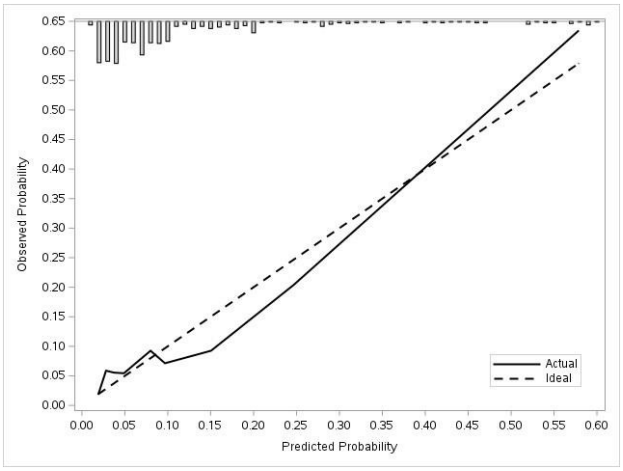
(2.14 [1.20, 3.79]), receipt of previous azole therapy (5.47 [2.92, 10.26]), bone marrow transplant (2.63 [1.31, 5.29]), and myelodysplastic syndrome (3.13 [1.14, 8.60]). The model predicted fluconazole sensitivity well (c-statistic 0.788) and all the variables were stable (Figure 1).

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.

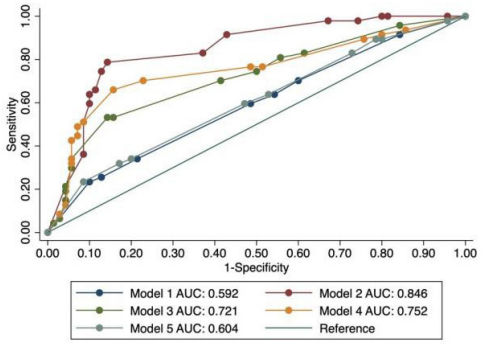
Methods: We included non-oncology patients ≥18 years old admitted to The Johns Hopkins Hospital from 12/2018 to 3/2019 who 1) received common CAP antibiotics for ≥48 hours after admission and 2) had a bacterial urinary antigen and chest imaging ordered within 48 hours of admission that was not for assessment 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.

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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.