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# Twist-On Disinfection Cap for Luer Access Valves Solves Disinfection Compliance Problem

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SwabCap® Preferred by Nurses to  
Valve-Swabbing Technique; Device Is  
Incorporated into Hospital Policy

## **A Case Study**

FirstHealth Moore Regional Hospital  
Pinehurst, North Carolina

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## **FACILITY**

FirstHealth Moore Regional Hospital (Pinehurst, N.C.). 372 beds, including 41 in the ICUs. Part of the FirstHealth of the Carolinas comprehensive healthcare network.

## **LEAD CLINICIAN**

Jayne Lee, BSN, MPH, CIC

## **THE PROBLEM**

As part of its effort to prevent central line-associated bloodstream infections (CLABSIs) FirstHealth Moore Regional Hospital—in conjunction with other members of the North Carolina Hospital Association—joined the Michigan Keystone ICU Project and set a goal of zero CLABSIs. Although few hospitals have yet eliminated CLABSIs, many experts feel that a zero rate is achievable if a facility institutes a set of meticulous preventive practices and diligently enforces compliance with their use.

Unfortunately, as Moore Regional discovered, compliance is not always easily accomplished. In particular, the hospital discovered during a Keystone-related internal review that few of its nurses were complying with its luer access valve disinfection policy.

Luer access valves must be thoroughly disinfected before the lines are accessed. Otherwise, the bacteria that cause CLABSIs can enter the intraluminal fluid pathway, leading to an infection. Moore Regional's disinfection policy was consistent with experts' recommendations: First, scrub the valve top with alcohol for 10-to-15 seconds, using downward pressure as if squeezing an orange. Second, wait an additional 30 seconds for the alcohol to dry before accessing the line (Total time = 45 seconds). But as other hospitals using a similar policy have discovered, the policy is impossible to enforce without following nurses on their round, which is highly impractical.

The lack of compliance was understandable. Pressed by other high-priority duties for patients needing critical care, nurses often feel they cannot afford the full time stipulated by the policy. Many other facilities are known to face similar challenges. Skimping on the required 45 seconds increases CLABSI risk, however.

## **SOLUTION**

Moore Regional's Director of Infection Control and Patient Safety became aware of a device called SwabCap®. The device seemed perfectly designed to solve the hospital's twin problems of achieving adequate valve disinfection and having an enforceable disinfection policy.

SwabCap is a bright orange plastic cap that twists onto the valve threads. Inside the cap is a foam pad saturated with 70% isopropyl alcohol. When the cap is attached to the valve, the pad is compressed, which dispenses the alcohol onto the valve top and threads. The cap is left in place between line accesses rather than removing it after disinfection has occurred.

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Research shows that after five minutes of attachment, the valve top is disinfected. During that time, it is also providing protection against touch and airborne contamination.

When the cap is used between line accesses, compliance is immediately verifiable: If the cap—which is easy to spot because of its color—is on the valve, supervisors know that both disinfection and policy compliance have occurred. The cap's design also provides a simple means of satisfying the new (January 2010) Joint Commission requirement for a standardized valve disinfection protocol.

## **IMPLEMENTATION**

Moore Regional's Product Review Committee did not perform a formal financial analysis but did weigh the modest cost of SwabCap against the tens of thousands of dollars, on average, required to treat a CLABSI. With strong advocacy from the Director of Infection Control and Patient Safety, the committee decided to approve SwabCap's adoption. The device was implemented in January 2010 and incorporated into the hospital's policy on central lines. The policy gives nurses the choice of using SwabCap or swabbing with alcohol.

## **RESULTS**

SwabCap is highly regarded by Moore Regional's nurses, 87% of whom choose to use it rather than swab with alcohol, according to a survey conducted in March-April 2010. Nurses have expressed their appreciation of the way it eases their workload while ending concerns about proper disinfection.

The Director of Infection Control and Patient Safety is pleased with the improvement in valve disinfection and policy compliance brought about with the cap's use. In addition, she believes patients are safer when the valves are covered with the cap between line accesses. This is a level of protection that would not be possible with the swabbing protocol, even if compliance with it was perfect.

SwabCap is currently used with central venous catheters and PICCs. Some nurses also use it on occasion with peripheral IV lines.

## **DISCUSSION**

While being simple to use in its own right, SwabCap has solved two vexing problems at Moore Regional and increased patient safety in yet a third way. To summarize:

- SwabCap has largely replaced a valve disinfection procedure that was not being performed accurately, leading to increased CLABSI risk. When SwabCap is used, disinfection is unquestionably thorough.
  - SwabCap has substantially improved the hospital's ability to verify compliance with the valve disinfection policy. At the same time, it helps the hospital meet the Joint Commission requirement for a standardized valve disinfection protocol.
  - SwabCap provides protection against contamination in the hours-long period between line accesses, which alcohol swabbing cannot do.
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