Midstream urine collection:

Sample quality and impact on urinary tract infection (UTI) diagnostics

Overview and impact

The global impact of UTIs is significant, with between 150 and 250 million individuals developing a UTI each year[1]. In fact, a UTI is the most common bacterial infection in the US[1,3]. And, a urine sample is the most common sample type in hospital-based microbiology labs with the gold standard test for UTI diagnostics being midstream urine culture[1].

Patient impact of UTIs

The condition primarily affects women, with 50% of all women experiencing a UTI in their lifetime[9]. UTIs often recur, with risk of recurrence within a year being up to 70%[10], meaning that long term prophylaxis exposes patients to frequent antimicrobial use – which, in turn, increases the challenges of antimicrobial stewardship[5] efforts.

UTIs result in:

- Considerable economic and public health burdens
- Substantial effects on quality of life[5]

0.9% of ambulatory visits in US from UTI symptoms[5]

3 million emergency dept visits in US from UTI[5]

Leading cause of Gram negative blood infections is from UTI[6]

Long-term alteration of vaginal microbiota from antibiotics[5]

A poorly collected sample can lead to negative impact on results

Urine samples collected using a traditional collection cup rely on patient technique to reliably collect a midstream sample, with no standardized instruction for how much urine should be voided[8].

As the sample is transported to a laboratory and stored, sometimes with or without a preservative, contaminant growth has the potential to proliferate. The sample is then received in a lab, and liquid transfer steps are taken to process the sample in a lab-suitable tube.

Once analysis is conducted on a poorly collected sample, there is risk of inaccurate or unreliable results. Potential urethral or vaginal contaminants can increase the likelihood of mixed growth cultures[8].

When it comes to results and diagnosis, the potentially inconclusive results could require retests or repeat sample collection, meaning an incomplete sample-to-answer workflow.

What improvements can be made to sample collection in the UTI workflow?

Improving patient usability can be beneficial. With improved ease of use, and simplified collection that is more patient-friendly, there's a better opportunity for a good quality sample to be collected as the first step

Changing the standard 'clean catch' method in a collection cup, to reduce variability in sample quality along with an overall reliance on patient technique. Collection methods that encourage a lower risk of microbial contamination would contribute to improvement.

Finding methods that give a better likelihood of 'right-first-time' process. This has many benefits ranging from improved patient experience to fewer retests.

Better midstream urine collection with Peezy® Midstream Urine Specimen Collection Device:

The innovative Peezy Midstream Urine Specimen Collection Device is designed to automatically obtain a clean, midstream urine sample, which supports accurate urinalysis results[8]. It automatically collects a midstream urine sample from an uninterrupted urine flow through a clean and comfortable-to-use funnel – significantly improving patient usability.

The Peezy Midstream device's improved collection method helps to reduce potential contaminants from a midstream urine sample to support the reduction of inaccurate or mixed culture results. Accurate diagnosis can facilitate appropriate treatment and may also support improved antibiotic stewardship efforts

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For more information on the Peezy Midstream device, visit **thermofisher.com/peezy** or contact your local Thermo Fisher Scientific Microbiology representative