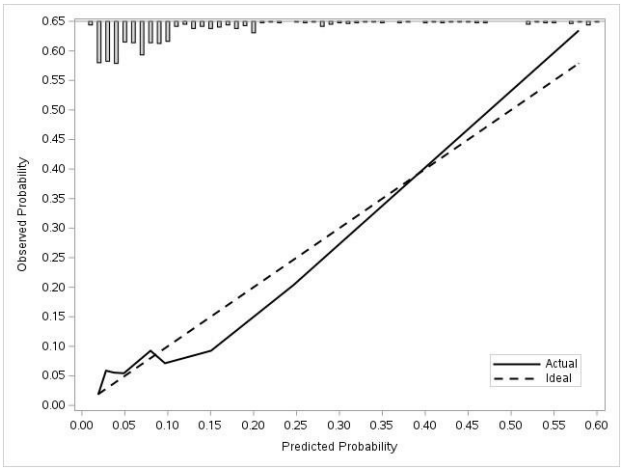
(2.14 [1.20, 3.79]), receipt of previous azole therapy (5.47 [2.92, 10.26]), bone marrow transplant (2.63 [1.31, 5.29]), and myelodysplastic syndrome (3.13 [1.14, 8.60]). The model predicted fluconazole sensitivity well (c-statistic 0.788) and all the variables were stable (Figure 1).

Figure 1. Graph comparing observed versus expected probability of fluconazole resistance. Bars included on the top parameter of the graph indicate the number of individuals, illustrating the distribution of the sample.



Conclusion: The presented model provides a potential tool for identifying the 80% of patients at low enough risk for fluconazole resistance to receive empiric therapy with azoles and reduce use of echinocandins.

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169. Development of a Real Time Electronic Algorithm to Identify Hospitalized Patients with Community-Acquired Pneumonia

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Session: P-6. Antimicrobial Stewardship: Program Development and Implementation

Background: Syndrome-based antibiotic stewardship can be limited by difficulty in finding cases for evaluation. We developed an electronic extraction algorithm to prospectively identify CAP patients.

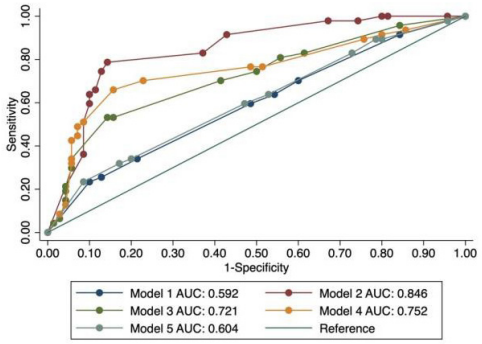
Methods: We included non-oncology patients ≥18 years old admitted to The Johns Hopkins Hospital from 12/2018 to 3/2019 who 1) received common CAP antibiotics for ≥48 hours after admission and 2) had a bacterial urinary antigen and chest imaging ordered within 48 hours of admission that was not for assessment of endotracheal tube or central line placement. Charts of patients meeting these criteria were reviewed by 2 authors to identify true cases of CAP based on IDSA guidelines. Cases identified in 12/2018 (n=111) were used to explore potential indicators of CAP, and cases identified 1–3/2019 (n=173) were used to evaluate combinations of indicators that could identify patients treated for CAP who did have CAP (true CAP) and did not have CAP (false CAP). This cohort was divided into a training and a validation set (2/3 and 1/3, respectively). Potential indicators included vitals signs, laboratory data and free text extracted via natural language processing (NLP). Predictive performance of composite indicators for true CAP were assessed using receiver-operating characteristics (ROC) curves. The Hosmer-Lemeshow goodness fit test was used to test model fit and the Akaike Information Criteria was used to determine model selection.

Results: True CAP was observed in 41% (71/173) of cases and 14 potential individual indicators were identified (Table). These were combined to make 45 potential composite indicators. ROC curves for selected composite indicators are shown in the Figure. Models without use of NLP-derived variables had poor discriminative ability. The best model included fever, hypoxemia, leukocytosis, and "consolidation" on imaging with a sensitivity and positive predictive value 78.7% and specificity and negative predictive value of 85.7%.

Table. Indicators evaluated to identify patients with CAP

Free-text indicators	Vital signs indicators	Laboratory indicators
• Chief complaint of fever or chills • Radiographic report of consolidation • Radiographic report of infiltrate	• Temperature ≥38°C • Temperature ≤36°C • Respiratory rate ≥24r/min • Supplemental O_2 • Oxygen saturation <92%	• WBC >12,000 cells/mm^3 • WBC <4,000 cells/mm^3 • ProBNP=0-125pg/mL • *S. pneumoniae* or *L. pneumophila* urinary antigen • Sputum or blood culture positive for *S. pneumoniae* or *L. pneumophila*

Figure. ROC curves for composite indicators



Model 1 (No NLP): Temperature ≥38°C, hypoxemia (supplemental O_2 or oxygen saturation <92%), leukocytosis (WBC >12,000 cells/mm^3). **Model 2**: model 1 plus "consolidation" on CXR or CT. **Model 3**: model 1 plus "consolidation" on CXR only. **Model 4**: model 1 plus "consolidation" on CT only. **Model 5**: model 1 plus "infiltrate" on CT only.

Conclusion: Patients with CAP can be identified using electronic data but use of NLP-derived radiographic criteria is required. These data can be linked with data on antibiotic use and duration to develop reports for clinicians regarding appropriate CAP diagnosis and treatment.

Disclosures: **All Authors**: No reported disclosures

170. Development of Key Indicators for Appropriate Antibiotic Use in Republic of Korea: a Systematic Review followed by Delphi Procedure

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Korea Study Group for Antimicrobial Stewardship (KOSGAP)

Session: P-6. Antimicrobial Stewardship: Program Development and Implementation

Background: The aim of this study was to develop a set of key quality indicators (QIs) for application to nationwide point surveillance of appropriateness of antibiotic usage in Republic of Korea.

Methods: A systematic literature review was performed in order to retrieve a list of potential key QIs. These candidates were evaluated by multidisciplinary expert panel using a RAND-modified Delphi procedure, using two online questionnaires and a face-to-face meeting between them. Twenty-five expert panels with diverse backgrounds (infectious diseases specialist, urologist, laboratory medicine doctors, pediatric infectious disease specialists, otorhinolaryngology doctors, gastrointestinal doctors, pulmonologist, general surgeon, and researcher in National Evidence-Based Healthcare Collaborating Agency) participated in the consensus procedure. A Likert scale (ranging 1–7) was used for the evaluation of appropriateness of the potential key QIs and items with median score 6 or 7 were accepted if there was no disagreement. In addition, we grade each QI into admission, outward, or surgical prophylaxis using the Likert scale. If the score was 6 or 7, we considered it as appropriate application.

Results: The systematic literature review identified 23 potential QIs, from 21 studies. Ultimately, 17 key indicators were retained, with a high level of agreement (13 QIs for admitted patients, 7 for outward patients and 3 for surgical prophylaxis) (Figue 1). After sum of importance score and applicability, 6 key QIs [6 QIs (1–6) for admitted patients and 3 (1, 2 and 5) for outward patients] were finally selected: (1) prescribe empirical antibiotic therapy according to guideline, (2) change empirical to pathogen-directed therapy, (3) take cultures from suspected sites of infection, (4) take 2 blood cultures, (5) adapt antibiotic dosage to renal function, and (6) document antibiotic plan (Table 1). In surgical prophylaxis, prescribe according to guideline and initiate antibiotics one hour before incision was finally selected (Table 2).

Figure 1. Flowchart of the study

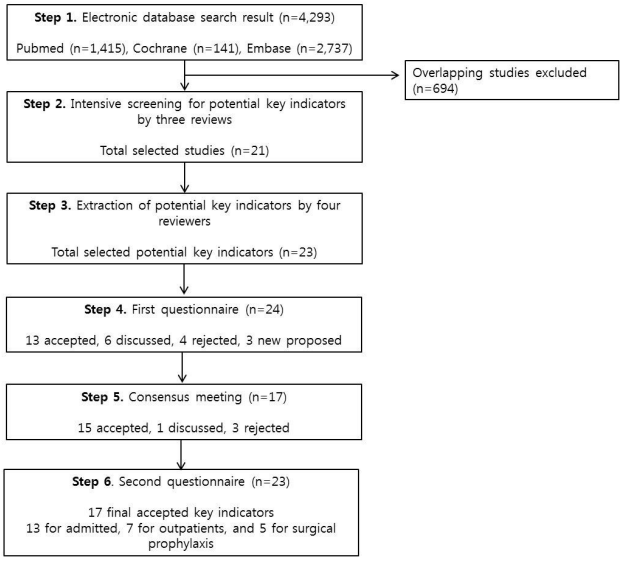

Table 1. Ranking in key indicators for admitted and out patients and applicability in point surveillance study.

Table 1. Ranking in key indicators for admitted and out patients and applicability in point surveillance study.

	Inpatients			Outpatients		
Quality indicators	Ranking	Total score	Applicability	Ranking	Total score	Applicability
▶ Empirical systemic antibiotic therapy should be prescribed according to the institutional, national, or international guideline	1	114	Yes	1	114	Yes
▶ Empirical antibiotic therapy should be changed to pathogen-directed therapy if culture results become available	2	109	Yes	2	109	Yes
▶ When starting systematic antibiotic therapy, specimens for culture from suspected sites of infection should be taken as soon as possible, preferably before antibiotics are started	3	103	Yes			
▶ Before starting systemic antibiotic therapy, at least two sets of blood cultures should be taken	4	100	Yes			
▶ Dose and dosing interval of systemic antibiotic therapy should be adapted to renal function	5	96	Yes	3	96	Yes
▶ Antibiotics should be prescribed in appropriate duration	6	92	No	4	92	No
▶ An antibiotic plan should be documented in the case notes at the start of systemic antibiotic therapy	7	89	Yes			
▶ Empirical antibiotic therapy for presumed bacterial infection should be discontinued based on the lack of clinical and/or microbiological evidence of infection. The maximum duration of empirical systemic antibiotic treatment should 87 be 7 days	8	88	No	5	88	No
▶ Contraindications (history of allergy, anaphylaxis, or toxicity) should be taken into account when prescribing antibiotics	9	87	No	6	87	No
Antibiotics with anaerobic activity combination of two or more antimicrobials	10	84	No			
▶ Systemic antibiotic therapy should be switched from i.v. to oral antibiotic therapy within 48-72 hr on the basis of the clinical condition and when oral treatment is adequate	11	82	No			
▶ Follow up cultures 4-7 days after initial blood culture positivity (bloodstream infection due to *Staphylococcus aureus* and fungi)	12	69	No			
▶ Therapeutic drug monitoring should be performed when the therapy duration is >3 days for aminoglycosides and >5 days for vancomycin	13	52	No	7	84	No

Table 2. Ranking in key indicators for surgical prophylaxis and applicability in point surveillance study.

Table 2. Ranking in key indicators for surgical prophylaxis and applicability in point surveillance study.

Quality indicators	Ranking	Total score	Applicability
▶ Surgical prophylaxis antibiotic therapy should be prescribed according to guideline	1	113	Yes
▶ Surgical prophylaxis antibiotic therapy should be initiated within 1 hr before incision	2	109	Yes
▶ Surgical prophylaxis antibiotic therapy should be discontinued within 1 day	3	103	No
▶ Antibiotics should be prescribed in appropriate duration	4	92	No
▶ Dose of surgical prophylaxis antibiotics should be adjusted according to body weight	5	58	No

Conclusion: We identified key QIs to measure the appropriateness of antibiotics. These QIs can be used to identify targets for improvement and to evaluate the effects of antibiotic stewardship intervention.

Disclosures: **All Authors**: No reported disclosures

171. Effectiveness and Feasibility of Pharmacist-Driven Penicillin Allergy De-Labeling Pilot Program

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Session: P-6. Antimicrobial Stewardship: Program Development and Implementation

Background: Prevalence of true hypersensitivity to penicillins is low (0.5–2%). Documented penicillin allergies have been associated with an increased risk of adverse outcomes, including methicillin resistant Staphylococcus aureus infections, Clostridioides difficile infections, and surgical site infections. "De-labeling" of inappropriately documented allergies can decrease the use of unnecessary broad-spectrum antibiotics and prevent negative outcomes, but labor-intensive skin testing and oral challenges can be a barrier to program implementation. The goal of this project is to assess the effectiveness and feasibility of a pharmacist-led penicillin allergy de-labeling process that does not involve skin testing or oral challenges.

Methods: Adult patients with penicillin allergies were identified using a report within the electronic health record during a 3-month pilot period. Patients identified were interviewed by an infectious diseases pharmacy resident, and an allergy history was assessed utilizing a standardized checklist. The patients' answers determined the ability to de-label via pharmacist utilization of an evidence-based and standardized checklist developed for this project. All documentation included a detailed patient allergy history along with a beta-lactam cross-reactivity chart to help guide future antibiotic choices.

Results: 66 patients were interviewed during the pilot. 12 patients (18%) met criteria for de-labeling and consented to the removal of the allergy. 4 patients (6%) met criteria for de-labeling but declined the removal of the allergy. Average time spent during patient interview was 5.2 minutes per patient. 58.3% of patients (7/12) who were de-labeled were subsequently prescribed a beta-lactam, and 100% (7/7) were able to tolerate the agents. 1 out of 4 patients (25%) who declined de-labeling but had their allergy updated to reflect intolerance was prescribed beta-lactams and was able to tolerate the agents (1/1, 100%).

Conclusion: A pharmacist-led penicillin allergy de-labeling process utilizing a standardized checklist is an effective method for removing penicillin allergies in patients who do not have a true allergy to penicillins. This pharmacist-led process is a feasible method for sites unable to perform oral challenges or skin testing.

Disclosures: **All Authors**: No reported disclosures

172. Evaluation of Multifaceted Antimicrobial Stewardship Interventions on The Treatment of Asymptomatic Bacteriuria

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Session: P-6. Antimicrobial Stewardship: Program Development and Implementation

Background: Treatment of asymptomatic bacteriuria (ASB) and asymptomatic candiduria (ASC) is a leading cause of inappropriate use of antimicrobial therapy in many healthcare facility, and has been associated with undesirable outcomes such as Clostridium difficile infection, longer length of stay, long-term antibiotic resistance, and delayed time back to baseline activity. This evaluation was designed to utilize a pharmacy-driven multifaceted antimicrobial stewardship intervention to reduce the number of antibiotic treatment days in patients with ASB/ASC

Methods: This retrospective single-center study included hospitalized adult patients with a positive urinalysis and/or a positive urine culture with or without antimicrobial therapy from January-March 2019, compared to patients from January-March 2020 after initiation of a multifaceted antimicrobial stewardship intervention, including daily prospective audit and feedback. The primary outcome was the number