**1994. Impact of Pharmacist-initiated MRSA Nasal PCR Protocol on Pneumonia Therapy in a Community Teaching Hospital**

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***Background.*** Methicillin-resistant *Staphylococcus aureus* (MRSA) nasal PCR testing can rapidly detect MRSA colonization via nasopharyngeal swab. With a high negative predictive value for MRSA pneumonia, this test may help minimize the duration of anti-MRSA therapy and associated adverse drug events. This study aimed to evaluate the impact of a pharmacist-initiated MRSA nasal PCR protocol on pneumonia therapy in a community teaching hospital.

***Methods.*** This retrospective, quasi-experimental study evaluated adult patients with pneumonia before and after the implementation of a pharmacist-initiated MRSA nasal PCR protocol. The GeneXpert MRSA/SA Nasal Complete Assay was utilized for PCR testing. Prior to protocol implementation the MRSA nasal PCR was not routinely used to assist in pneumonia treatment decisions. Following protocol implementation, pharmacists ordered MRSA PCR testing after an order for anti-MRSA pneumonia therapy; however, prescriber approval was required to discontinue therapy following negative result. The primary outcome of this study was to compare the duration of anti-MRSA therapy between the pre-PCR group (June 1–November 1, 2017) and PCR group (June 1–November 1, 2018). Secondary comparisons included the duration of antipseudomonal therapy, time from IV to PO interchange, adverse events, and clinical outcomes between groups.

***Results.*** 210 patients were included (pre-PCR $n = 138$, PCR $n = 72$). Vancomycin was the anti-MRSA therapy ordered for all patients in both groups. In the PCR group, the median time from vancomycin order to PCR order was 2.8 hours (0–45.6 hours), while median time from PCR order to PCR result was 4.4 hours (0.6–31.5 hours). The PCR result was negative for 63 patients (87.5%) and 56 (88.9%) vancomycin orders were discontinued within 24 hours of the negative result. The mean duration of vancomycin therapy was significantly shorter in the PCR group (2.5 vs. 1.4 days, $P < 0.001$) as well as duration of IV therapy (5 vs. 3.9 days, $P = 0.003$). There was no difference between groups in duration of antipseudomonal therapy ($P = 0.425$), acute kidney injury ($P = 0.332$), 30-day readmission ($P = 0.137$), or 30-day mortality ($P = 0.179$).

***Conclusion.*** A pharmacist-led MRSA nasal PCR protocol significantly decreased the duration of anti-MRSA therapy and IV antibiotic duration in patients with pneumonia.

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

**1995. Serial Procalcitonin Measurement in a Community Intensive Care Unit: Is There Value in the Setting of an Established Antibiotic Stewardship Program?**

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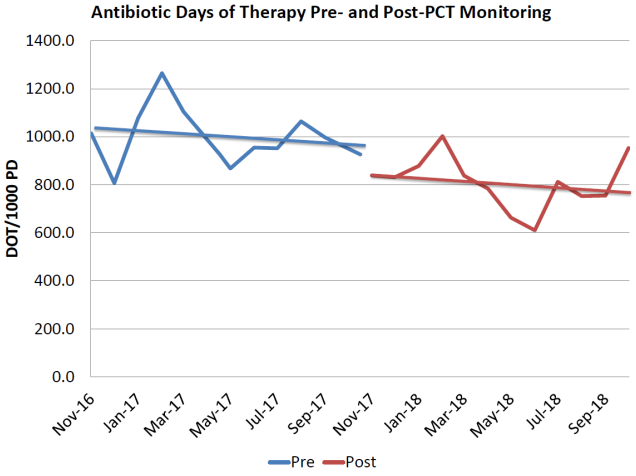
***Background.*** Procalcitonin (PCT) monitoring has been shown to result in reduced antibiotic use without an impact on patient outcomes. However, the real-world value of this biomarker has yet to be determined, particularly when efforts to optimize antibiotic use are already in place. We evaluated the feasibility and impact of PCT-guided antibiotic duration combined with an established antibiotic stewardship program (ASP) in a community hospital intensive care unit (ICU) in Toronto, Canada.

***Methods.*** We conducted a quality improvement initiative in our ICU from November 2017 to October 2018 measuring daily PCT levels for immunocompetent patients receiving antibiotic therapy for suspected or proven bacterial infection with an expected duration between 48 hours and 21 days. Our protocol recommended stopping antibiotic therapy if PCT fell below 0.5 µg/L (absolute threshold) or if it dropped more than 80% from its peak value (relative threshold). ASP rounds took place twice weekly since 2013, integrating a regular discussion about PCT levels once this initiative was implemented. We evaluated the adherence to stopping criteria within 48h, antibiotic use (days of therapy per 1,000 patient-days), length of stay, 48h re-admission, and ICU-mortality. Interrupted time series with segmented regression was performed to evaluate pre-post intervention differences compared with the 12-months prior to implementation.

***Results.*** A total of 297 antibiotic courses were monitored with PCT in 217 patients. Respiratory (62%), unknown infection (11%), and intra-abdominal infection (7%) were the most common reasons for antibiotics. Protocol adherence was 34% (absolute threshold: 39%, relative threshold: 12%). Adherence by ICU physician varied widely between 24% and 52%. Antibiotic use pre-PCT was 1,002 DOTs/1,000 PDs and post-PCT was 817 DOTs/1,000 PDs (adjusted change −15%, 95% CI: −28% to +8%) (Figure 1). No statistically significant changes in clinical outcomes were noted.

***Conclusion.*** In the context of an active ASP in a community hospital ICU, PCT monitoring was associated with a non-significant decrease in antibiotic use. Further evaluation of reasons for inter-physician variability in adherence and opportunities for improved and sustained overall adherence should be explored.




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

**1996. Enteric Multiplex PCR Testing: Antimicrobial Stewardship Friend or Foe**

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***Background.*** There are advantages and challenges associated with enteric multiplex PCR testing. Fast turnaround time can lead to prompt pathogen identification and antibiotic initiation, decreased length of stay and decreased time in isolation. Challenges include identification of multiple organisms, carrier state detection, and detection of organisms with uncertain pathogenic potential, which can lead to unnecessary antibiotic use.

***Methods.*** Two institutions transitioned from stool culture to stool PCR testing for identification of diarrheal pathogens. On February 1, 2016, Center 1 employed the BioFire® FilmArray® GI Panel, which detects 22 organisms and includes targets of unclear clinical significance. Center 2 implemented the BD MAX™ Enteric Bacterial Panel on 3/6/2019, which reports 4 bacterial known pathogens. Fluoroquinolone (FQ) and third-generation cephalosporin (TGC) prescribing in response to positive PCR testing was assessed over a 1 month period. Antibiotics were counted when prescribed within 72 hours of the collection date.

***Results.*** At Center 1, 332 GI PCR panels were ordered, 94 (28.3%) were positive and 15 (16%) were treated; 4 received an FQ (26%), and 11 (73%) received a TGC. Center 1 organisms included 44 *Clostridioides difficile*, 27 Norovirus, 8 Enteropathogenic *E. coli*, 7 Sapovirus, 4 *Campylobacter* species, 2 Giardia lamblia, 2 Rotavirus, 1 *Shigella*/Enteroinvasive *E. coli* and 1 *Salmonella* species. Of 642 PCR tests ordered at Center 2, 16 (2.5%) were positive and 11 (69%) were treated; 10 (91%) received a FQ, and 1 (9%) received a TGC. Center 2 organisms included 8 non-typhoidal *Salmonella* species, 5 *Aeromonas* species, 2 *Shigella sonnei* and 1 *Salmonella typhi*.

***Conclusion.*** Implementation of an enteric multiplex PCR test with targets of uncertain clinical significance is more likely to yield an abnormal result than a PCR test with only known pathogens. However, careful interpretation of results can avoid unnecessary antimicrobial use. Antimicrobial stewardship teams should work in tandem with microbiology laboratories to implement enteric multiplex PCR tests and monitor the impact on antibiotic use. Larger studies are needed to definitively assess the impact of the GI panel on antimicrobial prescribing within the context of patient comorbidities and institutional practices.

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

**1997. Real-World Impact of Accelerate Pheno Implementation with Antimicrobial Stewardship Intervention**

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***Background.*** Accelerate Pheno® (AP) is a novel diagnostic system that provides rapid identification and antibiotic susceptibility results for most commonly isolated organisms within hours of blood culture (BC) positivity. There are little data on this technology's real-world implementation with antimicrobial stewardship intervention and effect on optimal targeted therapy.

***Methods.*** AP was implemented at UIHC in September 2018 and paired with antimicrobial stewardship team (AST) review. AST recommendations were provided in real time during weekday hours and through a retrospective review process

for off-hours results. Microbiologic and clinical data were collected prospectively. Due to inconsistencies in instrument performance identified after the first month, two post-implementation periods (Group A = October 2018–January 2019; Group B = February 2019–mid-April 2019) were analyzed to assess quality improvement efforts during clinical roll-out.

***Results.*** In the 6.5-month combined period, 690 unique BC samples were run on AP and reviewed by AST (417 in A; 273 in B). Performance of the technology improved, with 78.9% (329/417) of isolates in Grp A identified vs. 85.3% in Grp B (233/273). Percentage of runs with progression to antibiotic susceptibility improved from 76.1% to 92.3%. Over both time periods, AST intervened on 277 samples (Figure 1). Recommendations (bug-drug mismatch, de-escalation, dose optimization, and infectious disease consult) were accepted at a rate of 97.4%. Time from BC positivity to optimal therapy was 15.3 hours (Figure 2).

***Conclusion.*** Implementation of AP with AST review resulted in rapid identification and antibiotic susceptibility results with early optimization of antimicrobial therapy. Highest impact was seen in the management of patients with resistant Gram-negative infections. Oversight of the implementation by a partnership of clinical microbiology and the antimicrobial stewardship team was critical in identifying real-time implementation issues and opportunities for quality improvement. Though real-world performance was slightly inferior to published trial data, the instrument's exceedingly fast time to AS represents a significant advantage over other systems and enhances clinical care and patient safety particularly when paired with AST intervention.

*Figure 1: AST Intervention Type*

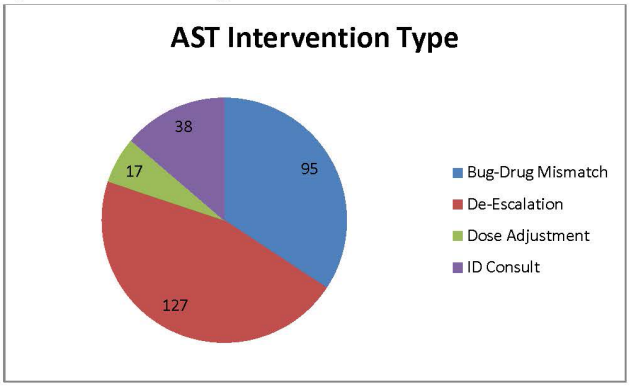
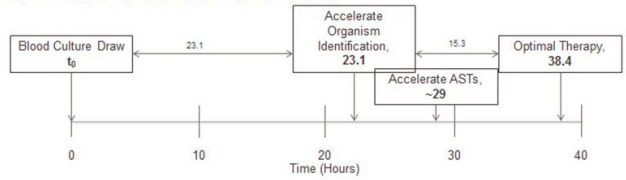



*Figure 2: Post-Implementation Time to Optimal Therapy*




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

**1998. Impact of Rapid Blood Culture Identification with Real-Time Antimicrobial Stewardship (ASP) in Patients with *Staphylococcus aureus* (S. aureus) and *Enterococcus* spp. Bacteremia at a Large Academic Medical Center**

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***Background.*** The initiation of appropriate antimicrobial therapy is dependent on timely identification of the pathogen. FilmArray Blood Culture Identification Panel (BCID) is a rapid, multiplex polymerase chain reaction (PCR) panel that identifies 24 pathogens and 3 antibiotic resistance genes associated with bloodstream infections within 1 hour of growth. The purpose of this study was to compare the clinical impact of rapid BCID testing vs. standard blood culture processing, both coupled with real-time ASP, in patients with *S. aureus* and *Enterococcus* spp. bacteremia.

***Methods.*** This was a single-center, retrospective chart review conducted as a pre-post intervention quasi-experimental study. The pre-intervention group included adult patients with *S.aureus* and *Enterococcus* spp. bacteremia identified by standard blood culture processing (PRE) and the post-intervention group included those identified by rapid BCID testing (POST). The primary endpoint was time in hours from positive Gram stain to initiation of optimal antimicrobial therapy [defined as vancomycin (VAN), linezolid (LZD), daptomycin (DAP), or ceftaroline for methicillin-resistant *S. aureus* (MRSA); nafcillin or cefazolin for methicillin-susceptible *S. aureus* (MSSA); DAP or LZD for VAN-resistant *Enterococcus* (VRE); VAN or ampicillin (if susceptible) for VAN-susceptible *Enterococcus* (VSE)]. Secondary endpoints included time to active therapy (defined as an antimicrobial to which the organism was susceptible), time to identification of pathogen, length of hospital stay (LOS) after positive culture, and 30-day mortality.

***Results.*** 132 patients were included. Mean time to optimal therapy decreased from 21.4 hours PRE to 10.7 hours POST ($P = 0.048$). Time to optimal therapy was shorter POST for MSSA [59.2 hours PRE vs. 25.8 hours POST ($P < 0.001$)] and VRE bacteremia [24.6 hours PRE vs. 5.6 hours POST ($P = 0.005$)]. Time to identification of pathogen decreased from 75.6 hours PRE to 2.7 hours POST ($P < 0.001$). Groups did not differ in time to active therapy, LOS, nor 30-day mortality.

***Conclusion.*** Antimicrobial Stewardship coupled with rapid BCID testing significantly decreased time to pathogen identification as well as time to optimal therapy in patients with *S. aureus* and *Enterococcus* spp. bacteremia, most notably for MSSA and VRE.

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

**1999. Does Pharmacist-Driven Methicillin-Resistant *Staphylococcus aureus* PCR Nasal Screening Decrease Time to De-Escalation of MRSA Coverage in Patients with Pneumonia?**

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***Background.*** Vancomycin and linezolid are antibiotics used in cases where methicillin-resistant *Staphylococcus aureus* (MRSA) is suspected, including in cases where MRSA is suspected to be the cause of pneumonia. MRSA nasal PCR has been shown to have a high negative predictive value when used to rule out MRSA pneumonia. The purpose of the current study was to determine whether a pharmacist-driven MRSA PCR nasal screening protocol would decrease the time to de-escalation or discontinuation of anti-MRSA therapy when utilized for pneumonia.

***Methods.*** Patients were analyzed in two cohorts, those who received vancomycin or linezolid therapy from October 2012 to February 2013 (before pharmacist-driven MRSA nasal PCR protocol; $n = 88$) and those who received vancomycin from October 2016 to February 2017 (pharmacist-driven MRSA nasal PCR protocol; $n = 105$). During the study period, pharmacists were given the authority, via protocol to order an MRSA nasal PCR when vancomycin or linezolid was ordered for the indication of pneumonia. Subsequently, after a negative MRSA nasal PCR, pharmacists would contact the prescriber, and let the prescriber know that the MRSA PCR was negative, and then discontinue anti-MRSA therapy. The primary outcome was duration in hours of active anti-MRSA therapy. Secondary outcomes evaluated were the number of anti-MRSA antibiotic doses ordered, and the number of vancomycin troughs ordered.

***Results.*** Patients in the pre-pharmacist driven cohort received vancomycin or linezolid for a median of 44.19 hours, whereas patients in the pharmacist-driven MRSA PCR protocol period received anti-MRSA therapy for a median of 19.1 hours ($P < 0.0001$). Additionally, prior to the initiation of the pharmacist-driven MRSA nasal PCR protocol, patients received 349 doses of anti-MRSA therapy, compared with 283 doses in the pharmacist MRSA nasal swab protocol group ($P < 0.0001$). There were also fewer vancomycin troughs ordered in the pharmacist MRSA nasal PCR protocol group (76 vs. 48, $P < 0.0009$).

***Conclusion.*** A pharmacist-driven protocol for ordering MRSA nasal PCR led to a statistically significant decrease in the time to discontinuation of vancomycin or linezolid for suspected MRSA pneumonia when the MRSA nasal PCR was negative.

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

**2000. Utilization of a 'Never Event' Framework to Classify Antimicrobial Appropriateness**

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***Background.*** Contemporary strategies can be leveraged to predict antimicrobial overuse, yet little information is gained on the appropriateness of antibiotics prescribed. Classifying appropriateness is complicated by the lack of a standard definition for appropriateness. Thus, we created and implemented a novel 'antibiotic never event' (NE) framework to systematically classify the most inappropriate usages of vancomycin and correlated these NE to abnormal consumption trends (i.e., antibiotic outbreaks).

***Methods.*** Vancomycin use was categorized by an algorithm using data query from the electronic medical records. Extracted data included vancomycin use, relevant patient demographics, and microbiological data. Electronic classifications placed each vancomycin therapy into type 1 (use for non-susceptible organism after susceptibility finalization) or type 2 (use exceeding 48h after susceptibility report when a safe de-escalation is possible) NE. Patients were categorized as cases or controls (no NE) at Northwestern Memorial Hospital (NM) and Henry Ford Hospital (HF)