

Title (max 100 characters): Evidenced-Based Urine Collection to Reduce Specimen Contamination

Purpose and rationale: Improperly collected urine specimens lead to contamination, inaccurate results, repeated tests, increased costs, delayed procedures, and patient anxiety. The purpose of this evidence-based practice (EBP) project was to reduce midstream urine contamination rates in a urology clinic at a large academic medical center, following The Iowa Model (Iowa Model Collaborative, 2017).

Synthesis of evidence: Urine culture contamination is reduced with patient instruction, labial spread/foreskin retraction, and midstream collection (Blake & Doherty, 2006; Holm & Aabenhus, 2016; Schneeberger et al., 2013; Shrestha, Gyawali, Gurung, Amatya, & Bhattacharya, 2013; Unlü, Sardan, & Ulker, 2007). Cleansing has mixed support (Baron et al., 2013; Dolan & Cornish, 2013; Gupta et al., 2011). One systematic review highlights benefit from labial spread/foreskin retraction and midstream collection, with lack of benefit from cleansing for adults (LaRocco et al., 2016). Cleansing makes the procedure more complex, without an established benefit.

Practice change and implementation strategies: Immediate and proper sterile technique for urine transfer into the preservative container was the first change. Assessment of patient's ability to properly collect a specimen (e.g., physical and intellectual limitations) was added since this may contribute to a patient's need for assistance. Patient education, including diagrams with written instructions in English or Spanish, emphasizes proper collection technique and the impact of contamination on their plan of care. Key elements of a multifaceted implementation plan (Cullen & Adams, 2012) included staff education and reinforcement highlighting the crucial need for detailed patient teaching using a patient decision aid to describe critical steps in the procedure. The policy was updated. Clinician competencies standardized training. Shelves were installed in patient bathrooms. Non-sterile "hats" and urinals were eliminated with a "hang up the hat" slogan. Leadership role modeling and troubleshooting were essential. Trended data with data feedback included actionable steps to improve outcomes.

Evaluation: Pilot evaluation included a 13-item questionnaire addressing knowledge, perceptions, and practices for urine collection. Systemwide pre-data (n=485 registered nurses, medical assistants, nursing assistants, and others) demonstrated correct knowledge about cleansing method (19.7%), rationale for cleansing (14.2%), and instruction on labial spread/foreskin retraction (42%). Clinicians report importance of topic (mean 3.42; 1-4 Likert scale), feeling knowledgeable (3.05), ease of transfer to tube (3.31), and enough time for patient instruction (3.04). The Urology Clinic created a significant decrease in contamination from pre- to post-implementation, 26.5% to 13.3%, below the 15% benchmark (Bekeris, Jones, Walsh, & Wagar, 2008).

Conclusions and implications for practice: Patients find the procedure difficult and assistance may be required. Having shelves available helps patients handle the container. Clinicians must use good technique when handling the specimen to reduce contamination risk.

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