

Laura Morris, MD, MSPH
University of Missouri,
Columbia

DEPUTY EDITOR
Anne Mounsey, MD
University of North
Carolina at Chapel Hill

An easy approach to obtaining clean-catch urine from infants

Current collection methods leave much to be desired. But a new method may provide a quick alternative.

PRACTICE CHANGER

Apply gauze soaked in cold sterile saline to the suprapubic area to stimulate infants ages 1 to 12 months to provide a clean-catch urine sample. Doing so produces significantly more clean-catch urine samples within 5 minutes than simply waiting for the patient to void, with no difference in contamination and with increased parental and provider satisfaction.¹

STRENGTH OF RECOMMENDATION

B: Based on a single good-quality, randomized controlled trial.

Kaufman J, Fitzpatrick P, Tosif S, et al. Faster clean catch urine collection (Quick-Wee method) from infants: randomised controlled trial. *BMJ*. 2017;357:j1341.

ILLUSTRATIVE CASE

A fussy 6-month-old infant is brought into the emergency department (ED) with a rectal temperature of 101.5° F. She is consolable, breathing normally, and appears well hydrated. You find no clear etiology for her fever and suspect that a urinary tract infection (UTI) may be the source of her illness. How do you proceed with obtaining a urine sample?

A febrile infant in the family physician's office or ED is a familiar clinical situation that may require an invasive diagnostic work-up. Up to 7% of infants ages 2 to 24 months with fever of unknown origin may have a UTI.² Collecting a urine sample from pre-toilet-trained children can be time consuming. In fact, obtaining a clean-catch urine sample in this age group took an aver-

age of more than one hour in one randomized controlled trial (RCT).³ More convenient methods of urine collection, such as placing a cotton ball in the diaper or using a perineal collection bag, have contamination rates of up to 63%.⁴

The American Academy of Pediatrics (AAP) guidelines for evaluating possible UTI in a febrile child <2 years of age recommend obtaining a sample for urinalysis "through the most convenient means."⁵ If urinalysis is positive, only urine obtained by catheterization or suprapubic aspiration should be cultured. Guidelines from the National Institute for Health and Care Excellence in the United Kingdom are similar, but allow for culture of clean-catch urine samples.⁶

A recent prospective cohort study examined a noninvasive alternating lumbar-bladder tapping method to stimulate voiding in infants ages 0 to 6 months.⁷ Within 5 minutes, 49% of the infants provided a clean-catch sample, with contamination rates similar to those of samples obtained using invasive methods.⁷ Younger infants were more likely to void within the time allotted. Another trial of bladder tapping conducted in hospitalized infants <30 days old showed similar results.⁸

There are, however, no previously reported randomized trials demonstrating the efficacy of a noninvasive urine collection technique in the outpatient setting.

Use of invasive collection methods requires skilled personnel and may cause significant discomfort for patients (and parents). Noninvasive methods, such as bag

➤ **Almost one-third of patients provided successful clean-catch samples within 5 minutes.**

urine collection, have unacceptable contamination rates. In addition, waiting to catch a potentially cleaner urine sample is time-consuming, so better strategies to collect urine from infants are needed. This RCT is the first to examine the efficacy of a unique stimulation technique to obtain a clean-catch urine sample from infants ages 1 to 12 months.

STUDY SUMMARY

Noninvasive stimulation method triggers faster clean urine samples

A nonblinded, single-center RCT conducted in Australia compared 2 methods for obtaining a clean-catch urine sample within 5 minutes: the Quick-Wee method (suprapubic stimulation with gauze soaked in cold fluid) or usual care (waiting for spontaneous voiding with no stimulation).¹ Three hundred fifty-four infants (ages 1-12 months) who required urine sample collection were randomized in a 1:1 ratio; allocation was concealed. Infants with anatomic or neurologic abnormalities and those needing immediate antibiotic therapy were excluded.

The most common reasons for obtaining the urine sample were fever of unknown origin and “unsettled baby,” followed by poor feeding and suspected UTI. The primary outcome was voiding within 5 minutes; secondary outcomes included time to void, whether urine was successfully caught, contamination rate, and parent/clinician satisfaction.

Study personnel removed the diaper, then cleaned the genitals of all patients with room temperature sterile water. A caregiver or clinician was ready and waiting to catch urine when the patient voided. In the Quick-Wee group, a clinician rubbed the patient’s suprapubic area in a circular fashion with gauze soaked in refrigerated saline (2.8° C). At 5 minutes, clinicians recorded the voiding status and decided how to proceed.

Using intention-to-treat analysis, 31% of the patients in the Quick-Wee group voided within 5 minutes, compared with 12% of the usual-care patients. Similarly, 30% of patients in the Quick-Wee group provided a successful clean-catch sample within 5 minutes compared with 9% in the usual-care group

($P<.001$; number needed to treat=4.7; 95% CI, 3.4-7.7). Contamination rates were no different between the Quick-Wee and usual-care samples. Both parents and clinicians were more satisfied with the Quick-Wee method than with usual care (median score of 2 vs 3 on a 5-point Likert scale, in which 1 is most satisfied; $P<.001$). There was no difference when results were adjusted for age or sex. No adverse events occurred.

WHAT’S NEW

New method could reduce the need for invasive sampling

A simple suprapubic stimulation technique increased the number of infants who provided a clean-catch voided urine sample within 5 minutes—a clinically relevant and satisfying outcome. In appropriate patients, use of the Quick-Wee method to obtain a clean-catch voided sample for initial urinalysis, rather than attempting methods with known high contamination rates, may potentially reduce the need for invasive sampling using catheterization or suprapubic aspiration.

CAVEATS

Complete age range and ideal storage temperature are unknown

Neonates and pre-continent children older than 12 months were not included in this trial, so these conclusions do not apply to those groups of patients. The intervention period lasted only 5 minutes, but other published studies suggest that this amount of time is adequate for voiding to occur.^{6,7} Although this study used soaking fluid stored at 2.8° C, the ideal storage temperature is unknown.

CHALLENGES TO IMPLEMENTATION

AAP doesn’t endorse clean-catch urine samples for culture

The Quick-Wee method is simple and easy to implement, and requires no specialized training or equipment. AAP guidelines do not endorse the use of clean-catch voided urine for culture, which may be a barrier to changing urine collection practices in some settings. **JFP**

ACKNOWLEDGEMENT

The PURLs Surveillance System was supported in part by Grant Number UL1RR024999 from the National Center For Research Resources, a Clinical Translational Science Award to the University of Chicago. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Center For Research Resources or the National Institutes of Health.

Copyright © 2018. The Family Physicians Inquiries Network. All rights reserved.

References

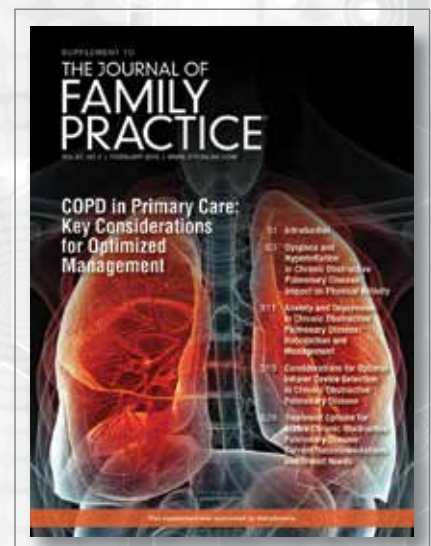
1. Kaufman J, Fitzpatrick P, Tosif S, et al. Faster clean catch urine collection (Quick-Wee method) from infants: randomised controlled trial. *BMJ*. 2017;357:j1341.
2. Shaikh N, Morone NE, Bost JE, et al. Prevalence of urinary tract infection in childhood: a meta-analysis. *Pediatr Infect Dis J*. 2008;27:302-308.
3. Davies P, Greenwood R, Bengel J. Randomised trial of a vibrating bladder stimulator—the time to pee study. *Arch Dis Child*. 2008;93:423-424.
4. Al-Orifi F, McGillivray D, Tange S, et al. Urine culture from bag specimens in young children: are the risks too high? *J Pediatr*. 2000;137:221-226.
5. Reaffirmation of AAP clinical practice guideline: the diagnosis and management of the initial urinary tract infection in febrile infants and young children 2-24 months of age. *Pediatrics*. 2016;138:e20163026.
6. National Institute for Health and Care Excellence. Urinary tract infection in under 16s: diagnosis and management. Clinical guideline CG54. Published August 2007. Available at: <https://www.nice.org.uk/guidance/cg54/chapter/1-guidance>. Accessed May 30, 2017.
7. Labrosse M, Levy A, Autmizguine J, et al. Evaluation of a new strategy for clean-catch urine in infants. *Pediatrics*. 2016;138:e20160573.
8. Herreros Fernández ML, González Merino N, Tagarro García A, et al. A new technique for fast and safe collection of urine in newborns. *Arch Dis Child*. 2013;98:27-29.

This supplement is sponsored by AstraZeneca.

COPD in Primary Care: Key Considerations for Optimized Management

This supplement to *The Journal of Family Practice* provides an overview of 4 key topics critical to the effective management of COPD in primary care.

- Dyspnea and hyperinflation
- Anxiety and depression
- Inhaler device selection
- Treatment options



TO READ THE SUPPLEMENT VISIT [HTTPS://WWW.MDEDGE.COM/JFPPONLINE/COPDINPRIMARYCARE](https://www.mdedge.com/jfponline/copdinprimarycare)