## Introduction to CVC Program

Welcome to the Central Venous Catheterization Program. During this program you will learn to place Central Line Catheters on simulator models in accordance with UIMC Policy. In the past few years simulation-based CVC training of second and third-year residents to the point of checklist mastery has been shown to decrease the number of needle passes (1, 2), decrease arterial punctures and catheter adjustments (2), result in higher success rates overall (2), and decrease catheter-related infections from 3.2/1000 catheter days to 0.5/1000 catheter days (3). We expect that each participant in the program is a person who cares about doing their best and our goal is to assist in your desire to improve.

The first part of the program will include a pre-test, video demonstrations and discussions. The Hands-On portion of the program will allow you to practice IJ, SC, and Femoral central line access according to the UIMC protocol checklist.

Instructors may include UIMC faculty and nursing staff, fellows, senior residents, and GCPC Instructors. The faculty, fellows, and/or senior residents will lead the program. Their roles are to introduce you to the UIMC protocol for central line insertion of Internal Jugular, Subclavian, and Femoral catheters using landmark and ultrasound techniques.

The role of the nurses, if present, is to complete the Joint Commission mandated floor checklist just as they do during live procedures, and to stop you if you miss a step. This checklist ensures that sterility is maintained and that no critical steps are missed during the process, thereby improving patient safety.

The role of the GCPC instructors is to assist the physicians and nurses when needed, maintain supplies, and guide participants as to what can and cannot be done on each of the different task trainers. This is in part to extend the life of the task trainers and in addition to ensure the safety of participants during the program.

After the initial instruction round you will continue practicing on the trainers until you feel comfortable inserting a central line per the checklist without consulting the checklist. At that point you should ask to be assessed and checked off on the checklist. If you cannot be checked off by the end of the program additional practice time will be made available to you on another day.

At the end of the hands-on portion of the program, you are expected to fill out a written evaluation.

We look forward to working with you!

The Staff of the Graham Clinical Performance Center

## Rationale for CVC program

Why use simulation-based training for central line placement?

Simulation provides opportunities for safe deliberate practice while preserving patient safety. In the past few years simulation-based CVC training of second and third-year residents, including practice until residents demonstrated checklist mastery, has been shown to decrease the number of needle passes (1,2), decrease arterial punctures and catheter adjustments (2), result in higher success rates overall (2), and decrease catheter-related infections from 3.2/1000 catheter days to 0.5/1000 catheter days (3).

References:

1. Barsuk JH et al: Use of Simulation-Based Mastery Learning to improve the quality of central venous catheter placement in a medical intensive care unit. J Hosp Medicine 2009; 4:397-403

2. Barsuk JH et al: Simulation-based mastery learning reduces complications during central venous catheter insertion in a medical intensive care unit. Crit Care Med 2009; 37:2697-2701

3. Barsuk JH, et al: Use of simulation-based education to reduce catheter-related bloodstream infections. Arch Int Med 2009; 169(15):1420-1423

## Pre-Procedure Time-Out

Patient safety during invasive procedures is of utmost importance in the medical center. This includes pre-procedure protocols to help ensure that all members of a procedural team, including the patient if applicable and able, are in agreement as to what is to occur. This is known as a "Time-Out" and should be performed prior to the start of any invasive or consent-necessary procedure. This should be viewed as an integral final safety stop before a procedure is to begin.

Invasive Procedure- any procedure requiring insertion of an instrument or device into the body through the skin or a body orifice for diagnosis or treatment.

- All of these procedures should also require a written consent from the patient or surrogate