the duration of treatment and reduce ADEs. **Methods:** At NorthShore University HealthSystem, a 4-hospital, 832-bed system, we identified patients who were started on empiric antibiotics during a hospital admission between May 2, 2016, and June 30, 2018. Within 24 hours of antibiotic initiation, an infectious disease (ID) physician reviewed each patient chart. If the patient was unlikely to have a symptomatic bacterial infection, the ID physician left a note in the electronic medical record (EMR) recommending antibiotic cessation. Two physician reviewers retrospectively reviewed whether the treatment team accepted these recommendations and assessed potential ADEs for 30 days after the recommendation through inpatient and outpatient notes in the EMR. These ADEs were defined using previously published criteria. If the 2 reviewers disagreed on the presence of an ADE, an ID physician acted as the tie breaker. We compared the number of antibiotic days and the number of ADEs between cases in which the recommendations were followed and cases in which they were not. **Results:** We reviewed 168 cases: 78 (46.43%) followed recommendations and 90 (53.57%) did not. There were no significant differences in baseline patient characteristics between the 2 groups. There was a significant difference in total ADEs between the 2 groups: in 6 cases (7.69%) the recommendations were followed, and 21 (23.33%) they were not followed ($P = .011$). There was also a significant difference in antibiotic days between cases in which recommendations were followed (1.40 days) versus those in which they were not followed (1.99 days) ($p < 0.001$). **Conclusions:** Antibiotic-associated adverse events can cause harm to patients and increase healthcare costs, particularly when used for patients who are unlikely to have a bacterial infection. An antibiotic stewardship program to identify patients in an EMR who are unlikely to benefit from antibiotic use can decrease the length of total antibiotic usage and help prevent adverse events.

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Successful Treatment of Invasive MRSA Infections in Children Using Area Under the Vancomycin Concentration-Time Curve Divided by the Minimum Inhibitory Concentration (AUC/MIC) to Measure Vancomycin Exposure

Leslie Chiang; Alice Pong; John Bradley; Paige Anderson and William Murray

Background: Vancomycin is the treatment of choice for invasive methicillin-resistant *Staphylococcus aureus* (MRSA) infections. Previous guidelines issued by the Infectious Diseases Society of America (IDSA) recommended targeting vancomycin serum trough concentrations of 15–20 mg/L; however, troughs <15 mg/L are also associated with increased odds of renal toxicity. To minimize toxicity, recently updated ASHP/IDSA/PIDS vancomycin dosing guidelines recommend the use of an area under the vancomycin concentration-time curve divided by the minimum inhibitory concentration (AUC/MIC) pharmacodynamic index to measure vancomycin exposure, with an AUC/MIC ratio >400 correlating with clinical efficacy. However, data on vancomycin therapeutic drug monitoring (TDM) in children are limited. Our institutional practice since January 2009 has been to use AUC/MIC, rather than serum trough concentrations, to guide vancomycin dosing. In this study, we describe clinical outcomes in vancomycin-treated children with invasive MRSA infections using this dosing method. **Methods:** We performed a retrospective chart review of children hospitalized with invasive MRSA infections between 2006 and 2019 at Rady Children's Hospital in San Diego, California. Clinical, microbiologic, and pharmacologic data including the site of MRSA infection, clinical failure or cure, occurrence of acute kidney injury (AKI), vancomycin MIC, vancomycin AUC, and serum trough concentrations were collected. **Results:** In total, 61 invasive MRSA cases were reviewed: 20 were admitted January 2016 through December 2008, and 41 were admitted January 2009 through June 2019 (Figure 1). Most patients did not have medical comorbidities. The most common types of infections were primary bacteremia (34%) and osteomyelitis (32%). Of 61 children, 50 (82%) had positive clinical outcomes regardless of vancomycin dosing method. Of 20 patients, 8 (40%) admitted prior to January 2009 developed AKI, compared with 5 (12%) of 41 patients admitted after January 2009. **Conclusions:** In our retrospective review, most patients had clinically successful outcomes regardless of which dosing strategy was used. We found higher rates of renal toxicity in patients who were admitted prior to 2009, with TDM based on measuring peak and trough concentrations, compared with those using AUC/MIC for TDM. Our findings suggest that AUC/MIC TDM for invasive MRSA infections may be associated with lower rates of renal toxicity.

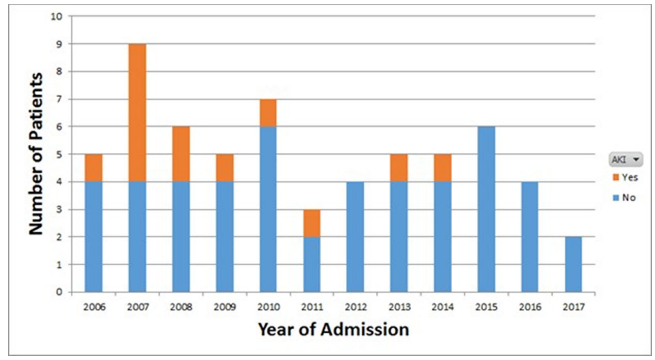

Figure 1.

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Diagnostic Stewardship in Lower Respiratory Tract Infections Using Procalcitonin

Amanda Gusovsky; David Burgess; Donna Burgess; Emily Slade; Chris Delcher; Alison Woodworth; Jordan Chael and Thai Osborne

Background: A team of infectious diseases physicians, infectious diseases pharmacists, clinical laboratorians, and researchers collaborated to assess the management of lower respiratory tract infections (LRTIs). In 1 sample from our institution, 96.1% of pneumonia cases were prescribed antibiotics, compared to 85.0% in a comparison group. A collaborative effort led to the development of a protocol for procalcitonin (PCT)-guided antibiotic prescribing that was approved by several hospital committees, including the Antimicrobial Stewardship Committee and the Healthcare Pharmacy & Therapeutics Committee in December 2020. The aim of this analysis was to develop baseline information on PCT ordering and antibiotic prescribing patterns in LRTIs. **Methods:** We evaluated all adult inpatients (March–September 2019 and 2020) with a primary diagnosis of LRTI who received at least 1 antibiotic. Two cohorts were established to observe any potential differences in the 2 most recent years prior to adoption of the PCT protocol. Data (eg, demographics, specific diagnosis, length of stay, antimicrobial therapy and duration, PCT labs, etc) were obtained from the UK Center for Clinical and Translational Science, and the study was approved by the local IRB. The primary outcome of interest was antibiotic duration; secondary outcomes of interest were PCT orders, discharge antibiotic prescription, and inpatient length of stay. **Results:** In total, 432 patients (277 in 2019 and 155 in 2020) were included in this analysis. The average patient age was 61.2 years (SD, ±13.7); 47.7% were female; and 86.1% were white. Most patients were primarily diagnosed with pneumonia (58.8%), followed by COPD with complication (40.5%). In-hospital mortality was 3.5%. The minority of patients had any orders for PCT (29.2%); among them, most had only 1 PCT level measured (84.1%). The median length of hospital stay was 4 days (IQR, 2–6), and the median duration of antibiotic therapy was 4 days (IQR, 3–6). **Conclusions:** The utilization of PCT in LRTIs occurs in the minority of patient cases at our institution and mostly as a single measurement. The development and implementation of a PCT-guided therapy could help optimize antibiotic usage in patients with LRTIs.

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Antimicrobial Stewardship in Acute-Care Hospitals: A Report of the California Healthcare-Associated Infections Honor Roll

Jane Kriengkauykiat; Erin Epson; Erin Garcia and Kiya Komaiko

Background: Antimicrobial stewardship has been demonstrated to improve patient outcomes and reduce unwanted consequences, such as antimicrobial resistance and *Clostridioides difficile* infection. The California Department of Public Health (CDPH) Healthcare-Associated Infection (HAI) Program developed an honor roll to recognize facilities with the goal of promoting antimicrobial stewardship programs and encouraging collaboration and research. **Methods:** The first open enrollment period in California was from August 1 to September 1, 2020, and was only open to acute-care hospitals (ACHs). Enrollment occurs every 6 months. Applicants completed an application and provided supporting documentation for bronze, silver, or gold designations. The criteria for the bronze designation were at least 1 item from each of CDC's 7 core elements for ACHs. The criteria for silver were bronze criteria plus 9 HAI program prioritized items (based on published literature) from the CDC Core Elements and demonstration of outcomes from an intervention. The criteria for gold designation were silver criteria plus community engagement (ie, local work or collaboration with healthcare partners). Applications were evaluated in 3 phases: (1) CDPH reviewed core elements and documentation, (2) CDPH and external blinded antimicrobial stewardship experts reviewed outcomes as scientific abstracts, and (3) CDPH reviewed each program for overall effectiveness in antimicrobial stewardship and final designation determination. Designations expire after 2 years. **Results:** In total, 119 applications were submitted (30% of all ACHs in California), of which 100 were complete and thus were included for review. Moverover, 33 facilities were from northern California and 67 were from southern California. Also, 85 facilities were part of a health system or network, 14 were freestanding, and 1 was a district facility. Facility types included 68 community hospitals, 17 long-term acute-care (LTAC) facilities, 17 academic or teaching hospitals, 4 critical-access hospitals, and 4 pediatric hospitals. There was an even distribution of hospital bed size: 35 facilities had <250 beds. The final designations included 19 gold, 35 silver and 43 bronze designations. There was 44% incongruency in applicants not receiving the designation for which they applied. Community hospitals were 63%–74% of all designations, and no LTACs received a gold designation. Moreover, 63% of hospitals with gold designations had >250 beds, and 47% of hospitals with bronze designations had <1 25 beds. **Conclusions:** The number of applicants was higher than expected because the open enrollment period occurred during the COVID-19 pandemic. This finding demonstrates the high importance placed on antimicrobial stewardship among ACHs. It also provides insight into how facilities are performing and collaborating and how CDPH can support facilities to improve their ASP.

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Identification of Potentially Unnecessary Micafungin Use Patterns: Opportunities for Antifungal Stewardship Interventions

Miguel Chavez Concha; Kevin Hsueh; Michael Durkin and Andrej Spec

Background: Echinocandins are used as first-line therapy for suspected and confirmed *Candida* spp, and its indiscriminate use may drive selection for echinocandin resistance. We evaluated patterns of use of

Table 1. Micafungin courses and microbiology results during study period

Variable	n=2532	*p* value
Blood cultures (BC)	(IQR)	
Negative	1879 (74)	
Positive	653 (26)	
Candida spp.	149 (23)	
Other organisms	504 (77)	
Median length of treatment, days		
Negative	3 (2-7)	
Positive, not *Candida* spp.	3 (1-5)	p<0.001
Candida spp.	5 (3-11)	
Treatment over 5 days		
Negative	768 (41)	p<0.001
Positive, not *Candida* spp.	143 (28)	
Tracheal aspirate cultures	n=487	
No yeast isolated	387 (79)	
Yeast isolated	100 (21)	
Candidemia	9/94 (10)	
Positive BC, not *Candida* spp.	13/94 (14)	
Negative BC	72/94 (76)	
Length of treatment, days		
No yeast isolated	3 (2-7)	0.56
Yeast isolated	3 (2-7)	
Treatment over 5 days		
No yeast isolated	142 (37)	0.75
Yeast isolated	35 (35)	
Urine cultures	n=844	
No yeast isolated	795 (94)	
Yeast isolated	49 (6)	
Candidemia	7/46 (15)	
Positive BC, not *Candida* spp.	8/46 (17)	
Negative BC	31/46 (67)	
Length of treatment, days		
No yeast isolated	3 (2-6)	0.87
Yeast isolated	3 (1-6)	
Treatment over 5 days		
No yeast isolated	281 (35)	0.7
Yeast isolated	16 (33)	