Success of a 3-Day Hard Stop on Repeat Urine Cultures for the Reduction of Reported National Healthcare Safety Network (NHSN) Catheter-Associated Urinary Tract Infections (CAUTIs)

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Background

- Catheter-associated urinary tract infections (CAUTIs) are the leading cause of healthcare associated infections (HAIs).
- NHSN definitions condition CAUTI reporting.
- Unfortunately, urine cultures (UCXs) are often contaminated, so positive UCX may not reflect a true UTI, or CAUTI.
- If a positive UCX fulfills NHSN criteria for CAUTI it will be so classified and reported.
- Blood cultures (BCXs) are often only intermittently positive during an infection, so a pathogen might be missed on a first day of a febrile episode, but found on BCXs obtained on a subsequent day of fevers. Thus, some number of serial repeat BCXs during a multi-day febrile episode may be justified.
- In contrast, it is unlikely that a febrile patient with a negative UCX on day 1 of a multi-day febrile episode will have a urinary source of fevers. In turn, it is very unlikely the UCX will be positive on day 2 or 3, unless the repeat UCX is contaminated.
- Unfortunately, many UCXs are sent as a reflex response to fever, without weighing the likelihood that of a urologic source for the fever – even when the 1st UCX is known to be negative.
- This underpinned the implementation of a 3-day hard stop on repeat UCXs for inpatients at our institution.

Methods

- This is a single center pre-post observational study of the impact of a 3-day hard stop on repeat UCXs for inpatients.
- We tracked total and repeat UCXs, NHSN CAUTIs, and calls to the microbiology lab for overrides of the hard stop
- We also looked for adverse events, such as later recognition of UTIs and sepsis.

Figure 1 & 2

- Inpatient Urine Cultures within 3 Days & Total Inpatient Urine Cultures

Results

- After instituting the 3-day hard stop on repeat UCXs, there was a dramatic decrease in the number of repeat UCXs within the 3-day hard stop “black out” period (187/month vs 35/month, p=0.0011 (Fig 1).
- There was also a general progressive downward trend in total number of UCXs over time (604/month vs 335/month, p<0.001) (Fig 1).
- Total positive UCXs and CAUTIs also decreased after the hard stop (2.30 vs 1.43/1000 Foley days, p=0.04, for CAUTIs) (Fig 2).
- Override calls to the microbiology lab were common at first, but trailed off over time.
- We found no change in the number of sepsis events from a urologic source from the pre-post the hard stop

Conclusions

- A 3-day hard stop on repeat UCXs played a key role in reducing the number of positive contaminated UCXs at our institution.
- Since many contaminant UCXs occur in febrile patients with a urinary Foley catheter they may meet NHSN definitions for CAUTIs and be classified as CAUTIs rather than contaminant CXs.
- Reducing the number of repeat UCXs that were not clinically indicated improved resource utilization, helped reduce probable contaminant UCXs and decrease CAUTIs reported to NHSN.
- In addition, the continued decline in total UCX orders over time may reflect increasing staff awareness for sending UCXs only as indicated, rather than as a reflex response to fever.
- We speculate that over time the decrease in contaminated UCXs may also help decrease inappropriate antimicrobial prescribing / improve stewardship and reduce pressures for the development of C. difficile-associated HAIs.

Limitations

This was a single center study and may reflect events perhaps unique to our institution. The study is likely to have unmeasured contributors to the effect size.

Disclosures

Nothing to disclose

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Figure 1 & 2

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