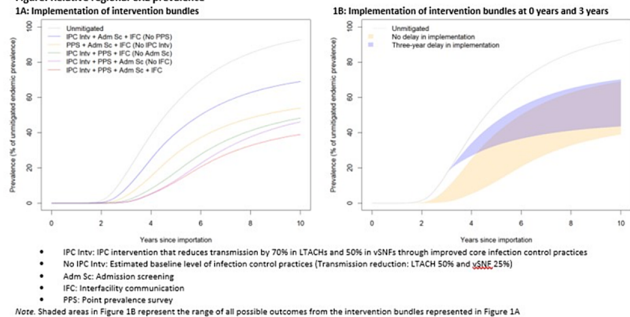


Figure: Relative regional CRE prevalence



Facilities that care for high-acuity patients with long average lengths of stay (eg, long-term acute-care hospitals or LTACHs and ventilator-capable skilled nursing facilities or vSNFs) may amplify this spread. We assessed the impact of interventions on CRE spread within a region individually, bundled, and implemented at different facility types. **Methods:** We developed a deterministic compartmental model, parametrized using CRE data reported to the NHSN and patient transfer data from the CMS specific to a US state. The model includes the community and the healthcare facilities within the state. Individuals may be either susceptible or infected and infectious. Infected patients determined to have CRE through admission screening or point-prevalence surveys at a facility are placed in a state of lower transmissibility if enhanced infection prevention and control (IPC) practices are in place. **Results:** Intervention bundles that included periodic point-prevalence surveys and enhanced IPC at high-acuity postacute-care facilities had the greatest impact on regional prevalence 10 years into an outbreak; the benefits of including admission screening and improved interfacility communication were more modest (Fig. 1A). Delaying interventions by 3 years is predicted to result in smaller reductions in prevalence (Fig. 1B). Increasing the frequency of point-prevalence surveys from biannually to quarterly resulted in a substantial relative reduction in prevalence (from 25% to 44%) if conducted from the start of an outbreak. IPC improvements in vSNFs resulted in greater relative reductions than in LTACHs. Admission screening at LTACHs and vSNFs was predicted to have a greater impact on prevalence if in place prior to CRE introduction (~20% reduction), and the impact decreased by approximately half if implementation was delayed until 3 years after CRE introduction. In contrast, the effect of admission screening in ACH was less (~10% reduction in prevalence) and did not change with implementation delays. **Conclusions:** Our model suggests that interventions that limit unrecognized MDRO introduction to, or dispersal from, LTACHs and vSNFs through screening are predicted to slow distribution regionally. Interventions to detect colonization and improve IPC practices within LTACHs and vSNFs may substantially reduce the regional burden. Prevention strategies are predicted to have the greatest impact when interventions are bundled and implemented before an MDRO is identified in a region, but reduction in overall prevalence is still possible if implemented after initial MDRO spread.

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Presentation Type:

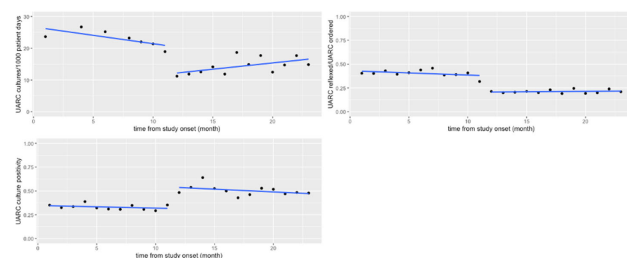
Poster Presentation - Top Poster Award

Subject Category: Other

Effecting the culture: Impact of changing urinalysis with reflex culture criteria on culture rates and outcomes

Jessica Penney; Angie Rodday; Paola Sebastiani; David Snyderman and Shira Doron

Background: Urinalysis and urine culture are frequently ordered diagnostic tests among hospitalized patients, often for nonspecific symptoms.



Diagnostic testing stewardship with urinalysis with reflex culture (UARC) is a practice shown to reduce institutional culture rates by selecting patients who are more likely to have a true infection. Optimal reflex criteria are not well established, and downstream effects, such as antibiotic use, have not been well studied. **Methods:** We compared outcomes in the preimplementation period (December 2018 – October 2019) and postintervention period (November 2019–October 2020) at an academic medical center. The intervention was changing the UARC reflex criteria. The primary outcomes were urine-culture rate per 1,000 patient days, urine-culture positivity, antibiotic prescription for suspected urinary tract infection (UTI) and catheter-associated urinary tract infection (CAUTI) rate per 1,000 Foley catheter days. Analysis was performed using interrupted time-series negative binomial regression or Poisson regression where appropriate. **Results:** We detected a significant decrease in the rate of cultures performed (32.5 cultures per 1,000 patient days before the intervention vs 8.6 cultures per 1,000 patient days after the intervention; $P = 0.10$). Fig. 1 summarizes these results graphically. In an adverse events analysis, of 646 patients in the postintervention period, 130 patients were reviewed for the outcome of sepsis secondary to a urinary tract infection, with only 1 patient meeting criteria for this diagnosis. **Conclusions:** Changing the UARC reflex criteria resulted in the expected decrease in rate of cultures performed with increase in culture positivity, and the stricter criteria appeared to more effectively identify true UTIs. Minimal adverse events were associated with the UARC criteria change, demonstrating that these criteria are also safe. We detected a significant change in antibiotic prescriptions, but much of the decrease occurred during the preintervention period, which likely reflected educational and stewardship interventions performed at that time. Although the intervention affected culture performance, which does decrease institutional costs, continued provider education is needed to influence clinical outcomes.

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Poster Presentation - Top Poster Award

Subject Category: Patient Safety

Is patient discharge after blood culture collection in the emergency department safe? A retrospective study in Japan

Toshiki Miwa; Akane Takamatsu and Hitoshi Honda

Background: Drawing blood cultures in the emergency room (ER) is essential for detecting bloodstream infections (BSIs). Although a practice of drawing blood culture usually indicates a presence of severe infection requiring hospitalization, some patients may nonetheless be safely discharged from the ER. Previous studies demonstrated that patients with a positive blood culture after ER discharge had favorable clinical outcomes. Moreover, given the increasing incidence of febrile illnesses, especially in the era of COVID-19, the shortage of inpatient hospital beds may lend further justification to this practice. We investigated the prevalence, outcomes, and factors associated with patient discharge from the ER after blood collection. **Method:** The present, nested, case-control study comparing patients initially discharged from the ER with those directly admitted to