



**Main Line Health**  
Lankenau Institute for  
Medical Research



## **Accu-Catheter Kit: A Cost-Saving Device for Reliable Foley Catheter Insertion in Females**

Tanara Boursiquot MSN, RN<sup>1,2\*</sup>, George C. Prendergast PhD<sup>3</sup>, Kristen Karlovich MRes<sup>4</sup>

<sup>1</sup>*Department of Nursing, Main Line Health, Radnor, PA;* <sup>2</sup>*Bryn Mawr Hospital, Bryn Mawr, PA;*

<sup>3</sup>*Lankenau Institute for Medical Research, Wynnewood, PA;* <sup>4</sup>*Lankenau Ventures, Baltimore, MD*

Lankenau Institute for Medical Research  
100 West Lancaster Avenue | Wynnewood, PA 19096  
limr.org



# Boursiquot Accu-Catheter for Female Urinary Catheterization

## Introduction

Foley catheter insertion in females is a standard procedure taught to all nurses. With a physician order in hand, the nurse or other clinical practitioner will use aseptic technique with the non-dominant hand to spread the labia and hold that position while using the dominant hand to prep the meatus with betadine swabs followed by insertion of the Foley catheter into the urethra.<sup>1</sup> During the procedure, it is crucial that the labia do not touch the Foley catheter so that bacteria contamination from the labia will not contaminate the catheter, thereby introducing infection into the urethra and bladder. If the nurse is unable to maintain position spreading the labia and the aseptic position is broken, the nurse must use another sterile Foley catheter and restart the process.<sup>1</sup>

There are inherent challenges with urinary catheterization procedures in females. First, there is a need for two nurses if the patient is obese and/or the labia are a larger size. Second, visualization of the urethra may be obscured in relation to anatomical differences with the urethra. Third, in the home setting, additional challenges emerge. Nurses may need to contend with limited lighting or awkward position due to patients being situated in recliner chairs or regular beds that are too low or high off the ground. Family members or caregivers who may be present may not be available to assist with the insertion procedure. As a result of these challenges, nurse effort and Foley catheter kits can be wasted due to the need for repeated attempts to complete the procedure. Given the frequency of Foley catheter insertions, costs are significant, with expenses for a Foley catheter kit at US \$3 to \$10, home care aides or nurse assistants at US \$25 to \$50/hour, and, most importantly, costs of US \$10,000 or more per patient hospitalized due to urinary tract infections (UTIs) introduced by a difficult insertion procedure.<sup>2</sup>

## Results

### **Design of the Labial Positioning Device (LPD), the key element in the Accu-Catheter Kit.**

There is a need to improve the Foley catheter insertion process in females. This need exists in a variety of healthcare settings, including hospitals, elderly care facilities, and home care settings. At present, there is no device available to replace the non-dominant hand that enables the nurse to use both hands to manage the catheter for proper placement and sterile insertion into



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the urethra. The Labial Positioning Device (LPD) was designed to address this need (see **Figure 1**).

The LPD is a soft, malleable piece of medical-grade silicone with a light adhesive backing that substitutes for the non-dominant hand in the Foley insertion procedure. After cleaning the labia with sterile wipes or soap and water, the first step in using the Accu-Catheter Kit is to remove the adhesive backing from the LPD and adhere it to each side of the labia so the top of the device retracts the hood of the clitoris. When correctly oriented, the LPD pulls the hood of the clitoris upward and the labia outward to reveal the urethral and vaginal openings. Once in place, the nurse or other clinical practitioner can use both hands (instead of the dominant hand only) for aseptic manipulation and insertion of a standard Foley catheter included in the Accu-Catheter Kit. Application of the LPD eases the catheterization procedure by improving visualization of the urethra as well as enabling a two-hand aseptic insertion. Using the LPD as described assures fuller control of the Foley insertion process, thereby minimizing the potential of catheters becoming contaminated, leading to catheter waste or patient infection.

**Components of the Accu-Catheter Kit.** The specific parts included in the kit follow below.

- Labial Positioning Device (LPD): A specialized device made of a soft pliable medical-grade silicone that is positioned on the labial of the patient to create a physical target for reliable and accurate insertion of a standard Foley urinary catheter. It is included in three sizes to accommodate individual differences in labial anatomy. The three devices included in each kit are provided in individual sterile packaging. After use, the device is discarded into an infectious waste stream.
- Foley Catheter: A single standard urinary catheter in sterile packaging.
- Medical Gloves: A single pair of standard non-latex gloves for use in the procedure, included for ready use by nurses in home care, long-term care, or other non-hospital settings.
- Sterilization Wipes: A packet of sterile wipes, included for ready use by practitioners.



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## Discussion and Conclusions

The Accu-Catheter Kit offers several innovative labor-saving and cost-saving features. By preventing failed attempts at Foley catheter insertion, the Kit will help prevent unreimbursed costs for wasted catheters: While a nurse may use one catheter per attempt to prevent risks of a urinary tract infection (UTI), payors may only reimburse costs for one catheter per case. By enabling reliable and accurate placement of a Foley catheter by an individual nurse in any healthcare or home setting, the Kit will help reduce labor costs to complete the procedure. By helping limit the time needed to complete the procedure, the Kit will reduce the period of patient discomfort needed to complete the procedure. Lastly, and perhaps most importantly to healthcare providers and insurers, the Kit provides a low-cost opportunity to reduce the incidence of UTIs, whether nosocomial or healthcare-associated, which are not only a scourge to patients but also a source of enormous financial cost to manage.

In situations where a payor may not reimburse costs of wasted catheters, a practitioner may be tempted to reinsert the same catheter. This practice greatly increases UTI risk since a missed insertion will lead to undesirable contacts with surface microbes. By assuring successful placement of a urinary catheter on the first attempt, the need for repeat attempts with the same catheter is eliminated. In summary, the Accu-Catheter Kit provides an important approach to reduce UTI risk, patient discomfort, and nurse time on urinary catheterization procedures.

As the key element in the Accu-Catheter Kit, the LPD is comparatively easy and inexpensive to manufacture within the United States, supporting the national healthcare economy. Its use offers a low-cost opportunity to improve healthcare outcomes, reduce nurse labor and wasted catheter costs, and minimize catheter-associated UTI. Among the many sites that could benefit from use of the Accu-Catheter Kit are hospitals, long-term care facilities, home care organizations, and women who self-catheterize. Indeed, the LPD may offer the first technical advance for Foley catheterization for women since inception of the procedure itself.

## Order Information

Visit the Lankenau Ventures website [here](#) to request a sample Accu-Catheter and place orders.



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## References

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2. Kelly, T., Ai, C., Jung, M., & Yu, K. (2024). Catheter-associated urinary tract infections (CAUTIs) and non-CAUTI hospital-onset urinary tract infections: Relative burden, cost, outcomes and related hospital-onset bacteremia and fungemia infections. *Infection Control and Hospital Epidemiology*, 45(7), 864-871. <https://doi.org/10.1017/ice.2024.26>.



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**Figure 1. Labial Positioning Device (LPD): The key element in the Accu-Catheter Kit.** The LPD is a novel specialized device composed of a soft pliable silicone that substitutes for the non-dominant hand in the standard Foley insertion procedure learned by every nurse. When situated correctly on the labial, the LPD creates a physical target that enables accurate and reliable insertion of the Foley catheter, benefiting from a two-hand aseptic technique. The depiction is a front view of the LPD, with the clear surface coated with a light adhesive to allow the nurse to stably orient its correct anatomical location before the catheter is inserted (C, clitoris; U, urethra, V, vagina). The device is provided in three sizes to accommodate different anatomies. Proper use of the device eliminates failed attempts at urethral insertion (U) that lengthen periods of patient discomfort, limit nurse labor on the catheterization procedure, saves costs on otherwise wasted Foley catheters that may not be reimbursed by insurance payors, and reduces risks of nosocomial or healthcare-associated UTI that may be caused by difficulties in proper aseptic placement of a Foley catheter.

