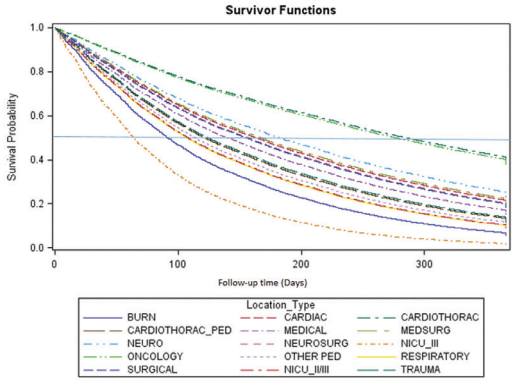
Table-2: Median survival time to event (median CLABSI-free time) among intensive care units (ICUs), NHSN, 2016

Sr. No.	ICU Location type	Median time to event (Days)	Survival probability (free of CLABSI)	(95%CI)
1	Neonatal ICU level-III	63	0.502	(0.477, 0.529)
2	Burn unit	90	0.504	(0.464, 0.548)
3	Respiratory	106	0.503	(0.386, 0.656)
4	Neonatal ICU level II/III	107	0.502	(0.472, 0.534)
5	Other pediatric unit	113	0.501	(0.475, 0.529)
6	Cardiothoracic (pediatrics)	121	0.501	(0.461, 0.545)
7	Trauma unit	124	0.500	(0.466, 0.536)
8	Medical unit	139	0.501	(0.482, 0.520)
9	Surgical unit	154	0.501	(0.477, 0.526)
10	Neurosurgical unit	156	0.501	(0.464, 0.541)
11	Cardiac unit	162	0.501	(0.474, 0.531)
12	Medical-Surgical unit	166	0.501	(0.487, 0.515)
13	Neuromedical unit	182	0.500	(0.436, 0.573)
14	Oncology unit	275	0.502	(0.319, 0.788)
15	Cardiothoracic unit	284	0.501	(0.476, 0.527)

Figure-1: Adjusted* survival curves demonstrating survival probability of CLABSI-free time by ICU location type



*Adjusted for the vector of sample means of hospital bed size (436.45), device utilization ratio (47.32%) and major teaching status (0.5359); Blue horizontal line represents median (50%) survival probability free of CLABSI; NICU = Neonatal ICU

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

1764. The Gut: A Veiled Reservoir for Multidrug-resistant Organisms (MDROs) Below the Tip of the Iceberg

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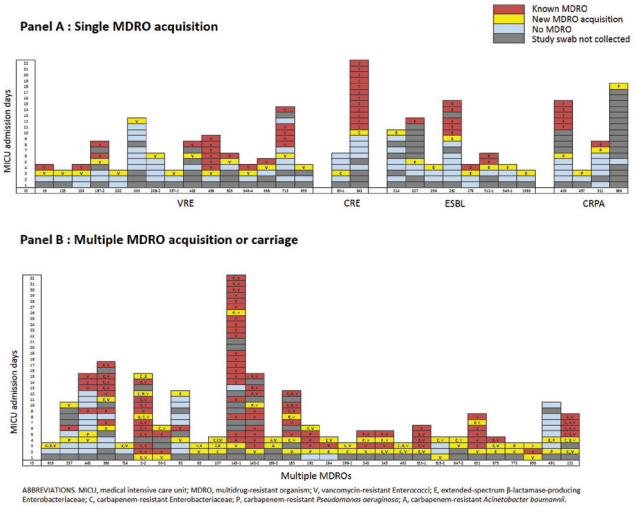
Background. Clinical culture results are sometimes used to estimate the burden of multidrug-resistant organisms (MDROs) in hospitals. The association between positive clinical culture results and prevalence of MDROs in the gut is incompletely understood.

Methods. Rectal swab or stool samples were collected daily from adult medical intensive care unit (MICU) patients and cultured for target MDROs using selective media between January 2017 and January 2018 at Rush University Medical Center, a 676-bed tertiary-care center in Chicago. Resistance mechanisms were confirmed by phenotypic methods and/or polymerase chain reaction. Clinical culture results during MICU stay were extracted from the hospital information system. Target MDROs included vancomycin-resistant Enterococci (VRE), carbapenem-resistant Enterobacteriaceae (CRE), extended-spectrum β-lactamase-producing Enterobacteriaceae (ESBL), carbapenem-resistant *Pseudomonas aeruginosa* (CRPA) and carbapenem-resistant *Acinetobacter baumannii* (CRAB). Patients with either a study or clinical culture positive for a target MDRO were analyzed.

Results. We collected 5,086 study samples from 1,661 unique admissions (1,419 patients) and included here data from 413 unique admissions (397 patients) with completed microbiologic analysis. Median (IQR) patient age was 65 (51–75) years and length of MICU stay was 3 (3–4) days. A total of 156 (37.8%) patients had a target MDRO detected from a study sample at any point; 57 (36.5%) patients had >1 MDRO detected. Overall prevalence of these MDROs was found to be 22.5% VRE, 6.5% CRE, 19.8% ESBL, 4.4% CRPA, and 0.7% CRAB. New MDRO acquisition was observed in 58 (14.6%) patients (figure). Once a target MDRO was detected in a study sample, 82.2% of subsequent study samples were positive for that MDRO. Only 13 (5.8%) patients had a positive clinical culture for any target MDRO during their MICU stay (table).

Conclusion. Clinical cultures capture only the tip of the resistance iceberg and alone are insufficient to guide MDRO-targeted prevention strategies. Universal infection prevention measures are an alternative that may be preferred in settings where overall prevalence of MDROs is moderate or high and patients may be colonized with >1 MDRO.

Figure. MDRO acquisition and dynamic patterns of gut carriage (N=58)



ABBREVIATIONS. MICU, medical intensive care unit; MDRO, multidrug-resistant organism; V, vancomycin-resistant Enterococci; E, extended-spectrum β-lactamase-producing Enterobacteriaceae; C, carbapenem-resistant Enterobacteriaceae; P, carbapenem-resistant *Pseudomonas aeruginosa*; A, carbapenem-resistant *Acinetobacter baumannii*.

Table. Comparison of study and clinical culture results for target MDROs

	No. (%) of patients with a positive culture for a target MDRO during MICU stay		
	Study	Clinical	Study or Clinical (Denominator)
VRE	92 (98.9)	5 (5.4)	93
CRE	27 (100)	1 (3.7)	27
ESBL	82 (100)	4 (4.9)	82
CRPA	17 (94.4)	2 (11.1)	18
CRAB	2 (66.7)	1 (33.3)	3
TOTAL	220 (98.7)	13 (5.8)	223

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

1765. Use of a Natural Language Processing-Based Informatics Pipeline for Infectious Disease Syndrome Surveillance

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Background. Automated surveillance for infectious disease syndromes (IDS) in hospitals mostly relies on structured data (e.g., diagnosis codes). Natural language processing (NLP) enables screening and concept extraction from large repositories of unstructured data (e.g., clinician notes). We demonstrate the use of an NLP-based pipeline to improve case finding for a specific IDS (urinary tract infection [UTI]) and compare this to surveillance using ICD-10 codes.

Methods. Inpatient hospitalizations in 2016 with ICD-10 codes for UTI at a children's hospital were identified. Records of inpatients with positive urine cultures for 2016 were reviewed to identify missed cases. Notes for inpatient hospitalizations for 2016 were processed using an NLP pipeline. The NLP pipeline receives real-time data, accounts for institution-specific document structure, performs named-entity recognition on clinical problems/symptoms, and matches these terms to concept unique identifiers (CUI) in the unified medical language system (UMLS). We used the UMLS CUI for urinary tract infections (C0042029) to identify notes of interest. To minimize false positives, we selected as the threshold for case positivity—the mean UTI CUI mentions per patient during 2016.

Results. Among 10,681 hospitalized patients, there were 181 unique patients that were identified with UTI using ICD-10 codes. An additional 85 UTI cases were identified using chart review of positive urine cultures (n = 409). A total of 289,344 notes were screened by the NLP pipeline to identify UTI patients. Using the predefined threshold (n = 6), all cases of UTI identified by ICD-10 screening were detected by the NLP-based method. Of the additional cases missed by ICD-10 codes, 84 of 85 (98.9%) were positive by the NLP-based method. To identify these 84 true cases, an additional 275 charts without UTI, flagged as positive by the NLP method, would have to be reviewed (ratio of ~1:3).