116. Leveraging the Use of the PCR-based Methicillin-Resistant Staphylococcus aureus (MRSA) Nasal Swab in the Emergency Department to Optimize Vancomycin Use in the Inpatient Setting

Dayna McManus, PharmD, BCPS[1]; Jeffrey E. Topal, MD[1]; Hagar Kassab, PharmD[2]; [1]Yale New Haven Hospital, New Haven, CT; [2]St. Joseph's Regional Medical Center, Paterson, New Jersey

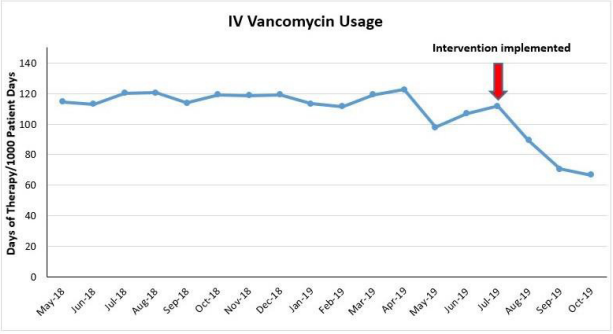
Session: P-4. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

Background: The MRSA nasal swab has been shown to have a negative predictive value of 97–100% for an MRSA infection. Therefore, a negative MRSA swab can be an important antimicrobial stewardship tool to stop unnecessary empiric anti-MRSA therapy. Prolonged anti-MRSA therapy may increase hospital length stay, adverse effects, antimicrobial resistance, and increase the risk of acute kidney injury. Timely obtainment of the MRSA nasal swab is paramount to prevent these complications. To improve the timely collection at our institution, we linked the MRSA nasal swab order with the initial order for vancomycin in the ED using the electronic medical record.

Methods: This was a single-center, retrospective review of adult ED patients (≥ 18 years) who recieved vancomycin at Yale New Haven Hospital, New Haven, CT, USA and had an MRSA nasal swab collected. The pre-intervention cohort were patients who met inclusion criteria between September 2018 and October 2018. The post-intervention cohort, following the linking of the MRSA nasal swab with the vancomycin order included patients between June 2019 and July 2019. The primary endpoint was the time from the ED visit to vancomycin discontinuation in patients with a negative MRSA nasal swab. The secondary endpoint was a comparison of inpatient vancomycin usage before and after implimentation of the intervention.

Results: In the pre-intervention cohort 665 patients were reviewed with 100 meeting inclusion criteria and in the post-intervention cohort 242 patients were reviewed with 100 meeting inclusion criteria. Baseline demographic characteristics were similar between the two cohorts. For the primary endpoint, the time from ED visit until vancomycin discontinuation was 61 hours in the pre-intervention cohort versus 34 hours in the post-intervention cohort (p< 0.001). The secondary endpoint of the impact of the intervention on vancomycin usage is depicted figure attached.

Vancomycin IV Days of Therapy/1000 Patient Days Before and After Intervention



Conclusion: Linking the MRSA nasal swab order with the order for vancomycin in the ED led to a significantly shorter time of empiric vancomycin which in turn resulted in an overall reduction in the use of vancomycin.

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

117. Natural Language Processing: An Automated Alternative to Determining Inappropriate Group A Streptococcal Testing

Brian R. Lee, MPH, PhD[1]; Alaina Linafelter, PharmD, BCPPS[1]; Alaina Burns, PharmD, BCPPS[1]; Allison Burris, MD[1]; Heather Jones, MSN, RN, CPNP, AC/PC[1]; Jarrod Dusin, MS, RD, LD, CPHQ[1]; Rana E. El Feghaly, MD, MSCI[2]; [1]Children's Mercy Kansas City, Kansas City, MO; [2]Children's Mercy Hospital, Kansas City, MO

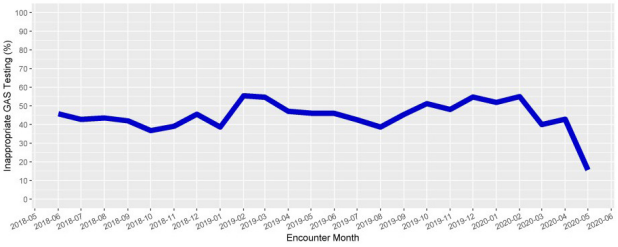
Session: P-4. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

Background: Acute pharyngitis is one of the most common causes of pediatric health care visits, accounting for approximately 12 million ambulatory care visits each year. Rapid antigen detection tests (RADTs) for Group A *Streptococcus* (GAS) are one of the most commonly ordered tests in the ambulatory settings. Approximately 40–60% of RADTs are estimated to be inappropriate. Determination of inappropriate RADT frequently requires time-intensive chart reviews. The purpose of this study was to determine if natural language processing (NLP) can provide an accurate and automated alternative for assessing RADT inappropriateness.

Methods: Patients ≥ 3 years of age who received an RADT while evaluated in our EDs/UCCs between April 2018 and September 2018 were identified. A manual chart review was completed on a 10% random sample to determine the presence of sore throat or viral symptoms (i.e., conjunctivitis, rhinorrhea, cough, diarrhea, hoarse voice, and viral exanthema). Inappropriate RADT was defined as either absence of sore throat or reporting 2 or more viral symptoms. An NLP algorithm was developed independently to assign the presence/absence of symptoms and RADT inappropriateness. The NLP sensitivity/specificity was calculated using the manual chart review sample as the gold standard.

Results: Manual chart review was completed on 720 patients, of which 320 (44.4%) were considered to have an inappropriate RADT. When compared to the manual review, the NLP approach showed high sensitivity (se) and specificity (sp) when assigning inappropriateness (88.4% and 90.0%, respectively). Optimal sensitivity/specificity was also observed for select symptoms, including sore throat (se: 92.9%, sp: 92.5%), cough (se: 94.5%, sp: 96.5%), and rhinorrhea (se: 86.1%, sp: 95.3%). The prevalence of clinical symptoms was similar when running NLP on subsequent, independent validation sets. After validating the NLP algorithm, a long term monthly trend report was developed.

Figure: Inappropriate GAS RADTs Determined by NLP, June 2018-May 2020



Conclusion: An NLP algorithm can accurately identify inappropriate RADT when compared to a gold standard. Manual chart review requires dozens of hours to complete. In contrast, NLP requires only a couple of minutes and offers the potential to calculate valid metrics that are easily scaled-up to help monitor comprehensive, long-term trends.

Disclosures: **Brian R. Lee, MPH, PhD**, **Merck** (Grant/Research Support)

118. Optimizing the management of coagulase-negative staphylococci (CoNS) contaminants by reporting the species name

Tyler J. Stone, PharmD[1]; Elizabeth Palavecino, MD[2]; Elizabeth Palavecino, MD[2]; Smith Jessica, PharmD, MBA[3]; James Beardsley, PharmD[2]; James Johnson, PharmD[2]; Vera Luther, MD[2]; Christopher Ohl, MD[2]; Christopher Ohl, MD[2]; John Williamson, PharmD[2]; [1]Wake Forest Baptist Health, Winston-Salem, North Carolina; [2]Wake Forest Baptist Health System, Winston Salem, North Carolina; [3]The Ohio State University College of Medicine, Columbus, Ohio

Session: P-4. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

Background: CoNS are common isolates in blood cultures (BCx), but many are contaminants contributing to unnecessary antibiotic use. When CoNS are isolated from multiple BCx, different species and/or different susceptibility patterns may suggest contamination. Species reporting of CoNS is not performed at all hospitals. The purpose of this study was to characterize antibiotic use attributable to CoNS positive (pos) BCx and determine if reporting CoNS species could help reduce unnecessary antibiotics.

Methods: A retrospective chart review was conducted of inpatients at an academic medical center before (Jan-June 2017) and after (Sept 2019-Feb 2020) implementation of CoNS species reporting. CoNS species were hidden to providers in the before group. Patients (pts) ≥18 years old with ≥1 BCx pos for CoNS were included. Pts who were neutropenic, treated with anti-staphylococcal antibiotics (SAbx) for a non-CoNS infection, or treated for CoNS with non-SAbx were excluded. Pts were categorized by number of pos BCx (1 vs ≥2). In each period, a random sample of pts was screened until 50 pts with 1 CoNS pos BCx were included. Additional data were collected until at least 50 pts with ≥2 pos BCx were included in each period. The primary outcome was use of SAbx among pts in each group before and after species reporting. Additional analyses were performed to compare the use of SAbx among subsets with same/different species and/or susceptibilities.

Results: 203 pts were included, 102 before and 101 after. 51% and 50% had ≥2 pos BCx in the before and after groups, respectively. *S. epidermidis* was isolated more frequently in pts with ≥2 pos BCx (75% vs 50%, p< 0.001). 77% of pts received at least 1 SAbx (97% vancomycin). Median SAbx days of therapy per pt (DOTs) was greater among pts with ≥2 pos BCx (1 vs 5, p< 0.001). There was no difference in overall DOTs between the two periods (3 vs 2, p=0.25). However, among pts with ≥2 pos BCx, median DOTs was less in the after period (6.5 vs 3, p=0.016). Among pts with 1 pos BCx, median DOTs was 1 in both periods.

Median Anti-Staphylococcal Antibiotic Days of Therapy per Patient (≥ 2 positive cultures)

		Species					
		Same			Different		
		Before	After	*p*-value	Before	After	*p*-value
Susceptibilities	Same	7.5 (n=22)	5.0 (n=24)	0.24	5.5 (n=6)	1.0 (n=6)	0.18
	Different	5.0 (n=13)	1.0 (n=11)	0.09	6.0 (n=11)	2.5 (n=10)	0.48

Conclusion: CoNS species reporting was associated with decreased SAbx use for pts with ≥2 pos BCx, suggesting that knowing the species helps in determining