1231. Successful Interventions to Reduce Unnecessary Urine Cultures in Intensive Care Units at a Tertiary Care Hospital, Baltimore, MD, 2011-2013

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Background. Catheter-associated urinary tract infections (CAUTIs) are a major cause of morbidity, and misdiagnosis is associated with unnecessary antibiotics. In intensive care units, where fevers are common and urinary tract-specific symptoms are often absent, the clinical significance of a positive urine culture is frequently unclear. We evaluated the impact of a laboratory protocol to improve the pre-test probability of urine cultures on measured CAUTI rates in ICUs in a hospital.

Methods. CAUTIs were defined using the National Healthcare Safety Network (NHSN) criteria. Multiple CAUTI prevention strategies were implemented in the hospital from 2010 – 2013 (figure). In January 2013, a urine culture reflex protocol was initiated in all adult ICUs; when a urine culture is ordered, the microbiology laboratory only performs the culture if pyuria is present (white blood cells > 10/hpf). Trends in pooled mean CAUTI rates (CAUTIs/1000 urinary catheter-days), urine culturing rates (urine cultures/100 patient-days), and device utilization ratios (DUR; urinary catheter-days/patient-days) in 5 ICUs were assessed using log linear models. The potential impact of the urine culture reflex protocol on measured CAUTI rates and urine culturing rates was evaluated using interrupted time-series analysis (pre-intervention period, July 2011 – December 2012; post-intervention period, January 2013 – March 2014).

Results. During the pre-intervention period, both CAUTI rates and urine culturing rates remained stable. During the post-intervention period, there was a significant decrease in measured rates of CAUTI (63%) and urine culturing (67%; figure). Urinary catheter DUR decreased significantly in 4/5 ICUs over the entire time period (July 2011-March 2014).

Conclusion. A multifaceted series of CAUTI prevention strategies was initiated at a large tertiary care hospital. Implementation of the urine culture reflex protocol was temporally associated with reductions in measured CAUTI rates in 5 ICUs. DUR was also reduced in most ICUs and may have contributed to the CAUTI rate reductions. Further evaluation should address the impact of strategies to improve diagnostic testing on CAUTI rates, antimicrobial use, and patient outcomes.

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