

Contamination of urine specimens from women with acute dysuria did not differ with collection technique

Lifshitz E, Kramer L. *Outpatient urine culture: does collection technique matter?* Arch Intern Med 2000 Sep 11;160:2537-40.

QUESTION: Does contamination of urine specimens from women with acute dysuria differ with collection technique (midstream, midstream plus vaginal tampon, or no cleansing)?

Design

Randomised [allocation not concealed]*, blinded (outcome assessors), controlled trial.

Setting

An outpatient clinic at Rutgers University, New Jersey, USA.

Patients

242 consecutive women (mean age 21 y), mostly undergraduates, with symptoms suggestive of cystitis. Exclusion criteria were antibiotic use or urethral instrumentation in the previous 7 days, or known urological abnormality or nephrolithiasis. Follow up was complete.

Intervention

84 women were allocated to midstream collection and were instructed to cleanse the perineum with a bactericidal wipe by wiping from front to rear, to spread the labia, discard the first urine output, and then collect a midstream specimen in a clean, non-sterile container. 81 women were allocated to midstream collection plus a vaginal tampon in an attempt to decrease contamination from the vagina. They were given the same instructions as the midstream group, but were also instructed to insert a vaginal tampon before collection of the specimen. [3 or 4]* women unable or unwilling to use a tampon were reallocated to the midstream group. 77 women were allocated to a no cleansing group and were instructed to urinate into a clean, non-sterile container without cleansing of perineum, discarding of urine, or collecting a midstream specimen.

Main outcome measures

Contamination of urine specimens assessed by microbial composition of cultures. Samples were considered contaminated if they contained *Enterococcus*, *Streptococcus viridans*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, or a mixed culture of at least 2 organisms.

Main results

The midstream, midstream plus vaginal tampon, and no cleansing groups did not differ for contaminated specimens (32% v 31% v 29% respectively, $p=0.82$). When the cleansing midstream groups were combined and compared with the no cleansing group, the results remained the same (32% v 29% respectively, $p=0.65$).

Conclusion

Contamination of urine specimens from women with acute dysuria did not differ with collection technique.

*Information provided by author.

COMMENTARY

Limited research exists on whether collection technique makes a difference in reducing contamination of urine specimens in symptomatic women. Only one other study examined this issue, and like Lifshitz and Kramer, found no difference in contamination rates between the midstream clean catch method and urine collection without precautions or instructions.¹

Strengths of the study by Lifshitz and Kramer include random allocation to groups and blinding of microbiologists at the laboratory to patient allocation. Although this is the only study that has considered potential contamination from vaginal secretions, a few women who were unable or unwilling to use a tampon were reassigned to the midstream group. This reassignment violates the preferred intention to treat analysis in which participants remain in the group to which they were allocated regardless of whether they received the intervention; this occurred, however, in only a few cases and did not change the results. The findings are generalisable only to young women with acute dysuria and not to postmenopausal women, men, patients with more complicated urological histories, and patients with signs and symptoms suggestive of upper or complicated urinary tract infections.

This study is certainly relevant to nurse practitioners and other nurses working in primary care settings because urinary tract infections are one of the most common episodic problems seen in primary care. Furthermore, this study focuses on young women, in whom uncomplicated urinary tract infections are common. Nurses spend much time collecting urine specimens and teaching collection technique to avoid contamination. If collection technique does not reduce contamination, then the practice should be abandoned. This would result in tremendous cost savings (eg, sterile containers and bactericidal wipes), and time savings for healthcare providers who teach collection techniques.

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1 Morris RW, Watts MR, Reeves DS. Perineal cleansing before midstream urine, a necessary ritual. *Lancet* 1979;2:158-9.

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