Figure 1. Identified HO-HCFA CDI cases and concurrent laxative use at the VASDHS for FY 2015 through 2018. The most dramatic reduction in HO-CDI cases and laxative use/escalation during testing was noted in FY 2018 following the implementation of a C. difficile test ordering algorithm that incorporated diagnostic criteria and recommended the exclusion of patients on laxatives from testing. Trendline for total HO-HCFA CDI cases per FY ($p = 0.07$, $R^2 = 0.86$).

Fig. 1.

treatment cost. This trend also corresponded with significantly less PPI use at the time of testing and reduced detection of colonization among patients with laxative-induced diarrhea. Diagnostic stewardship may serve as an effective tool to correctly diagnose and treat HO-HCFA CDI, while significantly reducing treatment costs.

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Presentation Type:
Poster Presentation

Diagonal Interventions in Infection Prevention: Successful Collaboratives to Decrease CLABSI at a VA Health Care System
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Background: Vertical interventions in public health are disease focused, whereas horizontal interventions are systems based. The new concept of "diagonal interventions" merging these 2 approaches is also applicable to infection prevention (IP). During fiscal year (FY) 2016, our facility identified 14 central-line–associated blood stream infections (CLABSIs), resulting in a rate of 1.44 cases per 1,000 catheter days, twice that of FY2015 (0.75 cases per 1,000 catheter days). **Methods:** Focusing on a horizontal "systems building" approach, the IP team used previously developed informal relationships to mobilize a formal multidisciplinary team comprised of IP, nursing educators, the intravenous therapy team, and frontline staff. Initially charged with implementation of disinfecting caps for needleless connectors, the IP team capitalized on this multidisciplinary resource to launch a multifaceted communication and education campaign supporting CLABSI-specific interventions. For vertical interventions, an IP risk assessment revealed variations in care and maintenance of central lines and the need for staff education. A literature search was conducted to identify evidence-based strategies for reducing CLABSIs, leading to the development of a nursing-led bundle of the following elements: (1) education on CDC hand hygiene guidelines, (2) central-line competency validation and assessment for nurses on hire and annually, (3) standardized processes across all wards for central-line dressing changes ("timed on Tuesdays"), and (4) a pilot program for disinfecting caps on 3 inpatient wards. The IP team identified CLABSIs using standard NHSN definitions. Catheter days were obtained on each inpatient ward. Unit-specific rates were calculated per 1,000 catheter days. Mann-Kendall Test was used to assess rate trends over time, whereas the Fisher exact test was used for rate comparisons. A $P < .05$ was considered significant. **Results:** CLABSI rates decreased from 1.44 in FY2016 to 0.12 in FY2019 (Kendall $\tau = -0.5$; $P < .001$) (Fig. 1). During the 3-month pilot phase of disinfecting caps, no CLABSIs were identified on 3 intervention wards versus 3 CLABSIs on control wards (rate, 0 vs 2.57; $P = .27$) and 1 CLABSI in the 3-month baseline period prior to the intervention (0 vs 0.40; $P > .99$). Disinfecting caps were expanded house-wide beginning in FY2018. The multidisciplinary team evolved into a sustained collaborative ("Scrub Club") meeting biweekly. They have now broadened their focus to quality improvement initiatives for multiple healthcare-associated infections (HAIs). **Conclusions:** The IP team has traditionally utilized vertical

Figure 1. Central Line-Associated Bloodstream Infections at the
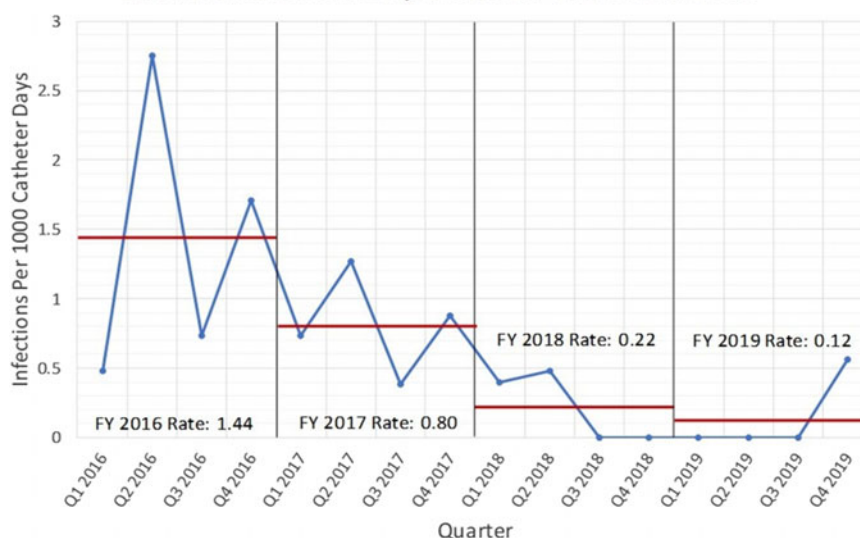VA St. Louis Health Care System: Fiscal Years 2016 to 2019

Fig. 1.

models of intervention. The use of "diagonal" models that incorporate horizontal health systems strengthening can transform multidisciplinary partnerships into long-term collaboratives essential for sustained reduction of HAIs.

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Poster Presentation
Digital Education on Prudent Antibiotic Use—Evaluation of a Massive Open Online Course for General Practitioners in Germany
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Background: Antimicrobial resistance is a growing global health problem predominantly driven by overuse of antibiotics. In humans, most antibiotics are used outside the hospital. Overprescribing for acute respiratory infections (ARIs) is common despite clear guidelines. The need for further training of general practitioners is well known. **Objective:** To develop and evaluate a massive open online course (MOOC) on antibiotic therapy of common infectious diseases in general practice. **Methods:** A 4-week MOOC was developed on the basis of previous face-to-face trainings (platform, Hasso Plattner Institute for Digital Engineering) and was conducted 3 times between July 10, 2017, and May 31, 2019. The course was promoted through various general practitioner (GP) networks, local multipliers, and conferences and in the local trade press. In addition to epidemiological background information, the focus was on guideline-based diagnostics and treatment of ARI, side effects of antibiotics, correct drug selection, dosage and duration of indicated antibiotic therapy, as well as aspects of doctor–patient communication. Content included videos, self-tests, additional written material, and an optional exam. At the end of the course, participants were asked to complete a voluntary, anonymous online assessment questionnaire (LimeSurveyPro software). Usage data from the MOOC platform and data from the questionnaire were analyzed using IBM SPSS statistical software. **Results:** In total, 2,177 registered persons retrieved content (=learners). The proportion of learners dropped from 99.6% in week 1 to 40.7% in week 4. However, among those attending week 4, the average proportion of content used was still high (74.5%). Furthermore, 27.5% of learners completed the course, 23.8% took the exam, and 19.7% passed the exam. Moreover, 284 learners answered the assessment questionnaire (response rate, 13.0%); 62.3% were women, and the mean age was 45.9 years. Also, 225 participants (79.2%) stated that they were physicians; 122 of these worked as general practitioners (54.2% of physicians). Among the other physicians, 23% stated were in specialist training and 15.6% had a different specialist designation. The average overall rating of the course was 1.31 (1 = very good to 6 = not sufficient). General practitioners rated it slightly better than other physicians (1.23 vs 1.41). The clinical relevance was rated at 1.27 (GPs vs other physicians, 1.18 vs 1.35). For all scores, see Table 1. **Conclusions:** A massive open online course appears to be an appropriate format in which to deliver clinical relevant content concerning prudent antibiotic use in the outpatient setting. It is a good complement to existing