

	<b>APPROVAL DATE</b> <b>June 2017</b>	<b>MANUAL:</b> <b>Standardized Procedure</b>
		<b>SECTION:</b> <b>Pediatric CHET</b>
		<b>TRACKING #</b> <b>SP 3-01</b>
	<b>TITLE:</b> <b>Cardiac Defibrillation</b>	
<input type="checkbox"/> <b>POLICY</b> <input type="checkbox"/> <b>PROCEDURE</b> <input type="checkbox"/> <b>STANDARD OF CARE</b> <input checked="" type="checkbox"/> <b>STANDARDIZED PROCEDURE</b> <input type="checkbox"/> <b>GUIDELINE</b> <input type="checkbox"/> <b>OTHER</b>		

**I. PURPOSE**

This standardized procedure is designed to establish guidelines that will enable the Advanced Life Support (ALS) Registered Nurse (RN) and Advanced Life Support (ALS) Respiratory Therapist (RT) to perform cardiac defibrillation while on transport or as the resuscitation code leader on RCHSD Campus.

**II. DEFINITIONS**

Defibrillation is the definitive treatment for ventricular fibrillation (VF) or pulseless ventricular tachycardia (VT) confirmed by EKG monitoring. It is the asynchronous, untimed depolarization of a critical mass of myocardial cells to allow spontaneous organized myocardial depolarization to resume.

**III POLICY**

- A. Standardized Procedure (SP) Function(s): patients requiring defibrillation for a cardiac output compromising rhythm in an emergency setting.
- B. Circumstances under which an ALS RN or ALS RT may perform Standardized Procedure function(s):
  - 1. Setting: Rady Children’s Hospital San Diego Campus. Any setting or outlying facility in the process of transferring a patient to a higher level of care via the Rady Children’s Emergency Transport system
  - 2. Scope of Supervision /Collaboration: Overall supervision is provided by the appropriate supervising &/or attending physician
    - a. In the event that an Advanced Life Support policy or procedure is altered via a referring physician (verbal or written order) then the ALS nurse will inform the physician that he/she is not competent to carry out the altered plan and must either adhere to the procedure or relinquish responsibility to the physician.
    - b. When possible, the PICU attending should be contacted before the procedure. In all emergencies, the primary physician will be notified as soon as possible while advanced life support is being initiated.
    - c. After three rounds of defibrillation. (See procedure details)

- d. Under all circumstances the Advanced Life Support team will carry out urgent resuscitation according to the procedure.
3. Patient conditions requiring physician notification:
  - a. Unsuccessful Procedure
  - b. If patient's condition is unstable
  - c. If there are any complications or unexpected outcomes from the procedure
  - d. In an emergency; as soon as possible while advanced life support is being initiated.
  - e. Prior to departure from referring facility with patient status information
- C. RN/RT requirements:
  1. Education/Training/Experience – below will be documented and maintained in the employee file
  2. Attend the Advanced Life Support didactic training classes (minimum of 40 hours)
    - a. Pass all written and performance tests administered during the course with a minimum of 94% accuracy on the final exam.
    - b. Demonstrate procedure on manikin
  3. Initial Competency Assessment: observed and signed off by team manager
    - a. At completion of ALS Training will demonstrate assessment and proper preparation of the patient and equipment via simulation
    - b. Will function as the Team Leader in the “mega code” testing scenario
  4. Annual competency Assessment:
    - a. Complete 2 successful defibrillations supervised by a Attending Physician, NP or experienced ALS RN or ALS RT.
    - b. If minimum number of annual procedures not obtained, the following are options for competency maintenance:
      - Attend skills lab offered biannually (procedure review & simulation)
      - Complete Annual Competency validation test
      - 1:1 simulation & demonstration check off
    - c. If consecutive years of failure to obtain minimum number required procedures ALS RN or RT will be required to again complete Initial competency assessment.
    - d. Participation with mock codes (expected: 2 annually)
- D. RN/RTs authorized to perform Standardized Procedure function(s): A written record of initial and ongoing competency will be maintained in the employee file.

#### **IV. PROCEDURE**

- A. Database
  1. Subjective
    - a. Historical information relevant to present illness.
    - b. History including reactions/allergies to medications
  2. Objective
    - a. Physical examination with focus on pulmonary and cardiovascular systems
- B. Assessment
  1. Decision for defibrillation will be based upon subjective and objective data and in collaboration with the attending physician when not an emergency life-saving procedure.
  2. A rhythm disturbance in a child should be treated as an emergency only if it compromises cardiac output or has the potential to degenerate into a lethal (collapse) rhythm to the point of being hemodynamically unstable or fatal.
- C. Plan

1. Patients and families will be provided with the appropriate information prior to initiation of the procedure if not an emergent lifesaving procedure, and obtain consent as per hospital protocol.
2. After defibrillation at 2joules/kg begin CPR and ensure vascular access. , After 2 minutes of CPR, defibrillate again at 4joules/kg and continue CPR.
3. If there is no pulse and/or rhythm, continue CPR, administer Epinephrine 0.01mg/kg every 3-5 minutes and call PICU Intensivist for further orders.
4. If pulse present, continue to monitor and call PICU Intensivist for further orders.
5. Indication: Pulseless arrest
6. Contraindications: None in the presence of pulselessness.

#### D. Equipment

1. Defibrillator with EKG
2. Defibrillation gelpads of appropriate size: not to come into contact with one another or hands free multi-purpose pads (preferred)
3. Paddles: The largest size that allows good contact with the chest over the entire paddle surface and good separation between each other to prevent arcing.
  - a. In general, infant paddles should be used for infants up to about 10kg or 1 year of age and adult paddles for greater than 10kg or greater than 1 year of age.
  - b. Hands Free Multi-purpose pads: Infant pads for patients up to 10kg and intended energy use less than 100joule
  - c. Pediatric/adult pads to be used for patients greater than 10 kg

#### E. Preparation of the equipment

- a. Attach EKG leads to the patient or place pads on patient
- b. Turn defibrillator on and confirm that it is in asynchronous mode.
- c. Select energy dose and charge the capacitor (2-4 joules/kg)

#### F. Preparation of the patient

1. Determine pulselessness and begin CPR. Confirm EKG rhythm on the monitor. Ventilate with 100% FiO<sub>2</sub> via BVM or ETT.
2. Establish/ensure vascular access. Do not interrupt CPR or delay defibrillation.
3. Apply gelpads to the chest; one to the upper right chest below the clavicle and the other to the left chest just left of the nipple at the mid-axillary line.
4. Stop compressions and place paddles on the gelpads ensuring proper position on the chest.
5. Recheck rhythm on the monitor and reassess for pulselessness.
6. Clear the area so that no personnel are in contact with the patient, bed, or equipment by stating "CLEAR!"
7. Apply firm pressure to the paddles while simultaneously depressing discharge buttons. If hands free pads are utilized, use the "discharge" button on the defibrillator device to deliver the shock.
8. Immediately restart CPR per PALS guidelines (compressions and ventilations) for 2 minutes
9. After 2 minutes assess for a pulse and confirm EKG on monitor. If a pulse is present, continue to monitor and call PICU intensivist for further orders.
- 10 If there is no pulse and/or rhythm, continue CPR beginning with compressions, administer Epinephrine 0.01mg/kg (0.1 ml/kg 1:10:000) IV/IO, increase electricity dose to 4 joules/kg if ventricular fibrillation or pulseless ventricular tachycardia persists and deliver as above. After third cycle of compressions-epinephrine-electricity, call PICU intensivist for further orders.

#### E. Complications:

Potential failure to convert cardiac tissue to a life sustaining rhythm

F. Documentation

1. A written consent per hospital protocol will be obtained and placed in the patient's medical record prior to procedure if not a lifesaving procedure. If consent not obtained in advance, parent/guardian to be notified as soon as possible after procedure.
2. Observe the child's status, and upon stabilization, document procedure including joules utilized, the number of defibrillation attempts, vital signs of the child before and after procedure, and any complications and document this information on the transport record.
3. A copy of the transport record will be scanned into or paper copy placed in the patient's medical record upon final disposition.

V. **DEVELOPMENT & APPROVAL**

- A. Method - Development and approval of this standardized procedure as stated in Policy CPM -1-12
- B. Review Schedule – Review every 3 years. Revision process should begin 30 months after most recent approval date and entire review process to be completed within 36 months of last approval date.
- C. Required Approval(s)
  1. Pediatric Critical Care CHET team and CHET team leadership (review, revise, approve and provide education and dissemination of changes)
  2. PICU CHET Medical Director (review, revise and approve)
  3. AHP/IDP Committee, Approval
  4. MSEC: Final approval, modification or rejection. ,

VI. **REFERENCES:**

Curley, M. et al (2007), *Critical Care Nursing of Infants and Children 2<sup>nd</sup> Ed.* Philadelphia: Saunders.

Insoft, R.. et al (2016). *Guidelines for Air and Ground Transport of Neonatal and Pediatric Patients.* 4<sup>th</sup> Ed. Elk Grove, IL: American Academy of Pediatrics

Nichols, D. (2012). *Rogers Textbook of Pediatric Intensive Care* 4<sup>th</sup> Ed. Baltimore: Lippincott Williams and Wilkins

Samson, R. et al (2016). *Pediatric Advanced Life Support.* Dallas: American Heart Association.

VII. **CROSS REFERENCES:**

- A. Development and Approval of Standardized Procedures policy, CPM 1-12
- B. Code Blue Procedure PM 2-4

VIII. **ATTACHMENTS:** N/A

- A. A list of Competency Validated RN's and RT's will be kept in the CHET office

IX. **APPROVALS**

- A. Pediatric Transport Team- May 2017
- B. Pediatric Transport Team Medical Director- May 2017
- C. Allied Health Professional/Interdisciplinary Practice Committee (AHP/IDC) – June 2017
- D. RCHSD Medical Staff Executive Committee – June 2017

**X. REPLACES: N/A**

**XI. HISTORY: N/A**