ADDRESSING CENTRAL LINE COMPLICATIONS

AND THE CMS RULE
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.

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.
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**

<table>
<thead>
<tr>
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<th>USGIV Overall*</th>
<th>Subclavian*</th>
<th>Internal jugular*</th>
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<tbody>
<tr>
<td>With AxoTrack</td>
<td>99%</td>
<td>98%</td>
<td>100%</td>
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<tr>
<td>Conventional</td>
<td>37%</td>
<td>22%</td>
<td>53%</td>
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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

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

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.

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

IMPLEMENT A SOLUTION at Your Hospital
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.

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.