

or “Valley fever” from August 6 to 16, 2019, and again from October 20 to 29, 2019. In total, 2,117 Tweets were retrieved. Tweets not focused on Valley fever were filtered out, including a tweet about “Rift valley fever” and tweets where “valley” and “fever” were separate and not one phrase. We excluded tweets not written in English. In total, 1,533 tweets remained; we grouped them into 3 categories: original tweets, hereafter labeled “normal” (N = 497), retweets (N = 811), and replies (N = 225). We converted all terms to lowercase, removed white space and punctuation, and tokenized the tweets. Informal messaging conventions (eg, hashtag, @user, RT, links) and stop words were removed, and terms were lemmatized. Finally, we analyzed the frequency of tweets by season, state, and co-occurring terms. **Results:** Tweet frequency was 228.5 per week in summer and 113.4 per week in the fall. Users tweeted from 40 different states; the most common were California (N = 401; 10.1 per 100,000 population) and Arizona (N = 216, 30.1 per 100,000 population), New York (N = 49), Florida (N = 21), and Washington, DC (N = 14). Term frequency analysis showed that for normal tweets, the 5 most frequent terms were “awareness,” “Arizona,” “disease,” “California,” and “people.” For retweets, the most common terms were “Gunner” (a dog name), “vet,” “prayer,” “cough,” and “family.” For replies, they were “dog,” “lung,” “vet,” “day,” and “result.” Several symptoms were mentioned: “cough” (normal: 8, retweets: 104, and replies: 7), “sick” (normal: 21, retweets: 42, replies: 7), “rash” (normal: 2, retweets: 6, replies: 1), and “headache” (normal: 1, retweets: 3, replies: 0). **Conclusions:** Valley fever tweets are potentially sufficient to track disease intensity, especially in Arizona and California. Data collection over longer intervals is needed to understand the utility of Twitter in this context.

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Presentation Type:

Poster Presentation

A Qualitative Study of Antibiotic Stewardship Implementation at Arizona Skilled Nursing Facilities

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Background: The CDC Core Elements of Antibiotic Stewardship (AS) include 7 evidence-based best practices adapted for a variety of healthcare settings, including nursing homes. We aimed to identify barriers and facilitators related to AS implementation in skilled nursing facilities (SNFs) within 18 months of the CMS mandate for AS implementation in SNFs, and to examine their relevance to the CDC’s Core Elements for Nursing Homes. **Methods:** We conducted 56 semistructured interviews with administrators, clinicians, and nonclinical staff at 10 SNFs in urban, suburban, rural, and border regions of Arizona. All interviews were recorded, transcribed, and imported into NVivo v12.0 software for constant comparative analysis by 3 researchers using a priori and emergent codes. After iterative coding, we confirmed high interrater reliability ($\kappa = 0.8$), finalized the code book, and used matrix coding queries to examine relationships and generate themes. **Results:** We identified 7 themes as “influencers” that were less (barrier) or more (facilitator) supportive of AS in SNFs. Intra- and interfacility communication were the most

frequently described: respondents described stronger communication within the SNF and between the SNF and hospitals, labs, and pharmacies as critical to robust AS implementation. Other influencers included AS education, antibiotic tracking systems, SNF prescribing norms, human resources, and diagnostic resources. The Core Elements were reflected in all influencer themes except interfacility communication between SNFs and hospitals. Additionally, themes pertaining to systems emerged as critical to successful AS implementation, including the need to address: the interactions of multiple roles across the traditional SNF hierarchy, stewardship barriers from the lens of patient-level concerns (as opposed to population-level concerns), the distinction between antibiotic prescribing gatekeepers and stewardship gatekeepers, and care transition policies and practices. The Core Elements target many aspects of these systems themes—for example, they recognize the importance of creating a culture of stewardship. However, they do not address care transition policies or procedures beyond recommending that transfer-initiated antibiotics be tracked and verified. **Conclusions:** Because the interactions of various agents within and beyond the SNF can facilitate or inhibit stewardship in complex ways, our findings suggest the use of a systems approach to AS implementation that prioritizes communication within the SNF hierarchy, and between SNFs and hospitals, diagnostic facilities, and pharmacies. When followed, the CDC’s Core Elements can provide crucial guidance. However, SNFs need support to overcome the challenges of incorporating these elements into policy and practice. Additionally, more work is needed to understand and enhance stewardship-related care transition, which remains under-addressed by the CDC.

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A Quality Improvement Project to Reduce Unnecessary Use of Multilumen PICCs

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Background: Peripherally inserted central catheters (PICCs) are an increasingly common vascular access device. At our institution, >4,000 devices are placed per year by a trained team of vascular access nurses. Although PICCs are generally safe and effective, they do carry the risk of infection and thrombosis, and this risk increases exponentially with increasing number of lumens. As part of a multidisciplinary quality improvement effort to address rising CLABSI rates, we designed interventions to improve PICC utilization. **Methods:** The project team used 6- σ methodology, specifically following the DMAIC (define, measure, analyze, implement, control) framework to guide analysis and interventions. Process mapping, semistructured interviews with key stakeholders, electronic surveys, and audits were performed to identify gaps and inform interventions. The interventions consisted of 3 components: changes to the electronic ordering system, education (presentations to ordering providers and an online toolkit), and clinical decision support in the form of a team of vascular-access subject-matter experts who provided guidance on line selection. **Results:** In total, 4,655 PICCs and 434 midlines were inserted in the 12 months before the intervention, and 7,457 PICCs and

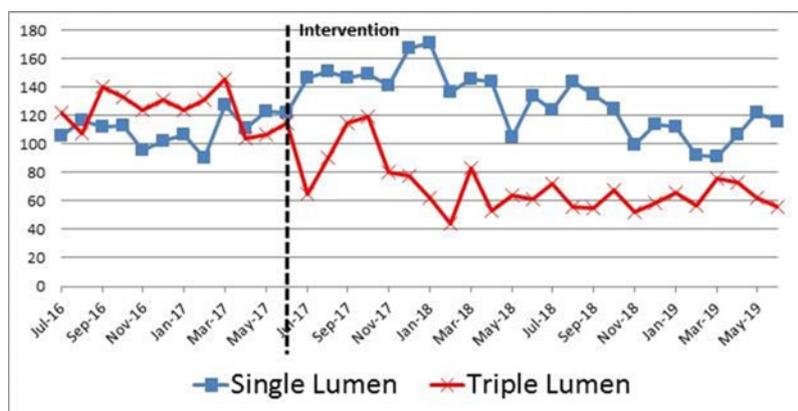


Fig. 1.

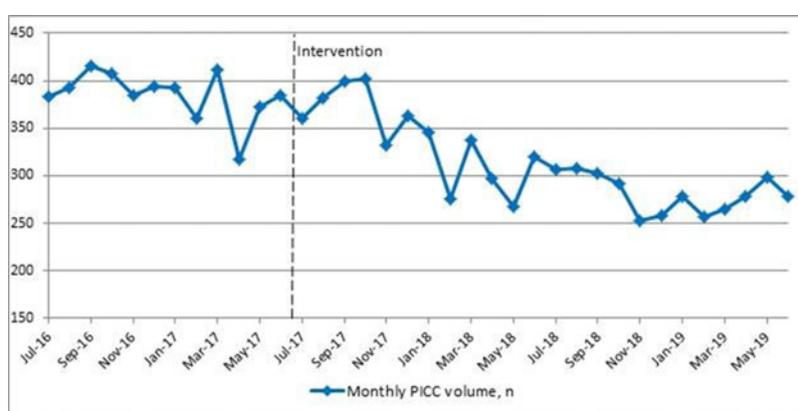


Fig. 2.

929 midlines were placed in the 24 months after the intervention. Following the implementation of the intervention, proportions of triple-lumen catheter utilization decreased from 31.9% to 22.3% ($P < .0001$). Concurrently, the proportion of single-lumen catheters has increased from 28.5% to 41.9% ($P < .0001$). Overall PICC utilization decreased in the postintervention period from an average of 387.9 PICCs placed per month to 310.7. The proportion of midline catheters increased from 8.5% of total lines inserted to 11.4% in the postintervention period ($P < .001$). Conclusions: Our intervention reduced overall PICC use and triple-lumen PICC use and increased relative utilization of single-lumen PICCs and midline catheters. Optimization of electronic orders, in conjunction with targeted education and decision support, can have a sustained impact on provider ordering behaviors and can shift the culture of utilization, even in a large academic medical center with frequent turnover of trainees.

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A Randomized Assessment of a Laxative-Based *Clostridioides difficile* Diagnostic Stewardship Intervention

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Background: *Clostridioides difficile* is the leading healthcare-associated pathogen, with significant morbidity associated with acute *C. difficile* infection (CDI). However, polymerase chain reaction stool testing is unable to differentiate colonization from infection, leading to frequent overdiagnosis, unnecessary iatrogenesis, and additional costs. As a result, IDSA guidelines do not recommend *C. difficile* testing in patients with diarrheal symptoms attributed to other causes, including laxatives. Our group has previously investigated the use of a computerized clinical decision support (CCDS) tool to reduce inappropriate *C. difficile* testing in a single tertiary-care health system, with a subsequent 41% reduction in testing. We investigated the reduction in proportion of inappropriately completed tests with the randomized addition of a laxative alert to our existing CCDS. **Methods:** An existing electronic medical record-based CCDS tool was augmented by the addition of an automatic alert that notified the user if a patient received any of a set of identified laxative medications within 48 hours. During the 78-day pilot period, users encountered the existing CCDS or the CCDS with laxative alert (CCDS-LA), randomized by patient identification number. A proportional χ^2 analysis was used to compare the proportion of aborted to completed tests among patients who met laxative criteria in the CCDS versus CCDS-LA groups. **Results:** In total, 187 test orders were attempted during the pilot period in 119