Conclusion. Development of an ED-specific antibiogram can aid physicians in prescribing appropriate empiric therapy when risk factors are included.

Disclosures. **All authors:** No reported disclosures.

708. Evaluating Patient-Specific Antibiograms

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Background. Generating antibiograms has been standard practice in many hospitals for decades, and many guidelines recommend updating the data on a yearly basis. While effective at summarizing a hospital's susceptibility data across all patients, likelihoods of susceptibility are not the same for all patients. Traditional antibiograms do not account for the numerous patient-specific factors (age, length of stay, diagnoses, previous antibiotic exposure and susceptibility results, etc.) that are known to influence a patient's risk of having a resistant organism. We have built models that use patient-specific information to generate patient-specific antibiograms. Three methods for evaluating a model's performance are presented.

Methods. Calculating Brier scores is the commonly used method to evaluate the performance of predictions that give the percentage likelihood of a binary event. We used Brier scores and two new methods we created (dispersion scores and susceptibility histograms) to evaluate patient-specific antibiograms we built. As an example of the methods, we present data from Mar-Jul 2016 on 3012 *E. coli* isolates and their susceptibility to levofloxacin.

Results. In the standard institutional antibiogram for the time period 75% of *E. coli* isolates were susceptible to levofloxacin. Our patient-specific antibiogram had a dispersion score of 73 (100 representing perfect dispersion, the standard antibiogram has a dispersion score of 0). In the susceptibility histogram the patient-specific antibiogram showed a predicted susceptibility of 90% or greater for 1716 (57%) of the 3012 isolates, and the actual susceptibility for that group was 96%. It also showed a predicted susceptibility less than 10% for 438 (15%) of the 3012 isolates, and the actual susceptibility for that group was 1%. Brier scores were 61% better for the patient-specific antibiogram (Brier = 0.24) than for the standard antibiogram (Brier = 0.62).

Conclusion. By these methods patient-specific antibiograms are better than standard antibiograms at providing numerical predictions of the likely susceptibility of *E. coli* to levofloxacin. The methods can be used to guide and evaluate improvement to the models that generate patient-specific antibiograms.

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709. The Regional Antibiogram Is an Important Public Health Tool to Improve Empiric Antibiotic Selection, *Stenotrophomonas maltophilia* As A Case Example

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Background. Early appropriate antibiotic selection is life saving in sepsis. Facility-level antibiograms inform antibiotic selection after pathogen identification and before susceptibility results are available, but only if ≥ 30 isolates from a given species are tested in the prior year. *Stenotrophomonas maltophilia* (SM) has a complex resistance profile and is associated with an 8-fold mortality increase. We hypothesized that a regional antibiogram may help inform clinical decision-making for severe SM infections.

Methods. To generate a regional SM antibiogram, we conducted a cross-sectional, voluntary survey of 2015 cumulative facility-level antibiograms from all hospitals in LA county. Non-respondents were contacted to improve response rates. Isolates from sterile sources were pooled. Susceptibility was aggregated and percent susceptible was calculated only when all isolates were tested, i.e. not reflex testing. To identify optimal combination empiric therapy for SM infections, we generated a combination antibiogram using broth microdilution results from a single tertiary care facility in LA.

Results. Antibiograms were submitted by 85/100 (85%); 50 hospitals (59%) reported SM (n = 1719 isolates, Table 1). Hospitals commonly (25/50) reported data for <30 isolates. The combination antibiogram for SM is presented in Table 2. Four hospitals reported susceptible results for antibiotics to which SM is intrinsically resistant (ceftriaxone, meropenem, aminoglycosides). After SXT, the most active antibiotics against SM were not routinely tested by the majority of laboratories (minocycline, colistin) (Table 2).

Conclusion. The LAC regional antibiogram represents one of the largest reports of SM susceptibility presented to date. Hospitals rarely tested sufficient numbers of SM isolates to provide reliable estimates for resistance and failed to report on clinically valuable treatment options. Regional antibiograms may help hospitals with low pathogen prevalence improve antibiotic selection and reduce mortality for uncommon but potentially deadly pathogens.

Table 1: Regional Antibiogram for *Stenotrophomonas maltophilia*

Stenotrophomonas maltophilia (n=1719 isolates, 50 Hospitals)		
	Susceptiblity (Range)	**Number Isolates (Number Hospitals)**
Ceftazidime	**37%** (0-58%)	848 isolates (n=18 Hospitals)
Cefepime	**30%** (0-45%)	135 isolates (n=2 Hospitals)
Cipro/Levo	**78%** (33-100%)	1182 isolates (n=35 Hospitals)
TMP/SMX	**90%** (62%-100%	1702 isolates (n=48 Hospitals)

Table 2: Combination Antibiogram for *Stenotrophomonas maltophilia* (n=100 isolates from a single tertiary care referral center)

	CAZ (33)	CZA (51)	CZT (42)	MIN (98)	LEVO (78)	SXT (99)	TIG (75)	COL (67)
CAZ (33)	-	51	43	99	81	99	81	89
CZA (51)	51	-	54	99	83	100	84	86
CZT (42)	43	54	-	99	79	99	82	87
MIN (98)	99	99	99	-	99	100	-	99
LEVO (78)	81	83	79	99	-	100	78	93
SXT (99)	99	100	99	100	100	-	100	100
TIG (75)	81	84	82	-	78	100	-	91
COL (67)	89	86	87	99	93	100	91	-

* CZA, CZT, COL interpreted according to Pseudomonas breakpoint. Tigecycline by <4 ug/mL
CAZ, ceftazidime; CZA ceftazidime-avibactam; CZT, ceftolozane-tazobactam; MIN, minocycline; LEVO, levofloxacin; SXT, Trimethoprim-sulfamethoxazole; TIG, tigecycline; COL, colistin

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710. Validation and Evaluation of Antimicrobial Orders Indication for Use

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Background. Documenting indication for antimicrobial use is a best practice and stewardship initiative recommended by the CDC. On September 20, 2016, a mandatory selection of antimicrobial indication as empiric, pathogen-directed, or prophylaxis was implemented for all prescribers within Cleveland Clinic Health System (CCHS), which comprises of an academic medical center and 8 community hospitals in Ohio, and 1 community hospital in Florida. This study sought to validate and describe prescriber-entered indications to ensure accurate measurement of prescribing patterns and guide future stewardship initiatives.

Methods. Retrospective study evaluating a 24-hour period on 10/19/2016 to manually validate indications of non-order set antimicrobials and describing antimicrobial indications from October 1–31, 2016. Validation of indications was done via chart review evaluating microbiology results. The primary endpoint was proportion of antimicrobial orders at CCHS with a validated indication for use. Secondary endpoints: prevalence of indications for antimicrobial use on a health-system and hospital-level and types of antimicrobials prescribed.

Results. On October 19, 2016, 899 antimicrobial orders were validated (Figure 1). Validated indications by prescriber type: 82% physicians, 80% pharmacists, and 78% advanced practice providers. During October 2016, there were 39,312 antimicrobials orders: 53% empiric, 31% prophylaxis, and 16% pathogen-directed. The trend in prevalence of indications being highest for empiric followed by prophylaxis then