

Complex Care Curriculum: *CENTRAL LINES*

Instructor Guide

PURPOSE:

Children with special health care needs (CSHCN) are increasingly prevalent in US hospitals. The pediatric hospitalist is often the primary provider of inpatient care for these patients. However, exposure to this patient population during training varies from provider to provider. No published educational curricula are specific to the inpatient care of this population. The purpose of this project is to build a multi-modal educational curriculum for providers with the overall goal of improving inpatient care for this at-risk population.

This curriculum is primarily composed of a series of topic-specific multimedia learning modules. Asynchronous learning modules, utilized appropriately, can augment learning by providing individualized instruction and mastery of fundamentals. This particular resource was created to provide pediatricians with educational materials related to care of the medically complex child with a Central Line.

LEARNING OBJECTIVES:

- 1) Discuss the indications for placement of central lines in children
- 2) Compare and contrast the main types of central lines, including PICC lines, ports, and central venous catheters such as Broviacs and Hickmans
- 3) Troubleshoot common problems that may occur with central lines

SYSTEM REQUIREMENTS:

For Individual Self-Study: Microsoft Office 2010 (including PowerPoint and Word) or higher, internet connection, and System Speakers or headphones

For Small Group Facilitation: Microsoft Office 2010 (including PowerPoint and Word) or higher, internet connection

Windows users who experience difficulty with audio when running the module should ensure the volume is turned up on their computer. If audio still not working, users may need to download windows media codecs, available at:

http://download.cnet.com/9241-13632_4-12684931.html?messageID=10868993

CONTENT:

- This curriculum is composed of a series of topics, please be sure to view the other topics linked to this resource
- The contents of this learning activity include Microsoft Word and PowerPoint files as listed below and can be used in two types of learning environments
- ***CENTRAL LINES:***
 - Complete Facilitator Guide [CCCCentralLines_FacilitatorGuide.docx]
 - Pre and Post Test Questions [CCCCentralLines_TestQuestions.docx]
 - Pre and Post Test Answer Key with Explanations [CCCCentralLines_TestQuestions-Answers.docx]
 - Evaluation [CCCCentralLines_Eval.docx]
 - FOR INDIVIDUAL SELF-STUDY: Module with Audio [CCCCentralLines Module.ppsx]
 - FOR SMALL GROUP TEACHING: PowerPoint Slides without Audio [CCCCentralLines NonAudio Slides.pptx]
 - FOR SMALL GROUP TEACHING: CVL Selection Handout [CVL Selection Handout.pdf]

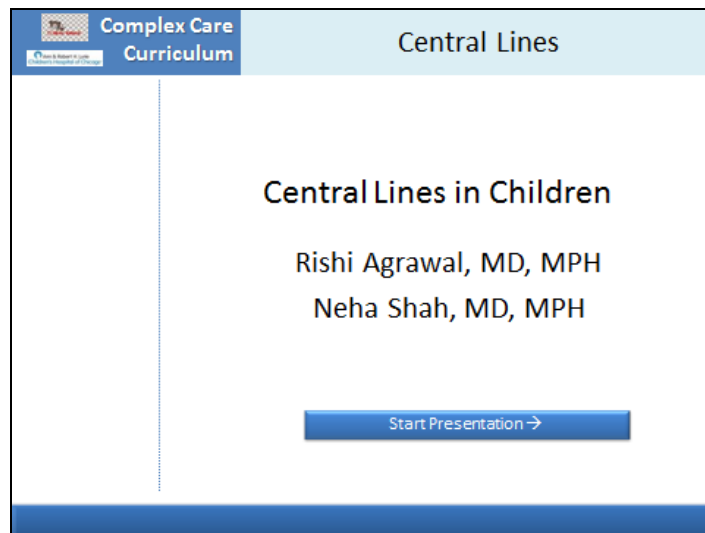
USE: Dual Use

- These modules can be used for self-study: the individual learner can view the PowerPoint-based module with audio voice-over on their own computer
- These modules can be used for small group teaching: the facilitator can discuss the topic using the non-audio PowerPoint slides with notes.
- Learners should first complete the pre-test questions
- Learners should then review the learning module/PowerPoint slides
- Learners will finish the activity by completing the post-test questions and finishing the evaluation for submission to the instructor

FOR INDIVIDUAL SELF-STUDY:

MODULE INSTRUCTIONS:

- All of the learning modules are presented as PowerPoint Shows (file extension *.ppsx*). This module can be completed in less than 30 minutes.
- Before beginning this module, please ensure that your computer sound system volume is set at a level that is audible
- We highly recommend that after starting the presentation, you listen and view it in its entirety
- The slides will advance on their own without need for you to click through. If you manually advance the slides, it may interrupt the audio narration
- At the beginning of the module, you will see the screen below; please click the “Start presentation” button to begin.



- You can repeat any portion of the presentation, including the audio, by **using the navigation bar on the left side of the screen (see image below)**. You can click on any of the corresponding tabs to jump to that section. As you proceed through the module, the section you are in will be highlighted on the navigation menu.
- Do not use the mouse or arrow keys to go backward during the slideshow because the audio will be interrupted. Instead, use the navigation menu to start that section over again OR you can pause/resume the slideshow using the PowerPoint toolbar on the bottom left (**see image below**)

The screenshot shows a PowerPoint slide with the following content:

- Complex Care Curriculum** (top left header)
- Central Lines** (top right header)
- Table of Contents (left sidebar):**
 - Learning Objectives
 - Indications
 - Types of Central Lines
 - PICC
 - Port
 - CVL
 - Sites and Lumens
 - Major Complications
 - Infection
 - Breakage/Displacement
 - Thrombosis
 - Petency
 - Skin
 - Maintenance and Usage Problems
 - Summary
 - References & Resources
- Central Content:**
 - Indications** (purple box)
 - Frequent fluid supplementation** (blue box)
 - Frequent blood products or blood draws** (blue box)
 - Parenteral Nutrition** (blue box)
- Navigation:** A red arrow points from the 'Indications' box to the 'Indications' item in the table of contents. A small speaker icon is in the bottom right corner.

- You may have opportunities during the presentation to view references or resources pertaining to that section or to answer questions by manually clicking on the corresponding buttons.
- You can end the show at any time by using the PowerPoint toolbar on the bottom left (as in any PowerPoint presentation) or by hitting the escape button
- Finally, each module contains a reference section that includes the resources used for compilation of these learning modules.

FOR SMALL GROUP TEACHING:

- Please utilize the non-audio PowerPoint slides, which do not have audio or a navigation menu, titled CCCCentralLines NonAudio Facilitator Guide.docx
- Please allow 30 minutes for this session with an additional 10-15 minutes for discussion and questions
- The slides are equipped with animations that can be triggered when you see the word **[click]** in brackets.
- Before facilitating this session, please thoroughly review these slides and notes (located in the notes section of each slide) and practice triggering the animation.
- As the facilitator, you may find it helpful to print the slides in “Notes” format available in the Print dialog box in PowerPoint 2007 and higher.
- Please supply the supplemental “CVL Selection” Handout to learners participating in this small group session.

CURRENT USE:

This curriculum, including this specific learning activity, was first launched at Children’s National Medical Center (CNMC) in Washington DC in February 2012. Several modules are published and available for use on www.medportal.org including Dysautonomia, Spasticity, Enteric Feeding Tubes, GERD in the Neurologically Impaired Child, Ventriculoperitoneal Shunts, Autonomic Dysreflexia and Palliative Care. A related series of simulation cases focused on device-related emergencies in medically complex children is also available as part of this series.

The most common pitfalls encountered by users included the following:

- Participants did not have Microsoft Office 2010 or higher
- Participants did not have speakers for their computers

- Participants did not check the volume setting on their computer prior to launching
- Participants attempted to view the modules on devices that utilize Apple iOS (these modules work best when using a PC)

It is best for users to download all of the resource files to their desktop and then run the module from there. In addition, as outlined in the instructions above, altering computer settings prior to viewing will aid in avoiding the above common pitfalls. Windows users may need to download media codecs as described above in order to hear the audio portion of the module.

REFLECTION ON LIMITATIONS:

List of limitations with reflections

- This module covers only the most commonly used central lines in children and should not be considered a comprehensive review of all available central lines
- This module is focused on the practical aspects of choosing and maintaining central lines, but does not discuss the conditions that commonly require children to have central lines in an effort to provide focus and provide practical tips for management of lines, as this is commonly the area which is not taught as consistently to general pediatric inpatient providers
- This module can only be used on more recent versions of Microsoft office and cannot be consistently viewed on devices that use Apple iOS.

Ideas for improving and expanding

- As part of a series of topics focused on the medically complex child, future iterations of this module are likely to be developed. Additionally, in the future, new information may become available necessitating revision of this module.
- From an audio/visual standpoint it would be very helpful to be able to capture video documentation of some of the topics discussed in this module, like flushing a line using the SASH protocol or how a broken line is repaired using commercially available repair kits.