Correspondence

Optimizing Urine Culture Collection in the Emergency Department Using Frontline Ownership Interventions

To the Editor—The recent article by Leis et al, “Reducing antimicrobial therapy for asymptomatic bacteriuria among noncatheterized inpatients: a proof-of-concept study” [1], reveals a novel way to manage the problem of unnecessary urine collection. However, this laboratory-based solution proposed by Leis et al does not address the complex behaviors leading to the unnecessary urine collection. In their article, urine cultures are still being collected, and the laboratory is still processing the specimens, leading to unnecessary workload and costs.

An intervention that reduces the unnecessary ordering of urine cultures combined with the approach of Leis et al would be the ideal solution. Front-line ownership (FLO) has been used to change complex behaviors in a variety of settings in healthcare [2]. We implemented a quality improvement initiative utilizing FLO aimed at reducing the number of urine cultures (UCs) collected in the emergency department (ED) of our 515-bed community teaching hospital. We gathered data pre-intervention from January through June and after intervention from July to December 2013. All urine culture rates included both catheter and noncatheter specimens.

Our intervention consisted of an initial meeting highlighting unnecessary UCs to the Unit Based Council (a multidisciplinary team of ED frontline staff), ED managers, and ED physicians with an infection preventionist trained in FLO. Thereafter, thinking sessions involving the ED staff were facilitated by the same infection preventionist utilizing FLO principles. These sessions featured process reviews, policy assessments, and utilization dialogue aimed at understanding the ED staff barriers hindering the appropriate collection of UCs. Sessions noted that collection was happening related to poor compliance with published UC guidelines [3], staff practice patterns were based on outdated internal nursing policies that recommended frequent UC collection, and urine catheterization kits contained a sterile collection container that prompted urine collection. Automation of UC results on the hospital information technology system vs manual entry of point-of-care urine dips led to a preference for UC testing. Pressures to improve workflow also led staff to preemptively send urine for testing in case it was eventually needed to avoid subsequent

Figure 1. Results of urine culture collection (intervention arm) in the emergency department (ED) vs wound culture collection rates (nonintervention arm). After intervention for urine culture, collection rates decreased by 24%.
delays in care. Thinking session summaries and a UC volume run chart were shared biweekly, serving as continuous feedback to ED staff on their performance.

Our preintervention UC rate was 0.09 per ED patient visit, compared with 0.06 per ED patient visit after the intervention, a 24% reduction ($P<.002$; Figure 1). Wound cultures were not addressed during our intervention and served as a control. Wound culture rates were unchanged, from 0.006 per ED patient visit to 0.008 per ED patient visit ($P=.095$).

As noted by Leis et al, it would be ideal to reduce unnecessary UCs; however, forcing a change in the physician interpretation of microbiological tests does not address the problem of unnecessary excess UC collection. Utilizing an FLO approach, we achieved a reduction in UCs through cultural change. Our work maximized the existing limited resources in the ED. Combining frontline interventions optimizing UC collection with the approach proposed by Leis et al allows for potential synergy in preventing unnecessary overcollection of UCs.

Notes

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