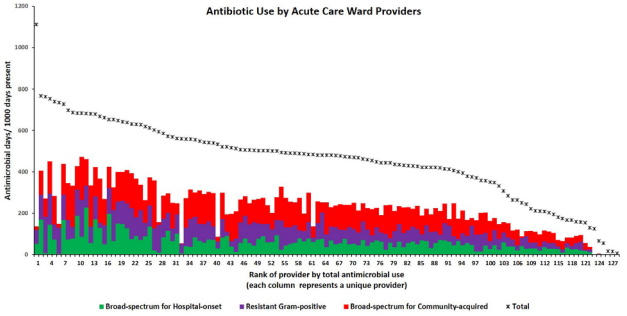
reports of inpatient antibiotic prescribing by hospitalists attending on acute medical wards in VA medical facilities.

Methods. We created algorithms for determining the attending physician responsible for patient days present (DP), by considering changes of service (e.g., prior to admission from the emergency department) and transfers between services or physicians. Each antibiotic dose was assigned to a single attending, ward location, and service according to denominator assignment. Antibiotic use was grouped into Centers for Disease Control and Prevention drug categories and expressed as antibiotic days of therapy (DOT) per 1000 DP. Data were obtained from the VA Corporate Data Warehouse. Algorithms were iteratively refined based on reviews of medical records from three VA medical centers and applied to acute care patients at a single site for 2018-2020.

Results. In 2018-2020, 294 attendings oversaw acute inpatient care for >= 14 DP. 129 attendings with >= 300 DP oversaw 88.0% of all patient care and prescribed 87.6% of all antibiotics (480 DOT/1000 DP, IQR 375-559), 90.1% of broad-spectrum therapy for hospital-onset infections (55 DOT/1000 DP, IQR 31-72) and 88.3% of resistant Gram-positive therapy (70 DOT/1000 DP, IQR 39-89) in inpatient wards. The distribution of antibiotic use for acute care ward patients amongst these 129 staff is shown in the following figure.



Conclusion. We developed algorithms to attribute antibiotic therapy to inpatient attendings that can be broadly applied in facilities with electronic medical records. As with outpatient prescribing, we found large variation across inpatient attendings in overall antibiotic use and broad-spectrum antibiotic use. In future work, we will obtain provider feedback of report usability and interpretability and assess whether distribution of these reports allows antibiotic stewards to favorably influence provider prescribing practices.

Disclosures. **Matthew B. Goetz, MD**, Nothing to disclose **Arjun Srinivasan, MD**, Nothing to disclose

13. INSPIRE-ASP Pneumonia Trial: A 59 Hospital Cluster Randomized Evaluation of INtelligent Stewardship Prompts to Improve Real-time Empiric Antibiotic Selection versus Routine Antibiotic Selection Practices for Patients with Pneumonia

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Safety and Healthcare Epidemiology Prevention Research Development (SHEPheRD) Program

Session: O-03. Building Your Toolkit for HAI Surveillance and Stewardship

Background. Up to 40% of hospitalized patients receive unnecessary or inappropriately broad antibiotics despite a low risk of multidrug-resistant organism (MDRO) infection. Empiric standard spectrum antibiotic use would reduce extended-spectrum (ES) antibiotic exposure and future resistance. We evaluated whether computerized prescriber order entry prompts providing patient-specific MDRO risk estimates could reduce ES antibiotic use compared to routine stewardship practices in patients hospitalized with pneumonia.

Methods. This 59 hospital cluster-randomized trial compared: 1) INSPIRE prompts providing patient-specific MDRO pneumonia risk estimates at order entry and recommended standard spectrum antibiotics for risk < 10% versus 2) routine stewardship practices. Prompt used an absolute MDRO risk algorithm based on a 140 hospital data set. Trial population included adults treated with antibiotics for pneumonia in ED or non-ICU wards in first 3 days of admission (empiric days); prompt was triggered if ES antibiotics were ordered. Prescribers received feedback on prompt response. Trial periods: 18-month Baseline (Apr 2017–Sept 2018); 6-month Phase-in (Oct 2018–Mar 2019); 15-month Intervention (Apr 2019 – June 2020). Primary outcome was ES antibiotic days of therapy (ES-DOT) per empiric day; secondary outcomes were a) vancomycin and b) anti-pseudomonal DOT per empiric day. Unadjusted, as-randomized analyses used generalized linear mixed effects models to assess differences in ES-DOT rates between the intervention vs baseline period across arms (difference in differences), while clustering by patient and hospital.

Results. We randomized 59 hospitals in 12 states, with 59,897 and 51,486 non-ICU pneumonia admissions in baseline and intervention periods, respectively. Intervention group had a 33% reduction in ES-DOT compared to routine care. Vancomycin and anti-pseudomonal DOT were similarly reduced in the intervention group by 27% and 33%, respectively (Table).

Table: Group Comparisons for Outcomes of INSPIRE-ASP Pneumonia Trial

Strategy	Baseline DOT Rate[1]	Intervention DOT Rate[1]	Rate Ratio (97.5% CI)[2]	Difference-in-Differences	P-value[2]
AS RANDOMIZED ANALYSIS					
PRIMARY OUTCOME: Extended-Spectrum Days of Therapy					
Routine Stewardship	652	630	0.98 (0.96-1.01)	INSPIRE Prompt with 33% reduction	<0.001
INSPIRE Prompt Intervention	633	443	0.66 (0.64-0.68)		
SECONDARY OUTCOME: Vancomycin Days of Therapy					
Routine Stewardship	248	223	0.90 (0.87-0.92)	INSPIRE Prompt with 27% reduction	<0.001
INSPIRE Prompt Intervention	241	164	0.66 (0.63-0.68)		
SECONDARY OUTCOME: Anti-Pseudomonal Days of Therapy					
Routine Stewardship	367	370	1.02 (1.00-1.05)	INSPIRE Prompt with 33% reduction	<0.001
INSPIRE Prompt Intervention	353	249	0.69 (0.67-0.70)		

[1] DOT Rate: DOT per empiric day (first 3 days of hospitalization) expressed with multiplier 1,000 empiric days.
[2] P-value assessed at two-tailed significance set at alpha = 0.025 for null hypothesis that the relative rate ratio in each arm is not different.
^ Abbreviations: DOT = Days of Therapy; CI = Confidence Interval

Conclusion. INSPIRE order entry prompts providing real-time, patient-specific MDRO risk estimates with recommendation to use standard spectrum antibiotics in low risk patients significantly reduced empiric ES prescribing in adults admitted with pneumonia.

Disclosures. **Shruti K. Gohil, MD, MPH**, **Medline** (Other Financial or Material Support, Co-Investigator in studies in which participating hospitals and nursing homes received contributed antiseptic and cleaning products)**Molnlycke** (Other Financial or Material Support, Co-Investigator in studies in which participating hospitals and nursing homes received contributed antiseptic and cleaning products)**Stryker (Sage)** (Other Financial or Material Support, Co-Investigator in studies in which participating hospitals and nursing homes received contributed antiseptic and cleaning products) **Edward Septimus, MD**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic products)**Molnlycke** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic products) **Ken Kleinman, PhD**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic products)**Molnlycke** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic products) **Lauren Heim, MPH**, **Medline** (Other Financial or Material Support, Conducted clinical trials and studies in which participating hospitals and nursing homes received contributed antiseptic and cleaning products)**Molnlycke** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product)**Stryker (Sage)** (Other Financial or Material Support, Conducted clinical trials and studies in which participating hospitals and nursing homes received contributed antiseptic product)**Xttrium** (Other Financial or Material Support, Conducted clinical trials and studies in which participating hospitals and nursing homes received contributed antiseptic product) **Syma Rashid, MD**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product)**Stryker (Sage)** (Other Financial or Material Support, Conducted clinical trials and studies in which participating hospitals and nursing homes received contributed antiseptic product)**Xttrium** (Other Financial or Material Support, Conducted clinical trials and studies in which participating hospitals and nursing homes received contributed antiseptic product) **Taliser R. Avery, MS**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product)**Molnlycke** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product) **Kenneth Sands, MD, MPH**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product) **Julia Moody, MS**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product)**Molnlycke** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product) **Micaela H. Coady, MS**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product)**Molnlycke** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic

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14. Effects of an Opt-Out Protocol for Antibiotic De-escalation among Selected Patients with Suspected Sepsis: The DETOURS Trial

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The CDC Prevention Epicenters Program

Session: O-03. Building Your Toolkit for HAI Surveillance and Stewardship

Background. Sepsis guidelines recommend daily review to de-escalate or stop antibiotics in appropriate patients. We conducted a randomized controlled trial (NCT03517007) of an opt-out protocol to decrease unnecessary antibiotics in selected patients with suspected sepsis.

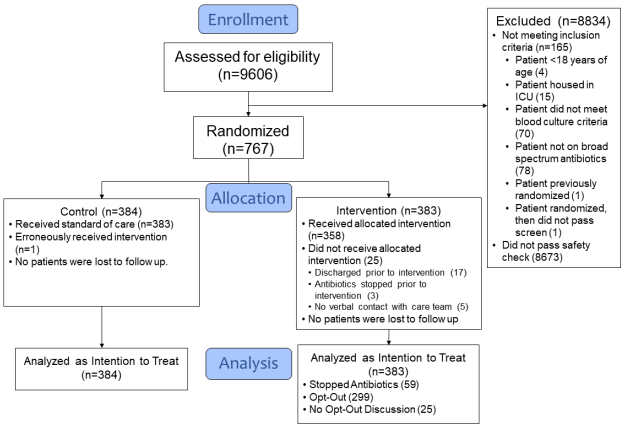
Methods. We evaluated non-ICU adults remaining on broad-spectrum antibiotics with negative blood cultures at 48-96 hours at ten U.S. hospitals during September 2018-May 2020. A 23-item safety check excluded patients with ongoing signs of infection, concerning or inadequate microbiologic data, or high-risk conditions (Figure 1). Eligible patients were randomized to the opt-out protocol vs. usual care. The primary outcome was 30-day post-enrollment antibacterial days of therapy (DOT). Clinicians caring for intervention patients were contacted by a pharmacist or physician to encourage antibiotic discontinuation or de-escalation using opt-out language, discuss rationale for continuing antibiotics, working diagnosis, and de-escalation and duration plans. Hurdle models separately compared the odds of antibiotic continuation and DOT distributions among those who continued antibiotics.

Components of the De-Escalating Empiric Therapy: Opting-OUt of Rx in Selected patients with Suspected Sepsis (DETOURS) Trial Protocol

DETOURS Protocol Component	Criteria or Intervention
1. Screening for suspected sepsis at 48-96 hours after blood culture collection	• Hospitalized adult in non-intensive care unit. • Blood cultures negative (or indicating skin contaminant). • Patient remains on broad-spectrum antibiotics.
2. Safety Check (Must exclude all)	• Ongoing signs or symptom of infection Continued fever, new chest X-ray infiltrate, empyema or lung abscess, continued leukocytosis • Concerning or inadequate microbiologic data Positive blood cultures not indicating contaminant, positive non-blood microbiology, no cultures during sepsis work up, antibiotic use prior to blood culture • High-risk comorbidity or severe illness Bronchiectasis, cystic fibrosis, asplenia, pregnant, recent I&D procedure, ongoing respiratory insufficiency, immunocompromised, osteomyelitis, endocarditis
3. Randomize	1:1 Randomization
4. Opt-Out Discussion	Interact with the treatment team using the following language: "[This patient] passed the safety screen for de-escalation of antibiotics. Antibiotics will be stopped per protocol unless you opt-out."
5. Guided De-escalation Discussion for clinicians who choose to continue antibiotics.	Engage with treatment team and document answers to 4 questions: 1. "Why should antibiotics be continued in this patient?" 2. "What is the patient's infection diagnosis?" 3. "Can you narrow the breadth of antibacterial coverage to the most likely pathogens?" 4. "If the patient remains stable and no new clinical data emerge to suggest a different diagnosis, do you have an empiric de-escalation and/or duration of therapy plan?"

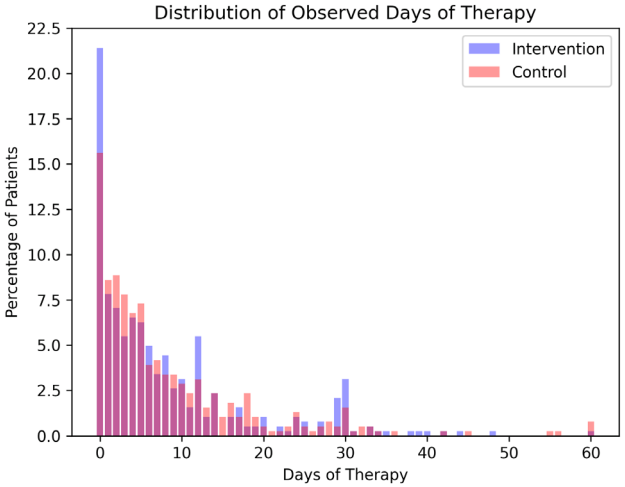
Results. Among 9606 screened, 767 (8%) were enrolled (Figure 2). Common reasons for exclusion were antibiotics given prior to blood culture (35%), positive culture from non-blood sites (26%), and increased oxygen requirement (21%). Intervention patients had 32% lower odds of antibiotic continuation (79% vs. 84%, OR 0.68, 95% confidence interval [0.47, 0.98]). DOT distributions among those who continued antibiotics were similar (ratio of means 1.06 [0.88-1.26], Figure 3). Fewer intervention patients were exposed to extended-spectrum agents (38% vs. 44%). Common reasons for continuing antibiotics were treatment of localized infection (76%) and belief that stopping antibiotics was not safe (31%). Safety outcomes such as mortality, readmission, sepsis relapse, *C. difficile*, and length of stay did not differ.

DETOURS Trial Flow Diagram



Flow of participants through the DETOURS Trial.

Observed Days of Antibiotic Therapy Among Intervention and Control Subjects in the DETOURS Trial



Post-enrollment days of antibiotic therapy among 767 DETOURS Trial participants in 10 US acute care hospitals within 30 days after enrollment. Dark pink color indicates percent overlap between intervention (purple) and control (light pink) groups.

Conclusion. In this patient-level randomized trial of a stewardship intervention, the opt-out de-escalation protocol targeting selected patients with suspected sepsis resulted in more antibiotic discontinuations but did not affect safety events.