Rady Children's Hospital San Diego	APPROVAL DATE **June 2017**	MANUAL: **Standardized Procedure**
		SECTION: **Pediatric CHET**
		TRACKING # **SP 3-04**
	TITLE: **EXTERNAL JUGULAR VEIN CANNULATION**	
	☐ **POLICY** ☐ **PROCEDURE** ☐ **STANDARD OF CARE** ☒ **STANDARDIZED PROCEDURE** ☐ **GUIDELINE** ☐ **OTHER**	

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 external jugular vein cannulation while on transport or on RCHSD Campus in an emergency setting.

II. DEFINITIONS:

This procedure includes external jugular vein cannulation for the purpose of establishment of reliable vascular access when peripheral vascular access cannot be achieved

III. POLICY:

A. Standardized Procedure (SP) Function(s): patients requiring vascular access and inability to obtain peripheral venous access in an emergency setting.

B. Circumstances under which an ALS RN 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. 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. Profound bleeding
    c. If patient's condition is unstable
    d. If there are any complications or unexpected outcomes from the procedure
    e. In an emergency; as soon as possible while advanced life support is being initiated.
    f. If any complications result in performance of the procedure

g. 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 external jugular vein cannulation 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 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 external jugular vein cannulation will be based upon subjective and objective data and in collaboration with attending physician prior to the initiation of the procedure when not an emergent/lifesaving procedure.

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. Indication
      a. Establishment of reliable vascular access is a critical step in pediatric ALS. If vascular access is accomplished within the first minutes of resuscitation, infusion of medications and fluids is possible and successful resuscitation may be more likely.
      b. The preferred venous site is the largest most accessible vein. If peripheral veins can be readily seen or palpated below the skin surface, peripheral vein access is attempted before other forms of vascular access. Cannulation of the small vessels of the arm, hand, leg, and foot may be difficult with vein collapse during shock or cardiopulmonary arrest. In such circumstances attempts at peripheral venous access should be limited to large peripheral veins. The vein selected should be those that are relatively constant with respect to anatomic location, such as the median cubital vein at the elbow, the saphenous vein at the ankle, and the external jugular neck vein
   3. Contraindications
      a. Infection over the insertion site
      b. Lack of anatomic landmarks due to neck size or other deformities
      c. Suspected or confirmed cervical spine fracture and/or injury
      d. Patients unable to tolerate a trendelenberg position (e.g. increased ICP, respiratory compromise)

D. Equipment
   1. Gloves
   2. Antiseptic Solution
   3. 24 - 20 gauge vascular access catheter (Infant 24 or 22 gauge/Child 20 or 22 gauge)
   4. Sterile occlusive dressing
   5. Tape
   6. Saline flush syringes
   7. T-connector flushed with saline

E. Essential Steps for Procedure/Practice: External Jugular Vein Cannulation
   1. Gather equipment
   2. Restrain the child in a 30 degree head down (Trendelenberg) position with the head turned away from the side to be punctured
      a. The right side is preferred for access. In the young child place a small rolled under the shoulders and back, hyperextending the neck over it.
   3. Identify the external jugular vein
      a. The external jugular vein crosses the sternocleidomastoid muscle
      b. It can be identified when the child cries or by temporarily occluding the vein just above the clavicle with the tip of the long finger of the non-dominate hand. This action mimics the effect of a tourniquet
   4. Put on gloves
   5. Prepare the skin with antiseptic solution
   6. Identify external jugular again using technique above
   7. Stretch the skin over the vein just below the angle of the mandible using the thumb of the non-dominate hand to immobilize the vein, after allowing it to distend fully
   8. Introduce the needle through the skin directly over the vein or Adjacent to the vein and slowly advance the needle into the vein until blood flows back freely into the connection hub
   9. Advance the needle a few millimeters further to ensure that the catheter is in the vein
   10. Thread the remainder of the catheter into the vein, remove the needle and confirm the free backflow of blood from the catheter
   11. Evacuate any air from the T-connector
   12. Attach to the catheter hub and test the position of the catheter by injecting a small amount of sterile saline
   13. Apply a sterile occlusive dressing to the insertion site and tape the catheter firmly in place
   14. Attach infusion set

F. Complications
   1. Failure to cannulate the vessel
   2. Air embolus
   3. Pneumothorax
   4. Excessive bleeding

G. 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. Documentation of the procedure including patient condition before and after procedure, and number of attempts, will be done on the transport record.
   3. The transport record will be scanned or copy placed in the patient's medical record as soon as possible 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. Allied Health Professional/Interdisciplinary Practice Committee (AHP/IDC) Approval

4. MSEC: Final approval, modification or rejection. ,

VI. REFERENCES:

Curley, M. et al (2001), *Critical Care Nursing of Infants and Children*. Philadelphia: Saunders. Curley, M. et al (2007). Critical Care Nursing of Infants and Children 2nd Ed. Philadelphia: Saunders.

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

Nichols, D. (2008). *Rogers Textbook of Pediatric Intensive Care* 4th 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. Use and Maintenance of Central Venous Catheters, PM 4-34, Clinical Care Manual
C. Clinical Care Manual PM4-98 Peripheral Access Device

VIII. ATTACHMENTS N/A

A list of Competency Validated RN'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