

# What's New in the Patient Safety World

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## Reducing Central Venous Catheter Use

Arguably the most important interventions in reducing CLABSI's (central line-associated bloodstream infections) are avoiding central venous catheters in the first place and minimizing their duration when there is a legitimate initial indication. All too often central lines (which also include PICC catheters) are placed for reasons that may not be optimal (see our December 2014 What's New in the Patient Safety World column "[Surprise Central Lines](#)").

A recent study showed that use of an **online physician audit tool** led to a substantial reduction in central venous catheter use ([McDonald 2015](#)). The tool listed several potential indications for central venous catheters or PICC's and also allowed for input of "other" reasons. Its use resulted in a 46.6% reduction in use of CVC's or PICC's compared to the pre-intervention period. But the investigators still found substantial room for improvement in that a third of the CVC's/PICC's were used for "ease of drawing blood" or "just-in-case the patient deteriorates".

The success of this intervention should not be surprising. Way back in the early 1990's one of our first patient safety interventions was placing a brightly colored sticker on the chart of patients with indwelling urinary catheters requiring the physician to specify the indication and intended duration of the catheter (see our May 8, 2007 Patient Safety Tip of the Week "[Doctor, when do I get this red rubber hose removed?](#)"). That simple intervention led to almost a 50% reduction in Foley catheter use. Later we used alerts delivered during CPOE and saw even further reductions in Foley catheter use. So merely making the physician think about the indications for any catheters can help reduce unnecessary use.

We've discussed unnecessary central venous catheter or PICC line use in our previous columns of January 21, 2014 "[The PICC Myth](#)" and December 2014 "[Surprise Central Lines](#)". In the latter we noted that oversight is needed to avoid what we consider an example of a **predictable error** and put systems in place to help us avoid the problem. One of the items on our **checklist for daily rounds** on patients in all locations should be "**Does this patient have any catheters or lines in place and, if so, are they still necessary?**" Use of such lines should be evidence-based where possible. Alert fatigue aside, we also recommend that flags be set in the electronic medical record (EMR) to highlight for the clinician that such catheters are in place and need to be reviewed for continuation on a daily basis.

But the best interventions are those that can be delivered **before** a central venous catheter or PICC line are placed. There are two ways to do this. One is to require an order in CPOE that requests the indication before the catheter insertion kit is dispensed. The other is a paper-based checklist with indications that is filled out before the catheter insertion kit can be opened. We actually prefer the latter since your checklist can and should also include all the elements for proper catheter insertion, i.e. the classic Pronovost checklist (see our March 2011 What's New in the Patient Safety World column "[Michigan ICU Collaborative Wins Big](#)"), and correct patient and procedure verification.

As a related aside, in our experience we have seen more "other" indications pop up when a prompt appears for justification of a central line or catheter already in place than in those checklists that must be filled out prior to catheter placement. That does not take away from the need to assess the need for continued use of a central line on a daily basis but does again emphasize that delivering the prompt before catheter placement is more likely to result in catheter placement only for appropriate indications.

#### **References:**

McDonald EG, Lee TC. Reduction of Central Venous Catheter Use in Medical Inpatients Through Regular Physician Audits Using an Online Tool. JAMA Intern Med 2015; Published online May 04, 2015  
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