

strategy could serve as a model to improve antimicrobial stewardship in community, non-teaching hospitals.

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## 752. What's Next? Sustaining Hospital-Initiated Nursing Home Antimicrobial Stewardship Programs

Christina B. Felsen, MPH<sup>1</sup>; Grant Barney, BS<sup>1</sup>; Elizabeth Dodds Ashley, PharmD, MHS, FCCP, BCPS<sup>2</sup> and Ghinwa Dumyati, MD, FSHEA<sup>1</sup>; <sup>1</sup>NY Emerging Infections Program, Center for Community Health, University of Rochester Medical Center, Rochester, New York, <sup>2</sup>Duke University Medical Center, Durham, NC

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**Background.** The core elements provide a framework for nursing homes (NH) to establish antibiotic stewardship programs (ASP). We report on implementation and sustainability of ASP through a hospital-NH partnership.

**Methods.** Since 2014, a hospital-based team (HBT) assisted 9 NH in Monroe County, NY in implementing ASP. Enrollment was staggered; data are currently available from 2 NH: Facility X (470 beds, full-time medical director and Infection Preventionist (IP)) and Facility Y (288 beds, part-time medical director and IP). The HBT analyzed antibiotic data to develop initial interventions focusing on reducing urinary tract infection (UTI) treatment and quinolone use. Activities included (1) regular presentation of antibiotic days of therapy (DOT), urine culture rates and treatment appropriateness; (2) coaching on interpretation and use of data to expand interventions; (3) creation of citywide guideline for diagnosis and treatment of common infections; and (4) education of nurses, providers, and families.

**Results.** The HBT provided drug expertise and support throughout the project; however, involvement of NH staff varied. The Facility X IP assumed responsibility for the review and feedback of urine culture data and education and the medical director educated clinicians and families on treatment guidelines. Facility Y's ASP was led by the medical director and focused mainly on education of clinicians. Facility X saw significant reductions in all metrics in 2016. Facility Y significantly reduced their quinolone use and urine culture rate; however, this did not translate into a reduction in DOT for UTI (Table 1).

Table 1. Rates per 1,000 resident days

Facility	X			Y		
	2014	2016	Rate Ratio (RR) (95% Confidence Interval [CI])	2014	2016	RR (95% CI)
UTI DOT	11.6	8.8	0.77 (0.71-0.82)	13.6	12.7	0.94 (0.87-1.01)
Quinolone DOT	17.6	9.8	0.56 (0.52-0.59)	21.8	12.0	0.55 (0.51-0.59)
Urine Cultures	5.7	2.7	0.48 (0.43-0.54)	5.1	3.0	0.59 (0.51-0.68)

**Conclusion.** Hospital expertise can aid NH in implementing ASP core elements and changing prescribing practices. Ownership by NH staff, leadership support, and a multidisciplinary approach are key for NH ASP success. Both NH achieved improvement, however, Facility X has greater potential for sustainability due in part to a full-time IP champion that made data actionable and fostered collaboration between disciplines.

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## 753. Antimicrobial Stewardship Program for Broad-Spectrum Oral Antibiotic Use in a Pediatric Emergency Department: an Interrupted Time-Series Analysis

Kahoru Fukuoka, MD<sup>1,2</sup>; Junichi Suwa, PharB, MS<sup>3</sup>; Hiroshi Higuchi, N/A<sup>4</sup>; Kotaro Araki, MD<sup>1</sup>; Takemi Murai, MD, PhD<sup>1</sup>; Mihoko Isogai, MD<sup>1</sup>; Yuta Aizawa, MD, PhD<sup>1</sup>; Takaya Shoji, MD<sup>1</sup>; Kentu Ito, MD<sup>1</sup>; Tetsuji Kaneko, MS<sup>2</sup>; Yoshihiko Morikawa, MD<sup>2</sup> and Yuho Horikoshi, MD<sup>1,1</sup>; Infectious Diseases, Tokyo Metropolitan Children's Medical Center, Tokyo, Japan, <sup>2</sup>Clinical Research Support Center, Tokyo Metropolitan Children's Medical Center, Tokyo, Japan, <sup>3</sup>Pharmacy, Tokyo Metropolitan Children's Medical Center, Tokyo, Japan, <sup>4</sup>Microbiology, Tokyo Metropolitan Children's Medical Center, Tokyo, Japan

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**Background.** Oral third-generation cephalosporins are often inappropriately prescribed at outpatient clinics in Japan for mild infections by viruses and bacteria susceptible to agents with a narrower spectrum despite the absence of any recommendations for the use of these drugs as a first-line treatment in the existing guidelines. Our aim was to evaluate an antimicrobial stewardship program (ASP) targeting outpatient use of oral third-cephalosporins at an emergency department.

**Methods.** Patients visiting the emergency department (ED) at Tokyo Metropolitan Children's Medical Center in Japan between March 2010 and May 2016 were included. The first period (pre-intervention) between March 2010 and September 2010 had no ASP; the second period (intervention 1) between October 2010 and March 2013 had an ASP with consultations with an infectious diseases physician and a no-antibiotic policy for the common cold; and the third period

(intervention 2) between April 2013 and May 2016 included an ASP with the requirement for permission to prescribe oral third-generation cephalosporins. We compared the number of prescriptions for third-generation cephalosporin's prescriptions among the three periods. Antibiotic use was calculated by the number of prescriptions per 1,000 ED visits.

**Results.** In total 232,548 patients were included. Oral antibiotics were prescribed for 13,227 cases (5.7%). Boys numbered 7,440 (66%), and the median age was 54 months (IQR: 27-98 months). After interventions 1 and 2, the use of oral third-generation cephalosporins declined from 19 per 1,000 ED visits in the pre-intervention period to 6.6 per 1,000 ED visits during intervention 1 (-4.0; 95% CI -6.3 to -1.7,  $P = 0.001$ ) and 0.10 per 1,000 ED visits during intervention 2 (-0.31; 95% CI -1.8 to 1.2,  $P = 0.675$ ).

**Conclusion.** The ASP at our ED was effective in decreasing the prescription of oral third-generation cephalosporins.

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## 754. Don't Ask, Don't Tell: Quality of $\beta$ -Lactam Allergy Assessment in Patients with Methicillin-Susceptible *Staphylococcus aureus* (MSSA) Infections at a Tertiary-Care VA Medical Center

Ukwen Akpoji, Pharm.D.<sup>1</sup>; Usha Stiefel, MD<sup>2</sup>; Federico Perez, MD<sup>3</sup>; James Fernandez, MD<sup>3</sup>; Christopher Burant, PhD<sup>4</sup> and Shararie Sims, Pharm.D., BCPS (AQ-ID)<sup>4</sup>;

<sup>1</sup>Pharmacy, Louis Stokes Cleveland Department of Veterans Affairs Medical Center, Cleveland, Ohio, <sup>2</sup>Case Western Reserve University, Cleveland, Ohio, <sup>3</sup>Louis Stokes Cleveland VA Medical Center, Cleveland, Ohio, <sup>4</sup>Louis Stokes Cleveland Department of Veterans Affairs Medical Center, Cleveland, Ohio

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**Background.**  $\beta$ -Lactams (BL) are optimal therapy for MSSA infections; however allergies to BL are reported frequently and may alter antibiotic selection for these infections. Limited data exist evaluating the frequency at which a new BL allergy history (AH) is taken when patients present with MSSA infections.

**Methods.** We conducted a 10-year retrospective review of patients treated for MSSA infections with report of BL allergy in the allergy section of the electronic medical record (EMR). Acquisition of new AH on initiation of empiric or definitive MSSA antimicrobial therapy was reviewed. Standard allergy characterization questions assess (1) age at BL reaction, (2) recollection of reaction, (3) timing from BL to reaction, (4) route of administration, (5) rationale for BL, (6) prior BL tolerance, (7) confounding medications, and (8) symptom resolution. A new AH was considered inappropriate if 0/8 items were addressed. Types of infection, types of allergic reaction, BL agents, adverse events and treatment failure rates were also analyzed.

**Results.** Providers seeing 142 MSSA-infected patients with EMR-based BL AH did not gather any new AH 59% of the time (83/142). Of those, 36% (30/83) of patients had an "unknown" AH in the EMR, yet no new AH was taken prior to MSSA therapy selection. When a new AH was taken, previous BL exposure (29%), recall of reaction (41%), and symptoms (83%) were the most asked questions. The likelihood of exploring past BL exposure (predictor of ability to tolerate current BL) increased from 17 to 42% when 2 vs. 3 questions were assessed, respectively. Most interestingly, new provider-verified symptoms differed from prior documentation in the allergy section of the EMR 65% of the time. The most common MSSA infections treated were skin infections (34%) and bacteremia (32%). Overall, no significant differences in treatment failures and adverse events were found between patients treated with BL and non-BL therapy, perhaps due to heterogeneity of infection types.

**Conclusion.** In ~40% of cases, new BL allergy histories were not obtained prior to initiating treatment of MSSA infections, despite our data suggesting AH reassessment uncovers new, clinically relevant information. Routine incorporation of better AH can enhance antimicrobial stewardship programs.

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## 755. Promoting Judicious Antibiotic Use: Results of an Outpatient-Based Randomized EMR-generated intervention study

Anna Stachel, MPH, CIC<sup>1</sup>; Adam Szercensky, DO<sup>2</sup>; Claudia Pulgarin, MA, MS<sup>3</sup>; Natalie Fucito, RN<sup>4</sup> and Vinh Pham, MD<sup>4,1</sup>; Infection Prevention and Control, NYU Langone Medical Center, New York, New York, <sup>2</sup>Mit Clinical Informatics, NYU Langone Health System, New York, New York, <sup>3</sup>Population Health, NYU School of Medicine, New York, New York, <sup>4</sup>NYU Langone Health System, New York, New York

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**Background.** According to the CDC, up to 50% of antibiotic (abx) prescriptions are not needed or inappropriate—often used too long or too broadly. Repercussions include multidrug resistance, adverse reactions, and increased incidence and mortality from *Clostridium difficile*. A JAMA study demonstrated that IDSA guidelines can influence abx prescribing patterns positively for genitourinary infections.

In this electronic age, interventions include providing direct access to guidelines through a Best Practice Alert (BPA) embedded within electronic medical records (EMR). This assists clinicians when recommending abx. The study's goal was to improve compliance with guidelines when treating uncomplicated UTIs at outpatient sites by using targeted education and Clinical Decision Support (CDS).

**Methods.** Outpatient sites were randomized with matching into two groups: BPA intervention group (IG) (71 sites; 4,555 visits) or control group (CG) (56 sites; 2,078 visits). The BPA listed the appropriate abx regimens according to guidelines. A second