

ADDRESSING CENTRAL LINE COMPLICATIONS

AND THE
CMS RULE



SonoSite
FUJIFILM

ZERO ROOM FOR ERROR

When time and accuracy count, SonoSite's point-of-care ultrasound technology leads the way in targeting zero iatrogenic pneumothoraces.

It Can Be Done.

Numerous studies—and healthcare organizations like Memorial Hermann—have demonstrated that by using ultrasound needle guidance during central line placements, iatrogenic pneumothoraces can be reduced to zero.



PNEUMOTHORAX FROM A CVC INSERTION?

MEDICARE SAYS, NO MORE REIMBURSEMENT

Effective October 1, 2012: Iatrogenic Pneumothorax with central venous catheterization will be included on Medicare's hospital-acquired condition (HAC) list.

Further financial implications of iatrogenic pneumothorax are planned. This complication is scheduled to become a Patient Safety Indicator as part of the Value Based Purchasing program. Hospitals will be at risk for loss of significant payments.

4.38 DAYS

Excess length
of stay due
to Iatrogenic
Pneumothorax

\$17,312

Excess
charges due
to Iatrogenic
Pneumothorax

How Much Does an Iatrogenic Pneumothorax Cost?

As presented in the study by Zhan C, et al there are significant costs associated with an iatrogenic pneumothorax. The length of stay can be increased by an average 4.38 days and excess charges can average \$17,312.



How Can You Reduce the Risk?

Two practices that can reduce the rate of iatrogenic pneumothorax are:

1. Using ultrasound to visualize the central vessel and to guide the needle accurately to avoid adjacent structures like the pleura and the carotid artery.
2. In appropriate circumstances, avoiding the central line altogether by increasing the success rate of peripheral IVs or PICCs by using ultrasound to see deep peripheral veins for patients with difficult intravenous access.

Internal Jugular Vein



Carotid Artery



Longitudinal Basilic Vein

REDUCING CVC COMPLICATIONS THROUGH "POINT-AND-SHOOT" ACCESS



AxoTrack™ Needle Guidance Technology was engineered to aid clinicians in placing central lines with speed and precision while avoiding the complications associated with CVCs. By combining ultrasound with advanced magnetics, AxoTrack provides real-time information about the needle-tip location throughout the procedure. AxoTrack...

- Simplifies the mechanical process and makes guided procedures more approachable, especially for newer users
- Helps improve the accuracy and avoidance of observed critical structures, such as the carotid artery or the lung pleura by tracking the needle's movements on screen
- Enables imaging in tight spaces, allowing easy access to the subclavian vein and other targets because of the small transducer footprint

In one *in vitro* study, “first-attempt success” averaged ~99% compared to 37% using a conventional approach.

FIRST-PASS SUCCESS RATES AFTER 15 MINUTES OF TRAINING

USGIV	Overall*	Subclavian*	Internal jugular*
With AxoTrack	99%	98%	100%
Conventional	37%	22%	53%

*In an *in vitro* study P < 0.001. Ferre, R.M., et al. The Use of a Novel Device Improves Real-Time Ultrasound Guided IV Access. Supplement to Annals of Emergency Medicine, Sept. 2010; 56:3:S74.

Selected Endorsements and Evidence for **ULTRASOUND-GUIDED CENTRAL VENOUS CATHETERIZATION**

Endorsed by

AANA American Association of Nurse Anesthetists

ABIM American Board of Internal Medicine

ACCP American College of Chest Physicians

ACEP American College of Emergency Physicians

ACGME Accreditation Council for Graduate Medical Education in Pulmonary Disease and Critical Care Medicine (Internal Medicine)

ACS American College of Surgeons

AHRQ Agency for Health Care Research and Quality

ASA American Society of Anesthesiologists

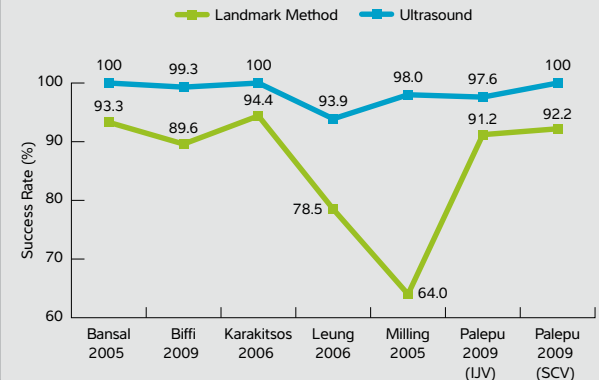
AVA Association for Vascular Access

CDC Centers for Disease Control and Prevention

ESPEN The European Society for Clinical Nutrition and Metabolism

NICE National Institute for Health and Clinical Excellence

CENTRAL VENOUS ACCESS SUCCESS RATE, BY STUDY



Additional studies and citations can be found at
www.sonosite.com/ultrasound-evidence/clinical-references



Central line placement under ultrasound guidance

Using Ultrasound Guidance for CVC Insertion: **THE MEMORIAL HERMANN STORY**

Memorial Hermann Health Care System in Houston, TX implemented a system-wide patient safety initiative. One of their goals was to eliminate the occurrence of iatrogenic pneumothorax complications related to CVC placement. To accomplish this, they integrated ultrasound guidance for their central line placements. As the adoption of ultrasound guidance increased, there was a direct correlation with the decrease of pneumothorax complications. As a result, they have now been able to eliminate iatrogenic pneumothoraces for a full year in six of their hospitals and eight of their emergency departments.

To see how they reached this level of patient safety, visit:
www.sonosite.com/ultrasound-evidence/central-line-safety.

REDUCING CENTRAL LINE PLACEMENTS:

By Increasing Peripheral IV Success with Ultrasound

A recent prospective study published in July 2012, studied the role of ultrasound guided peripheral IVs (PIV) in reducing the number of central venous catheters. In this protocol at Thomas Jefferson University Hospital, an ultrasound guided PIV was attempted before the placement of a central venous catheter. By using ultrasound guidance for peripheral IVs, physicians were able to successfully avoid placing central lines in 85% of the 119 patients in the study. By eliminating a substantial number of CVCs, they were able to inherently improve patient safety by avoiding central line associated iatrogenic pneumothoraces, carotid punctures and bloodstream infections.



Peripheral IV placement under ultrasound guidance

(Au AK, et al. Decrease in central venous catheter placement due to use of ultrasound guidance for peripheral intravenous catheters. Am J Emerg Med 2012.)

IMPLEMENT A SOLUTION

at Your Hospital

SonoSite Vascular Access Training Programs

We offer two courses to medical centers on ultrasound-guided vascular access: **Central Line Management Training** and **Peripheral Intravenous Training**. These courses teach evidence-based best practices, include onsite instruction and online pre-work and both can be customized according to your institution's needs.

Central Line Management Training Program

Highlighted Course Topics:

- The Case for Preventing Catheter-Related Complications:
 - Bloodstream infection (CLABSI)
 - Pneumothorax
 - Carotid Puncture
- Ultrasound Physics and Technique
- 6-Point Central Line Bundle
- Central Line Insertion Checklist
- Scanning Workshops on Human Models
- Needle Insertion Practice on High-Fidelity Phantoms

Peripheral Intravenous Training Program

Highlighted Course Topics:

- Ultrasound Physics and Technique
- The Case for Improving Peripheral IV Access
- Peripheral IV Insertion Checklist
- Scanning Workshops on Human Models
- Needle Insertion Practice on High-Fidelity Phantoms
- Customized training for physicians and nurses





SIX-POINT CENTRAL LINE BUNDLE

Central line bundles such as the 5-point bundle endorsed by the IHI have been shown to decrease the rate of central line associated bloodstream infections:

1. Hand hygiene
2. Maximal barrier precautions
3. Chlorhexidine skin antisepsis
4. Optimal catheter site selection
5. Daily review of line necessity, with prompt removal of unnecessary lines

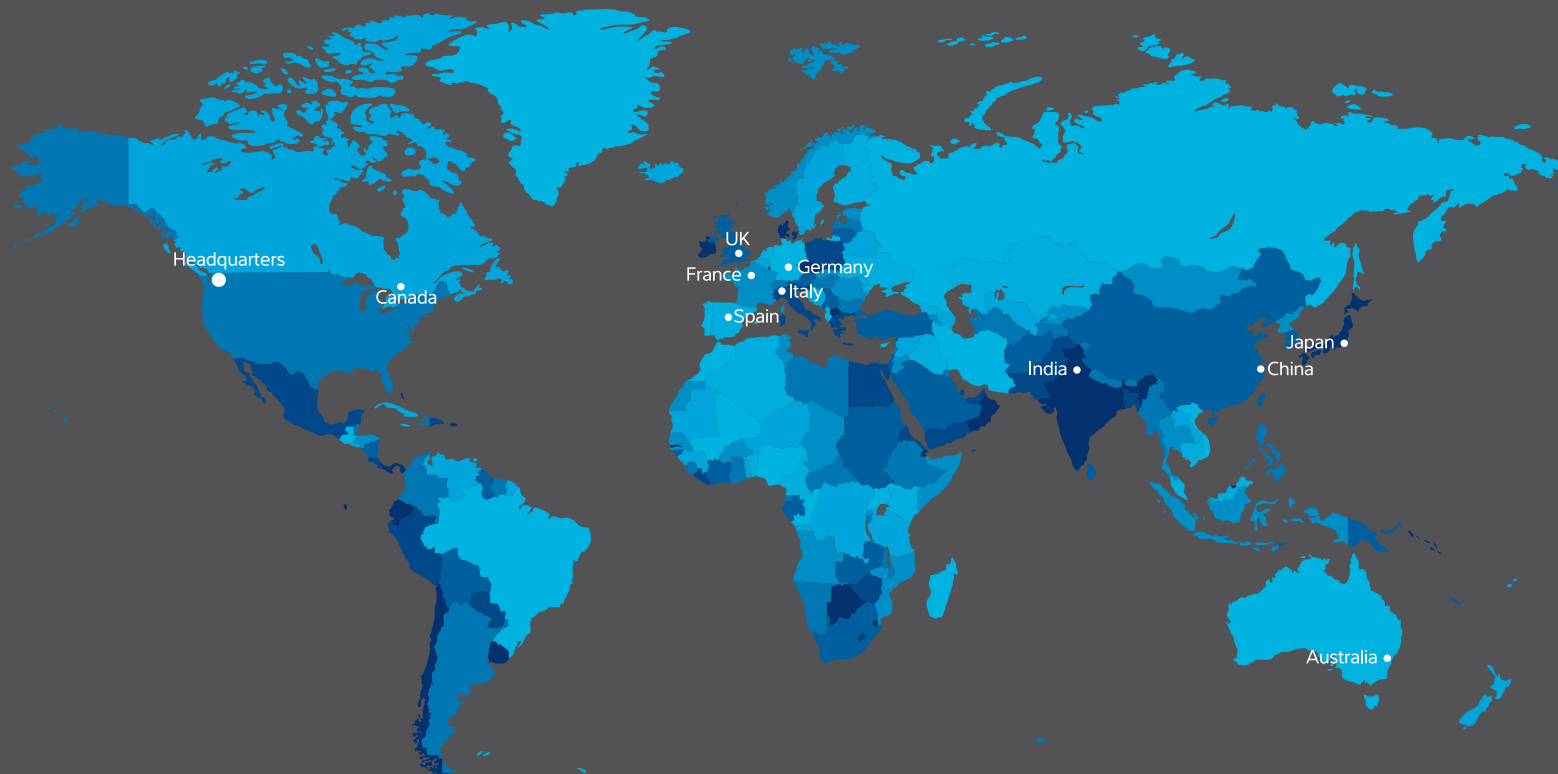
The addition of a 6th point, ultrasound guidance of line placement, which the AHRQ and NICE recommends to reduce mechanical complications creates the comprehensive 6-point bundle.

6. Ultrasound Guidance for line placement.

To implement a program, learn more or speak with your local sales representative call: 1-877-590-4923, or visit www.sonosite.com/zero

ABOUT SONOSITE

FUJIFILM SonoSite, Inc. is the innovator and world leader in bedside and point-of-care ultrasound and an industry leader in ultra high-frequency micro-ultrasound technology. Headquartered near Seattle, the company is represented by 10 subsidiaries and a global distribution network in over 100 countries. SonoSite's small, lightweight systems are expanding the use of ultrasound across the clinical spectrum by cost-effectively bringing high-performance ultrasound to the point of patient care.



FUJIFILM SonoSite, Inc. the SonoSite logo and other trademarks not owned by third parties are registered and unregistered trademarks of FUJIFILM SonoSite, Inc. in various jurisdictions. All other trademarks are the property of their respective owners.

©2013 FUJIFILM SonoSite, Inc. All rights reserved. MKT02498 Rev. B 4/13

