by telephone at the following numbers:

(203) 797-7100 Emergency Department
(203) 797-7500 Hospital Operator

New Milford Hospital can be reached by telephone at the following numbers:

(860) 350-7222 Emergency Department
(860) 355-2611 Hospital Operator

Saint Mary's Hospital can be reached by telephone at the following numbers:

(203) 709-6004 Emergency Department
(203) 709-6000 Hospital Operator

Sharon Hospital can be reached by telephone at the following numbers:

(860) 364-4111 Emergency Department
(860) 364-4141 Hospital Operator

Waterbury Hospital can be reached by telephone at the following numbers:

(203) 573-6290 Emergency Department
(203) 573-6000 Hospital Operator

Use of Automated External Defibrillators for Children: An Update

An Advisory Statement from the Pediatric Advanced Life Support Task Force, International Liaison Committee on Resuscitation

On the basis of the published evidence to date, the Pediatric Advanced Life Support (PALS) Task Force of the International Liaison Committee on Resuscitation (ILCOR) has made the following recommendation (October 2002):

- Automated external defibrillators (AEDs) may be used for children 1 to 8 years of age who have no signs of circulation. Ideally the device should deliver a pediatric dose. The arrhythmia detection algorithm used in the device should demonstrate high specificity for pediatric shockable rhythms, i.e., it will not recommend delivery of a shock for nonshockable rhythms (Class IIb).

In addition:

- Currently there is insufficient evidence to support a recommendation for or against the use of AEDs in children <1 year of age.
- For a lone rescuer responding to a child without signs of circulation, the task force continues to recommend provision of 1 minute of CPR before any other action, such as activating the emergency medical services (EMS) system or attaching the AED.
- Defibrillation is recommended for documented ventricular fibrillation (VF)/pulseless ventricular tachycardia (VT) (Class I).

ILCOR Recommendations

ILCOR recently examined (October 2002) the literature regarding the use of AEDs in children. The consensus was:

AEDs may be used for children 1 to 8 years of age with no signs of circulation. Ideally the device should deliver a pediatric dose. The arrhythmia detection algorithm used in the device should demonstrate high specificity for pediatric shockable rhythms, i.e., the device will not recommend a shock for nonshockable rhythms (Class IIb).

- Currently the evidence is insufficient to support a recommendation for or against the use of AEDs in children <1 year of age.
- For a lone rescuer responding to a child without signs of circulation, provision of 1 minute of CPR is still recommended before any other action such as activating EMS or attaching the AED.
- Defibrillation is recommended for documented VF/pulseless VT (Class I).

Limitations

One important limitation that arose during task force deliberations on this topic was the lack of data on *clinical use* of newly developed pediatric pad/cable systems that reduce the energy delivered by AEDs designed for use in the adult. This was especially problematic when discussing the risks and benefits of use of AEDs in very young infants. Relevant points of discussion included the following:

1. The experimental data in the Atkinson study³⁸ examining sensitivity and specificity included infants, but the sample size diminished with decreasing age, and thus there is less confidence in the data from that study analyzing sensitivity/specificity in the youngest patients.
2. Very small infants might receive doses demonstrated to cause myocardial damage in animal studies.

3. The incidence of shockable rhythms as a clinical cause of unresponsiveness in young infants is lower than in older children.

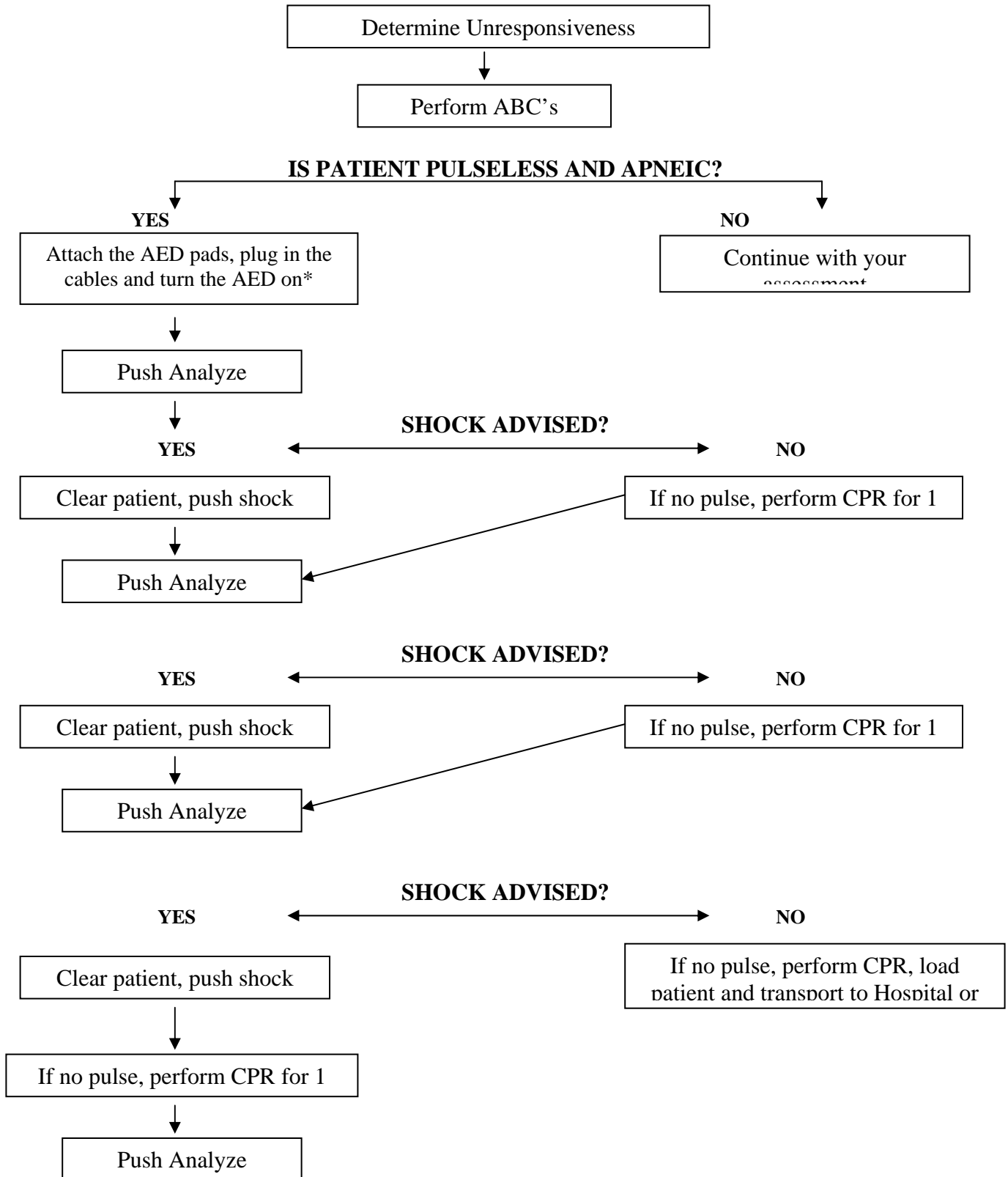
The last 2 points suggest that the number needed to harm and the number needed to treat would move in unfavorable directions with decreasing age, and thus there is consensus in the task force that the recommendations for very young infants be more conservative. The task force recognized that there were insufficient clinical data to determine the *best* appropriate lower age (the age at which the number needed to harm exceeds number needed to treat). Therefore, a pragmatic decision was made to limit the recommendation to children 1 to 8 years of age because many resuscitation councils use 1 year as the transition from infant to child CPR. Linking the recommendation to 1 year of age will facilitate training and retention.

Until clinical data from pediatric AED use becomes available, the task force recommends that institutions that routinely care for children at risk for arrhythmias and cardiac arrest (e.g., in-hospital settings) should continue to use defibrillators capable of energy adjustment for weight-based doses.

Because there is insufficient evidence to determine the best placement of AED pads (i.e., anterior/posterior versus sternal/apical), the task force has not recommended a preferred position for pad placement.

This data appeared in Circulation. 2003;107:3250. The original article may be found at <http://circ.ahajournals.org/cgi/content/full/107/25/3250>. All information has been reprinted with permission from Lippincott, Williams & Wilkins

❄️ CARDIAC ARREST MANAGEMENT / AED PROTOCOL ❄️



** For patients 1-8 years old, perform 1 minute of CPR prior to attaching the AED. Use pedi capable AED for these patients whenever possible. If pedi AED is not available, make sure there is space between the adult pads.*

† Some AED models may analyze automatically.

Defibrillation may be performed, when advised by the AED, for up to three consecutive shocks. A second stack of three shocks may be performed, when advised by the AED, for a total of six shocks. Medical Control must be consulted after this point and transport must be initiated if possible.

CPR must be performed for one minute after three consecutive shocks or after a “No Shock Advised” warning

Pre-Hospital Care Protocol for Defibrillation

Situation # 1: “No Shock Advised”

1. Establish:
 - a. Unresponsiveness
 - b. Patient not breathing
 - c. Patient does not have a pulse
2. Initiate CPR (if the AED is not yet to the patient’s side).
3. If possible, request ALS unit.
4. Turn the AED on and follow the voice prompts.*
5. “Connect electrodes” to the patient (follow diagrams on each electrode for placement).
 - a. The patient’s chest must be bare.
 - b. The electrodes will not stick to hair, it must be shaved prior to placement.
6. “Push Analyze”, “analyzing patient, stand clear” (do not touch or move the patient during this time).
7. “No Shock Advised, Check for pulse, if no pulse, start CPR”.
8. If a pulse is detected:
 - a. Check vital signs.
 - b. Assist ventilations as needed with 100% oxygen via BVM.
 - c. Continue to monitor the patient and await Paramedic Intercept. Place patient in the recovery position if appropriate.
9. If no pulse is detected:
 - a. Perform CPR for one minute.
 - b. After one minute, the AED will announce “Push Analyze”
10. “No Shock Advised, Check for pulse, if no pulse, start CPR”.
11. If a pulse is detected:
 - a. Check vital signs.
 - b. Assist ventilations as needed with 100% oxygen via BVM.
 - c. Continue to monitor the patient and await Paramedic Intercept. Place patient in the recovery position if appropriate.
12. If no pulse is detected:
 - a. Perform CPR for one minute.
 - b. After one minute, the AED will announce “Push Analyze”
 - c. If “No shock advised”, resume CPR, facilitate rapid transport, and Paramedic Intercept.
13. Initiate transport to receiving facility or designated intercept location.
 - a. Perform CPR with oxygenated BVM Support.
 - b. When prompted “Push Analyze” (the LifePak 500 has a motion detection sensor, if moving the machine will not analyze the rhythm. You will need to stop all motion and patient movement.)
14. “No Shock Advised, Check for pulse, if no pulse, start CPR”.
15. If no pulse is detected:
 - a. Resume CPR with oxygenated BVM support.
 - b. If motion was stopped resume transport to facility and Paramedic Intercept.
 - c. Continue as above until intercept or arrival at receiving facility.
16. If a pulse is detected:
 - a. Check vital signs
 - b. Assist ventilations as needed with 100% oxygen via BVM
 - c. Continue to monitor patient until Paramedic Intercept or arrival at receiving facility.

*** For patients 1-8 years old, perform 1 minute of CPR prior to attaching the AED. Use pedi capable AED for these patients whenever possible. If pedi AED is not available, make sure there is space between the adult pads.**

These protocols were drafted in accordance with the Physio-Control LifePak 500. Please be sure to follow all recommended manufacturer guidelines for upkeep and maintenance for your AED.

Pre-Hospital Care Protocol for Defibrillation

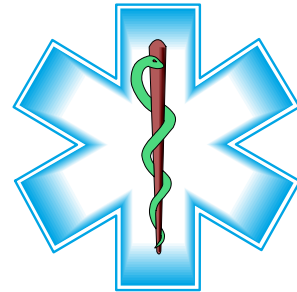
Situation #2: “Shock Advised”

1. Establish:
 - a. Unresponsiveness
 - b. Patient not breathing
 - c. Patient does not have a pulse
2. Initiate CPR (if the AED is not yet to the patient’s side).
3. When possible request ALS (Paramedic Intercept) unit.
4. Turn on the AED and follow the voice prompts.*
5. “Connect electrodes” to the patient (follow the diagram on each electrode for placement).
 - a. The patient’s chest must be bare.
 - b. The electrode will not stick to hair; it must be shaved prior to placement.
6. “Push analyze”, “Analyzing patient, stand clear” (do not touch or move the patient during this time).
7. “No shock advised”, “check for pulse, if no pulse start CPR”.
 - a. **Go to situation #1 protocol.**
8. “Shock advised”
 - a. Machine will cycle up the capacitor to deliver the shock.
 - b. **Ensure no one is touching the patient.** Scan the patient from head to toe, “I am clear, you are clear, everyone is clear.”
9. “Stand clear, push to shock”
 - a. Make sure everyone is clear.
 - b. Push the shock button to deliver the shock.
10. “Analyzing now, stand clear”:
 - a. Machine will automatically start the analyze process, ensure no one is touching or moving the patient.
11. “Shock advised”
 - a. Machine will cycle up the capacitor to deliver the shock.
 - b. Ensure no one is touching the patient. Scan the patient from head to toe, “I am clear, you are clear, everyone is clear.”
12. “Stand clear, push to shock”
 - a. Make sure everyone is clear.
 - b. Push the shock button to deliver the shock.
13. “Analyzing now, stand clear”:
 - a. Machine will automatically start the analyze process, ensure no one is touching or moving the patient.
14. “Shock advised”
 - a. Machine will cycle up the capacitor to deliver the shock.
 - b. Ensure no one is touching the patient. Scan the patient from head to toe, “I am clear, you are clear, everyone is clear.”
15. “Stand clear, push to shock”
 - a. Make sure everyone is clear.
 - b. Push the shock button to deliver the shock.
16. “Check for pulse, if no pulse, start CPR.”
17. If a pulse is detected:
 - a. Check vital signs
 - b. Assist ventilations as needed with 100% oxygen via BVM
 - c. Continue to monitor patient and facilitate loading, transport, and paramedic intercept.
18. If no pulse is detected:
 - a. Perform CPR for one minute.
 - b. After one minute, the AED will announce “Push analyze”
19. Repeat steps 6 through 18.
20. After 2 stacks of shocks (6 total shocks) contact online medical control for further instructions or additional stacks of shocks.

*** For patients 1-8 years old, perform 1 minute of CPR prior to attaching the AED. Use pedi capable AED for these patients whenever possible. If pedi AED is not available, make sure there is space between the adult pads.**

Note: If at any time a “No Shock Advised, check for pulse, if no pulse, start CPR” Statement is given please go to Situation #1, step number 7. If it is necessary to defibrillate during transport, bring the vehicle to a complete stop prior to pushing the analyze button.

These protocols were drafted in accordance with the Physio-Control LifePak 500. Please be sure to follow all recommended manufacturer guidelines for upkeep and maintenance for your AED.



EMERGENCY MEDICAL TECHNICIAN SPONSOR HOSPITAL POLICIES

AED Treatment Guidelines

1. Perform an Initial Assessment. If the patient is in cardiac arrest, one person operates the AED while other(s) initiate CPR.
2. Call for Paramedic assistance as soon as possible.
3. Turn the machine on. Apply defibrillation pads to the patient's chest as indicated on package and/or pads.
 - a. The defibrillator electrodes will be applied to every patient who is in respiratory and cardiac arrest.* When using the AED, be sure to record the following information:
 - date and time
 - age, sex and approximate weight of the patient
 - history of present event
 - relevant past medical history
 - b. The defibrillator will be brought to the side of patients with a dispatch of:
 - Cardiac arrest
 - chest pain or palpitations
 - respiratory distress
 - altered mental status of any type
 - syncope or near syncope
4. Press analyze†, defibrillator will advise "SHOCK ADVISED" or "NO SHOCK ADVISED.
5. If the AED prompts "NO SHOCK ADVISED, CHECK FOR PULSE, IF NO PULSE, START CPR", follow voice prompts and provide routine BLS care.
6. If the AED prompts "SHOCK ADVISED", the AED will automatically charge. **Ensure that the patient is clear**, state loudly "STAND CLEAR" prior to pressing the Shock button.
7. The AED will either begin to analyze automatically, or advise you to "PUSH ANALYZE". If "NO SHOCK ADVISED...", follow step 5.
8. If "SHOCK ADVISED", follow step 6 (the AED will automatically charge).
9. If a third "SHOCK ADVISED", follow step 6 (the AED will automatically charge).
10. After the third shock is delivered "CHECK FOR PULSE, IF NO PULSE, START CPR". In one minute, the AED will prompt "CHECK FOR PULSE, IF NO PULSE, PUSH ANALYZE". If "SHOCK ADVISED", you may deliver another stack of 3 shocks as prompted by the AED. (The AED will automatically charge).
11. Package the patient and begin transport to either the Paramedic Intercept point, or the nearest Emergency Department, depending on which is the closest.

Please do not push the analyze button while the vehicle is moving or when someone is touching the patient.

*** The AED will not be applied to patients 0-1 year of age. For patients 1-8 years old, perform 1 minute of CPR prior to attaching the AED. Use pedi capable AED for these patients whenever possible. If pedi AED is not available, make sure there is space between the adult pads.**

† Some AED models may analyze automatically.

Pre-Hospital Care Protocol for Defibrillation

Continuous Quality Improvement and Continuing Education Requirements

I: Continuous Quality Improvement:

- A. Every effort must be made upon arrival at the receiving facility to download and print a copy of the event summary.
- B. One copy of the event summary and your run form must be attached to the patient chart, and a second copy must be left for your EMS coordinators **along with a copy of your run form.**
- C. If you are unable to leave a copy of the event summary and/or your run form, it/they must be faxed to the emergency department fax machine, to be attached to the patient record (This must be done upon your arrival back in quarters.). A second copy must be mailed, along with a peer review form and a copy of your run form to your EMS Coordinator, or dropped off within 5 days of the event.
 - 1) To mail: EMS Coordinator, Charlotte Hungerford Hospital, 540 Litchfield Street, Torrington, CT. 06790
 - 2) Or drop off a copy to our office in the Emergency Department.
- D. Due to the many different models that are in use by the various agencies it is the responsibility of the EMS Service to have a means of downloading, saving and/or printing out a copy of the summary from the machine.

II. Continuing Medical Education Requirements:

- A. Charlotte Hungerford Hospital expects that all personnel utilizing an AED will be recertified **annually** by an approved instructor. Please contact this office for a list of current instructors.
- B. Acceptable substitutions for this include an **EMT-Basic refresher or an AHA Healthcare Provider renewal.**
- C. You must maintain current State of Connecticut OEMS certification or licensure.
- D. CPR training to the Healthcare Provider, or equivalent, is **required.** This may be used as a substitution for a sponsor hospital AED program.

Please note: An EMT's medical control for the use of the AED may be suspended for the following:

- A. Failure to obtain recertification or license renewal through OEMS.
- B. Failure to attend a recertification class for the AED.
- C. Failure to adhere to your sponsor hospital's AED protocols.
- D. Non professional behavior.

✿ CARDIAC ARREST MANAGEMENT / AED ✿

ASSESSMENT		
Takes or verbalizes body substance isolation precautions	<u>Yes</u>	<u>No</u>
Briefly questions rescuer about arrest events	<u>Yes</u>	<u>No</u>
Directs rescuer to stop CPR	<u>Yes</u>	<u>No</u>
Verifies absence of spontaneous pulse (<i>skill station examiner states "no pulse"</i>)	<u>Yes</u>	<u>No</u>
Turns on defibrillator power	<u>Yes</u>	<u>No</u>
Attaches defibrillator electrodes to patient	<u>Yes</u>	<u>No</u>
Ensures all individuals are standing clear of the patient	<u>Yes</u>	<u>No</u>
Initiates analysis of the rhythm	<u>Yes</u>	<u>No</u>
Delivers shock when indicated (up to three successive shocks)	<u>Yes</u>	<u>No</u>
Verifies absence of spontaneous pulse (<i>skill station examiner states "no pulse"</i>)	<u>Yes</u>	<u>No</u>
TRANSITION		
Directs resumption of CPR	<u>Yes</u>	<u>No</u>
Gathers additional information of arrest event	<u>Yes</u>	<u>No</u>
Confirms effectiveness of CPR (ventilation and compressions)	<u>Yes</u>	<u>No</u>
INTEGRATION		
Directs insertion of a simple airway adjunct	<u>Yes</u>	<u>No</u>
Directs ventilation of patient	<u>Yes</u>	<u>No</u>
Assures high concentration of oxygen connected to the ventilatory adjunct	<u>Yes</u>	<u>No</u>
Assures CPR continues without unnecessary or prolonged interruption	<u>Yes</u>	<u>No</u>
Re-evaluates patient in approximately one minute	<u>Yes</u>	<u>No</u>
Repeats defibrillator sequence	<u>Yes</u>	<u>No</u>
TRANSPORTATION		
Verbalizes transportation	<u>Yes</u>	<u>No</u>

CRITICAL CRITERIA

- Did not take or verbalize body substance isolation precautions
- Did not evaluate the need for immediate use of the AED
- Did not direct initiation / resumption of ventilation / compressions at appropriate times
- Did not assure all individuals were clear of patient before delivering each shock
- Did not operate the AED properly (inability to deliver shock)

Student's Name: _____ **Service:** _____ **Date:** _____

Evaluator's Name: _____ **Signature:** _____

This is an adaptation of the National Registry of Emergency Medical Technicians Skill Sheets for Cardiac Arrest Management created with permission from the National Registry of Emergency Medical Technicians (7/24/01).

The Charlotte Hungerford Hospital

* Automated External Defibrillator Peer Review Form *

<u>EMS Service Responding</u>	<u>EMS Service Case Number</u>	<u>Date of Event</u>
<u>Patient's First Name</u>		<u>Patient's Last Name</u>
<u>Patient's Home Address</u>		
<u>Receiving Facility</u>	<u>Patient's Sex</u> <input type="checkbox"/> Male <input type="checkbox"/> Female	<u>Age</u>
<u>Patient's Race</u> <input type="checkbox"/> White <input type="checkbox"/> African American <input type="checkbox"/> Asian <input type="checkbox"/> Hispanic <input type="checkbox"/> Native American <input type="checkbox"/> Other: _____		
<u>Incident Location</u> <input type="checkbox"/> Home <input type="checkbox"/> Work <input type="checkbox"/> Public Place <input type="checkbox"/> Car <input type="checkbox"/> Sports <input type="checkbox"/> Other: _____		<u>Cause of Arrest</u> <input type="checkbox"/> Cardiac <input type="checkbox"/> Trauma <input type="checkbox"/> Other: _____
<u>First Responder</u>	<u>EMS Personnel</u>	<u>EMS Personnel</u>
<u>EMS Personnel</u>	<u>EMS Personnel</u>	<u>ALS Personnel</u>
<u>ALS Personnel</u>	<u>ALS Personnel</u>	<u>ALS Personnel</u>

<u>Patient's signs & symptoms prior to Cardiac Arrest</u>			
<input type="checkbox"/> Unknown			
<u>Duration of Patient's signs & symptoms prior to Cardiac Arrest</u>			
<input type="checkbox"/> Unknown			
<u>Patient History (check all appropriate histories)</u>			
CVA <input type="checkbox"/> Htn <input type="checkbox"/> Cardiac Hx <input type="checkbox"/> Seizure <input type="checkbox"/> Asthma <input type="checkbox"/> Cancer <input type="checkbox"/> Angina <input type="checkbox"/> COPD <input type="checkbox"/> AICD <input type="checkbox"/> Pacemaker <input type="checkbox"/> AMI <input type="checkbox"/> Liver <input type="checkbox"/>			
<u>Witnessed Arrest?</u> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unk.	<u>Were pulses regained?</u> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unk.	<u>Were respirations regained?</u> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unk.	<u>Pt regains consciousness?</u> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unk.
<u>Did the Medic arrive?</u> <input type="checkbox"/> Yes <input type="checkbox"/> No	<u>Was the pt admitted?</u> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unk.	<u>Was the pt discharged?</u> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unk.	<u>Positive Cardiac History?</u> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unk.
Private MD:	Treating MD:	EMD <input type="checkbox"/> YES <input type="checkbox"/> NO	Bystander CPR <input type="checkbox"/> YES <input type="checkbox"/> NO BY WHOM:
Time of Arrest			Post Resuscitation Vitals
Time Of Call			Time : BP: / Pulse: Resp:
Time R1 Arrival			Time : BP: / Pulse: Resp:
Time R2/R4 Arrival			Resuscitation
Time CPR Initiated			<input type="checkbox"/> In Field R1 <input type="checkbox"/> In Field R5 <input type="checkbox"/> Unsuccessful
Time De-fib connected			<input type="checkbox"/> In Field R2 <input type="checkbox"/> In Hospital Total Shocks -
Time Of De-fib			Comments / Deviations from Protocol:
Time of De-fib			
Time of De-fib			

Time CPR Started					
Time Paramedic Intercepted					
Time of Transport to ER					Discharge Condition:
Arrival time at ER				<input type="checkbox"/> Normal	<input type="checkbox"/> Non-Functional
				<input type="checkbox"/> Functional / Impaired	<input type="checkbox"/> Morgue