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SonoSite

SonoSite Contacts

To request information about **SonoSite Solutions,**
please visit **www.sonosite.com/solutions**

To request information about our company or our products.

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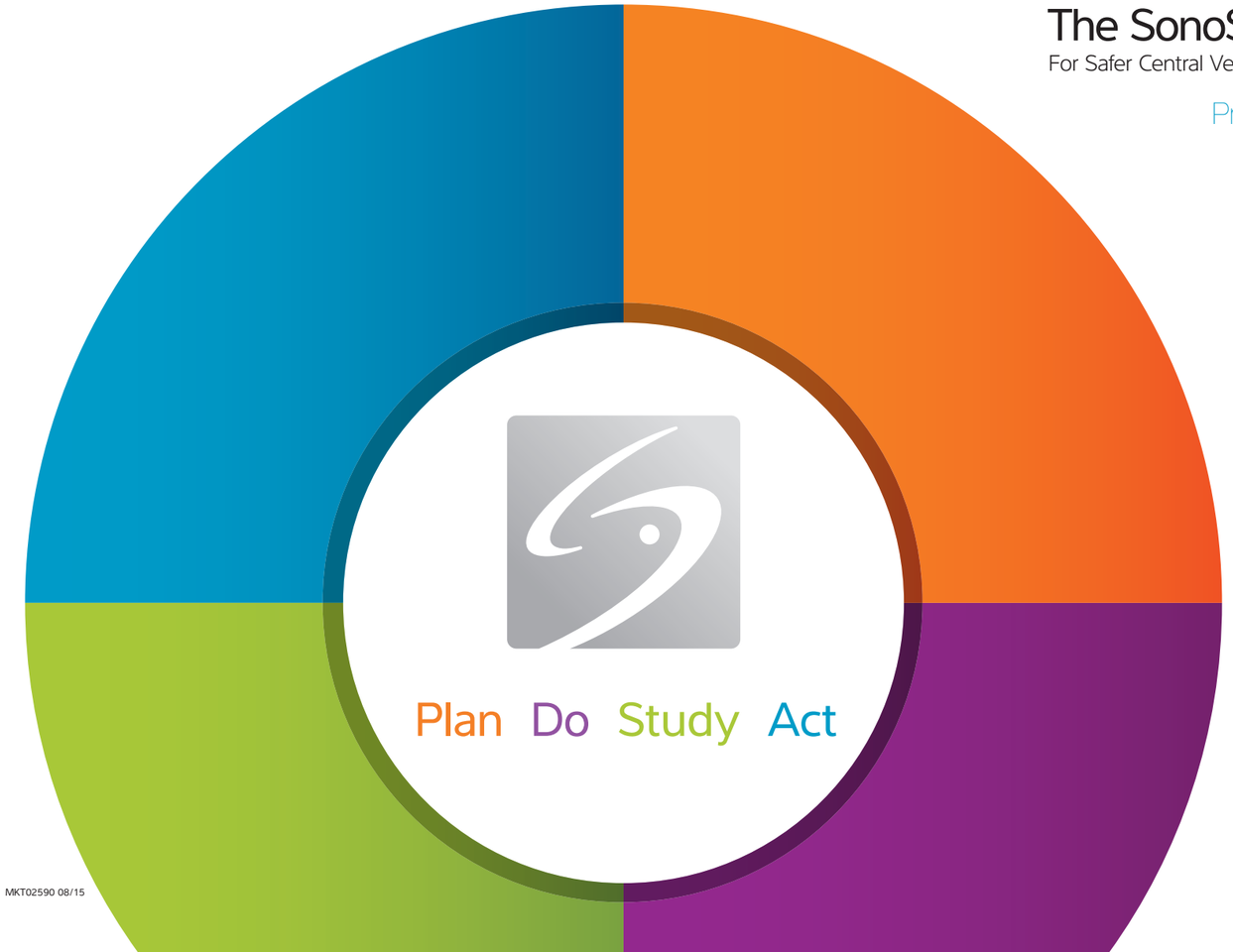
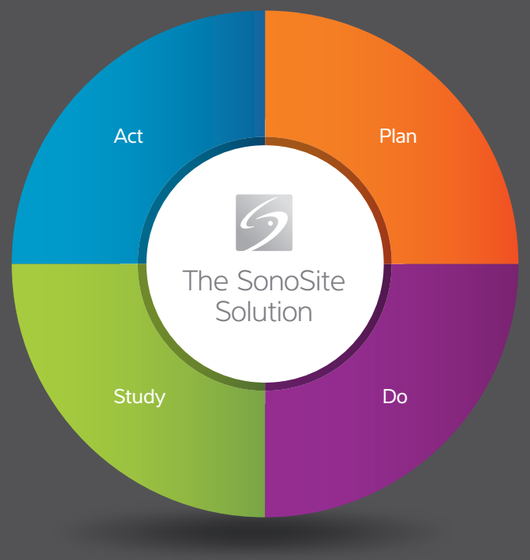
The SonoSite Solution

For Safer Central Venous Catheter Insertion

Program Overview

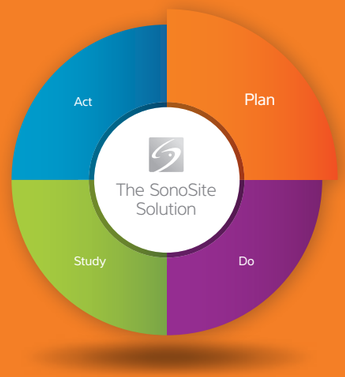




SonoSite Solutions is designed to be a collaboration between SonoSite and you. The objective is to provide a ready-made, but highly modifiable and scalable, clinical pathway to reduce CVC-insertion complication through the aid of point-of care ultrasound. As part of your FUJIFILM SonoSite, Inc. product purchase, FUJIFILM SonoSite, Inc. makes SonoSite Solutions available to you.

The program is rooted in quality improvement science and includes a Resource Center that can help guide your practice through an entire improvement cycle.

The available tools and resources are organized in a **Plan-Do-Study-Act (PDSA)** cycle format. The result is a self-guided, quality improvement project that will help you eliminate complications from CVC insertions throughout your practice environment.



Plan

SonoSite Solutions provides you with the evidence and practice guidelines to plan your quality-improvement project. Use this information to prepare a list of tasks to begin your implementation of the SonoSite Six-Point Bundle for central venous catheterization (CVC).

The bundle includes:

- Hand hygiene
- Maximal barrier precautions
- Chlorhexidine skin antisepsis
- Optimal catheter site selection
- Daily review of line necessity, with prompt removal of unnecessary lines
- Ultrasound guidance for line placement.

Overview document
Safety Impact of Point-of-Care Ultrasound

SONOSITE
THE SAFETY IMPACT OF POINT-OF-CARE ULTRASOUND

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A Review of the Evidence

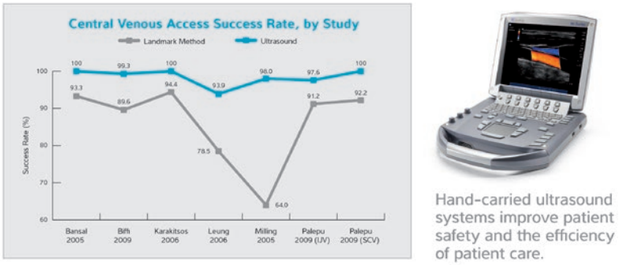
To assess the benefits of hand-carried ultrasound, United BioSource Corporation (UBC)—experts in the development of real-world evidence of product effectiveness, safety, and value—conducted a systematic review of English-language medical literature. UBC performed a comprehensive search of electronic databases (MEDLINE, Embase, and Current Contents®) for studies of ultrasound guidance of percutaneous procedures published between 1990 and 2009. Nearly 3,000 citations were identified, and ultimately 33 publications met design eligibility and relevance requirements for this review. Randomized and nonrandomized trials were examined for procedural success rates and for complications. Below are the highlights of this review.

Increased Safety in Central Venous Catheter (CVC) Access

- A decrease in CVC-related bloodstream infections among patients receiving ultrasound guidance could be the result of fewer needle passes, lower venous thrombosis, and reduced hematoma formation *(Karakitsos et al 2006)*.
  The Karakitsos study demonstrated:
  - A higher success rate with use of ultrasound-guided central venous catheter insertion vs. landmark method (100% vs. 94%)
  - A reduction in carotid punctures (1% vs. 10.6%)
  - Fewer hematomas (0.4% vs. 8.4%)
  - A decline in hemothorax (0% vs. 1.7%)
  - A reduction in pneumothorax (0% vs. 2.4%)
- Use of ultrasound resulted in a significant difference in time to procedure, procedure completion, and number of needle attempts *(Miller et al 2002)*.
- Ultrasound-guided placement was found to be superior to the landmark technique *(Milling et al 2005)*.

"Investigators of 5 studies assessed [ultrasound]-guided procedures relative to landmark methods in the placement of catheters into internal jugular vein... and found significantly higher success rates and reduced complication rates in all studies."

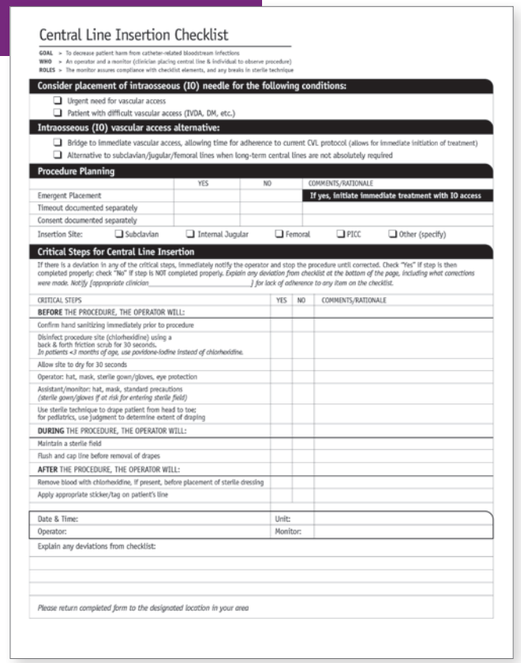
Clinical and Economic Value of Point-of-Care Ultrasound: A Systematic Review of the Literature
United BioSource Corp., 2010.*



Hand-carried ultrasound systems improve patient safety and the efficiency of patient care.

Do

To support your execution efforts, you may access sample central venous catheter-insertion protocols used at other institutions and also request on-site, hands-on training on how to perform ultrasound-guided CVC procedures. **SonoSite Solutions** can even help you organize your own training events on both central line management as well as on peripheral IV insertion using ultrasound, allowing for the avoidance of central venous catheters all together.



Central Line Insertion Checklist

GOAL > To decrease patient harm from catheter-related bloodstream infections
WHO > An operator and a monitor (clinician placing central line & individual to observe procedure)
ROLES > The monitor assures compliance with checklist elements, and any breaks in sterile technique

Consider placement of intraosseous (IO) needle for the following conditions:

- ❑ Urgent need for vascular access
- ❑ Patient with difficult vascular access (IVDA, DM, etc.)

Intraosseous (IO) vascular access alternative:

- ❑ Bridge to immediate vascular access, allowing time for adherence to current CVL protocol (allows for immediate initiation of treatment)
- ❑ Alternative to subclavian/jugular/femoral lines when long-term central lines are not absolutely required

Procedure Planning

	YES	NO	COMMENTS/RATIONALE
Emergent Placement			**If yes, initiate immediate treatment with IO access**
Timeout documented separately			
Consent documented separately			

Insertion Site: ❑ Subclavian ❑ Internal Jugular ❑ Femoral ❑ PICC ❑ Other (specify)

Critical Steps for Central Line Insertion

If there is a deviation in any of the critical steps, immediately notify the operator and stop the procedure until corrected. Check "Yes" if step is then completed properly; check "No" if step is NOT completed properly. *Explain any deviation from checklist at the bottom of the page, including what corrections were made. Notify [appropriate clinician] for lack of adherence to any item on the checklist.*

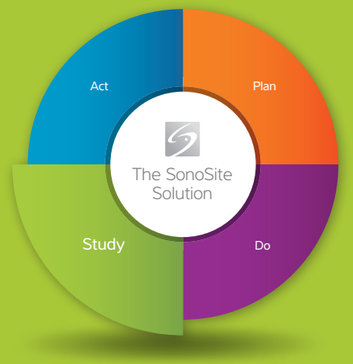
CRITICAL STEPS	YES	NO	COMMENTS/RATIONALE
BEFORE THE PROCEDURE, THE OPERATOR WILL:			
Confirm hand sanitizing immediately prior to procedure			
Disinfect procedure site (chlorhexidine) using a back & forth friction scrub for 30 seconds. *In patients <3 months of age, use povidone-iodine instead of chlorhexidine.*			
Allow site to dry for 30 seconds			
Operator: hat, mask, sterile gown/gloves, eye protection			
Assistant/monitor: hat, mask, standard precautions *(sterile gown/gloves if at risk for entering sterile field)*			
Use sterile technique to drape patient from head to toe; for pediatrics, use judgment to determine extent of draping			
DURING THE PROCEDURE, THE OPERATOR WILL:			
Maintain a sterile field			
Flush and cap line before removal of drapes			
AFTER THE PROCEDURE, THE OPERATOR WILL:			
Remove blood with chlorhexidine, if present, before placement of sterile dressing			
Apply appropriate sticker/tag on patient's line			

Date & Time:	Unit:	
Operator:	Monitor:	

Explain any deviations from checklist:

Please return completed form to the designated location in your area

Protocol Examples:
Central Line Insertion Checklist

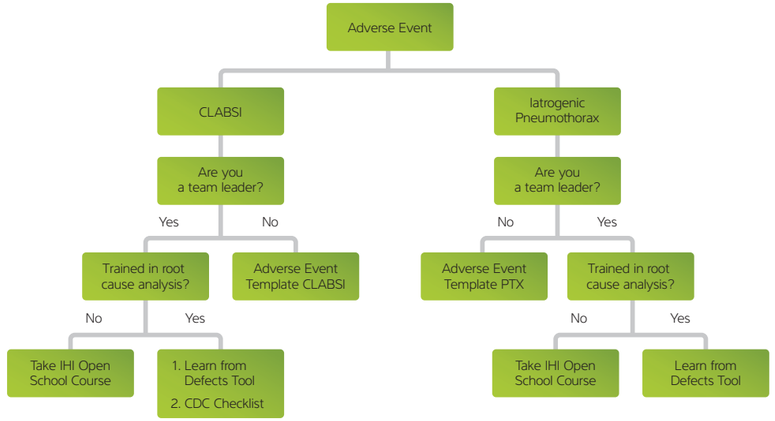


Study

Analyzing the data, studying the results, and reflecting upon your organization's experiences are critical components to the success of the **PDSA** cycle. **SonoSite Solutions** not only provides key metrics for benchmark purposes, but also case studies from other sites. Their stories of challenges and successes may help you save time and effort while implementing your own CVC-insertion program.

Adverse Event Analysis Decision Tree

Adjacent is a decision tree to use when conducting a root-cause analysis for an adverse event. The team leader typically guides the assessment and provides recommendations for potential changes in your quality-improvement (QI) project. This analysis is a key component of the **"Study"** phase during the **Plan-Do-Study-Act (PDSA)** cycle.



Graphic Key
Adverse Event Template for CLABSI: www.ahrq.gov/professionals/education/curriculum-tools/clabsitools/
Adverse Event Template PTX (Pneumothorax): Can be found on page 85 of the guidebook
IHI Open School Course: www.ihi.org/offerings/VirtualPrograms/OnDemand/RootCause/Pages/default.aspx
Learn from Defects Tool: www.ahrq.gov/professionals/education/curriculum-tools/cusptoolkit/modules/identify/index.html
CDC Checklist: www.cdc.gov/HAI/pdfs/bsi/checklist-for-CLABSI.pdf

Act

During the **"Act"** phase, feedback sessions with your implementation team can be conducted to collect new ideas in preparation for the next PDSA cycle. SonoSite is always looking for the latest advancements to help you achieve your patient safety goals. During the **"Act"** phase of your cycle, a SonoSite Representative can introduce these new technologies and techniques to you as they are developed.

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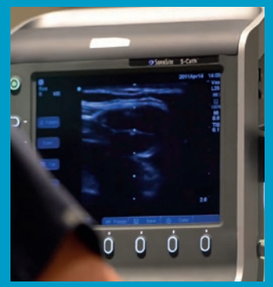

SonoSite Products

X-Porte® Ultrasound Kiosk

X-Porte represents an entirely new approach to clinical ultrasound. Its imaging, features, and educational resources are fluidly brought together in a convenient, all-in-one kiosk design.

At the sweep of your hand, it responds so quickly and intelligently to your imaging needs, you'll know it was created precisely for professionals like you. Its self-explanatory control panel makes system navigation a breeze, and its sealed touch screen leaves no buttons for pathogens to hide behind.

X-Porte's slender profile makes it easy to maneuver alongside beds and exam tables for point-of-care visualization and procedures. For portability and durability during transport, its screen folds down and its stand lowers making X-Porte even more compact for navigating busy corridors. The X-Porte ultrasound core can be easily detached from the kiosk to provide another configuration option. For servicing, nothing could be more convenient than X-Porte's five-year warranty and self-contained, removable engine.

To implement **SonoSite Solutions** at your institution, visit **www.sonosite.com/solutions**