

# *11th Quality Improvement Research Day*

Ascension Providence  
Rochester Hospital

Office of Graduate Medical Education  
Wayne State University  
School of Medicine

May 10, 2022



## ***Welcome Message***

Since 2012, the Wayne State University Office of Graduate Medical Education (WSUGME) in the School of Medicine and the Internal Medicine, Family Medicine, and Transitional Year residencies at Ascension Providence Rochester Hospital (APRH) in Rochester, Michigan, have jointly administered an annual Quality Improvement (QI) Research Day. This event is attended by residents, faculty, hospital administrators, and WSUGME staff. The QI Research Day, typically held in late spring, is designed to showcase residents' quality improvement and patient safety projects and is competitively judged by noted faculty and researchers from the Detroit area.

In 2020, the 9th Annual QI Research Day was cancelled since the COVID-19 pandemic rendered a face-to-face event not feasible. In 2021 and this year, the event returned as a virtual event held via Zoom, with more than 80 participants. An agenda and a complete recording is available at <https://gme.med.wayne.edu/qiresearchday>

This booklet includes abstracts of the top-ranked presentations in Internal Medicine and Family Medicine/Transitional Year and a listing of all participants and presentations. Our judges included *Camelia Arsene*, MD, PhD, MHS, Director of Undergraduate Medical Education, St. Joseph Mercy Oakland Hospital; *Jason Booza*, PhD, Assistant Dean, Continuous Quality Improvement and Compliance, WSUSOM; and *Jay Liggins*, MS, Infection Preventionist, APRH. As in 2021, our keynote speaker for the QI Day was *Robert Flora*, MD, MPH, MBA, Chief Academic Officer and Vice President of Academic Affairs at McLaren Health Care, and Professor and Associate Chair for Education in the Dept. of Obstetrics, Gynecology, and Reproductive Medicine in the Michigan State University College of Human Medicine. We would like to extend our sincere thanks to these individuals for devoting time to evaluating our residents' research, providing them with productive feedback, and sharing their expertise in quality improvement projects.

We would like to also thank the following for their outstanding work as faculty mentors for the 2021-22 QI projects at APRH: Internal Medicine Residency Program Director *Sarwan Kumar*, MD, IM Associate Program Director *Vesna Tegeltija*, MD, MBA, and IM faculty members *Zain Kulairi*, MD, and *Joseph Vercellone*, MD; Transitional Year Residency Program Director *Tess McCreedy*, DO, and Family Medicine Program Director *Eleanor King*, MD and FM Associate Program Director *Andrea Milne*, MD, PhD; and Assistant Professor *Elizabeth Towner*, PhD, faculty member in the WSU Department of Family Medicine and Public Health Sciences.

We look forward to another successful QI Research Day in 2023, which we hope may be held as a face-to-face event.

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## **INTERNAL MEDICINE: Winners**

### Presenter

*\*Indicates a faculty mentor*

### **IMPROVING THE PNEUMONIA VACCINE RATES FOR QUALIFYING ADULTS UNDER THE AGE OF 65 Saad Chaudhry, Padmini Giri, Trishya Reddy, Anooa Mathew, Shahed Hussain, Joseph Vercellone\***

**Introduction:** Streptococcus pneumonia is one of the largest causes of bacterial pneumonia. Pneumococcal vaccination is indicated for adults over 65, but also recommended for those under 65 with various risk factors. There are two types of vaccines. PPSV23 is recommended for chronic conditions involving the lung, liver, heart, and also for diabetes, and significant alcohol or cigarette use. PCV13 is first indicated in patients with chronic kidney disease and other immunocompromised states. Physicians must identify if patients require the vaccine to provide the best quality care. Vaccination rates may also differ due to various health disparities. In the resident clinic, quality measures indicate a high number of patients under 65 require the vaccine.

**AIM:** Improve rates of pneumonia vaccinations in patients under 65 with certain medical conditions by 25% in 1 year. A secondary aim is to recognize variation in the pneumonia vaccination rates.

**Methods:** Medical staff at the resident clinic was educated on the criteria for receiving PCV13 or PPSV23 vaccinations for patients under 65. The staff provided a check-in form for such patients to assess their vaccine eligibility and improve the rate. The form screened patients who qualified for the vaccine and provided education. The residents then evaluated if the patient qualified for receiving the vaccination. Data prior to education (from November 2020 to November 2021) was obtained to see if patients received it. After education, the residents were given the forms from December 2021 to March 2022. The forms were analyzed to assess if screening was done and if vaccines were given.

**Results:** 47 randomized pre-intervention charts were analyzed to evaluate the patients under 65 who received the vaccine. 36% of the patients received the vaccine, which included 53% of diabetic patients, 40% of COPD, CKD, and asthmatic patients, and 20% of smokers. None of the patients with chronic heart and alcohol use disorder received the vaccine. Only 18% of the nonvaccinated patients had a proper documentation. 23 post-intervention charts revealed that approximately 61% of the qualifying patients under 65 received the vaccine. There was an improvement in vaccination among patients with COPD, CKD, smokers, cirrhosis and chronic heart disease. An improvement in vaccine refusal documentation was noted.

**Conclusion:** Patients under 65 with specific risk factors qualified for the pneumonia vaccination. Education and check-in forms increased vaccination rates among the at-risk population. The forms helped remind residents to screen patients under 65 who qualified for the vaccine and thus improve overall pneumonia vaccination rates, and provided documentation as to why patients refused it. With the new ACIP guidelines that replace the PCV13 with PCV15 and PCV20 vaccines, the next PDSA cycle will focus on implementing the changes and evaluating the underlying causes behind vaccine refusal, specifically health disparity factors.



## **INTERNAL MEDICINE: Winners**

Presenter

*\*Indicates a faculty mentor*

### **OVERUTILIZATION OF AMYLASE AND LIPASE TESTING IN ACUTE PANCREATITIS**

**Alaa Taha, Vatsal Khanna, Ranim Chamseddin, Vesna Tegeltija\***

**Introduction:** Acute pancreatitis (AP) is a gastrointestinal cause for hospitalization. Due to the costs of diagnostic testing, imaging, management and complications, the American College of Gastroenterology recommends serum lipase over amylase testing in diagnosing AP, as it has superior specificity and sensitivity. Although repeating amylase and lipase levels after diagnosis is of no value, at APRH work-up for AP included both amylase and lipase, with repeat testing.

**Methods:** An IHI model and multidisciplinary team approach was used and the Plan, Do, Study, Act (PDSA) cycle employed to format this project and test change. In addition, a root cause analysis revealed key stakeholder and system components that contributed to outcomes. A process flow map allowed us to identify a system problem, including pre-selection of unnecessary labs during patient admission. Targeting a system change and de-selecting amylase from the order set allowed us to reduce unnecessary testing, lab expenditures, and hospital costs.

**Results:** Prior to implementation, 98% of admissions for AP had amylase and lipase ordered, and 82% of patients had repeat testing. In PDSA cycle 1, education was provided to the medical staff. After education, no significant decrease of ordering both tests was noted, although it reduced repeat testing by 73%. PDSA 2 included educating residents, staff and ED about guidelines. After two cycles failed to produce change, a root cause analysis was done and showed an EMR system order set for abdominal pain with pre-selected amylase and lipase. All patients admitted with abdominal pain had both tests unless the ordering provider de-selected. In PDSA 3, a team including IM, ED, GI, and clinical informatics worked to remove the pre-selected amylase from the order set. Post EMR change, we reviewed 98 patients who had abdominal pain and acute pancreatitis work-up during a 6-month period. Results showed a 48% reduction of amylase orders.

**Conclusion:** An order set used in the ED during evaluation of pancreatitis included pre-selected, automatic testing of amylase and lipase. The average cost of amylase testing is \$35. After the removal of amylase of the order set during PDSA 3, our results indicated a \$1645 direct cost savings, resulting in a yearly savings of \$3290. To further reduce testing, our next step in this QI project would add a pop-up asking the ordering physician to specify the indication for ordering the test. If it's for pancreatitis, a message would appear saying that lipase is the test of choice.

## ***FAMILY MEDICINE/TRANSITIONAL YEAR: Winner***

### ***Presenter***

***\*Indicates a faculty mentor***

### **DECREASING RATES OF CATHETER-ASSOCIATED URINARY TRACT INFECTIONS AT ASCENSION PROVIDENCE ROCHESTER HOSPITAL**

**Monica Hessler-Waning, Thomas Hester, Reem Kashlan, Osama Tariq, Bernadette Schmidt, Trishya Reddy, Jahanavi Ramakrishna, Tess McCready,\* Vesna Tegeltija**

***Introduction:*** According to the Centers for Disease Control and Prevention, there were 19,700 cases of hospital-acquired catheter-associated urinary tract infections (CAUTI) in 2020 across the US. While this is a 25% decrease in reported incidence rates since 2015, ad-hoc changes in care practices and limitations of surveillance definitions brought on by the giant burden of COVID-19 on the healthcare system possibly resulted in an underreporting of CAUTIs. In a 290-bed tertiary, community hospital in the Detroit metropolitan area, there was a 200% increase CAUTIs from 2020 (5 CAUTIs) to 2021 (16 CAUTIs). A multidisciplinary, resident-led team was assembled to reduce hospital-acquired CAUTIs.

***Methods:*** A multi-pronged quality improvement initiative was conducted from January 1, 2021, through March 31, 2022. CAUTIs were identified and reviewed via electronic health records using predefined criteria related to CDC surveillance definitions, urinary catheter insertion indications, laboratory data, and antibiotic use. A Plan-Do-Study-Act (PDSA) cycle model was used to guide the initiative. Thus far, one PDSA cycle is complete. The initial intervention bundle was designed by the multidisciplinary team and led by Internal Medicine and Transitional Year residents. The intervention bundle included (1) physician and RN education, (2) design and implementation of an appropriate urinary catheter practice algorithm, and (3) expert review of positive urine cultures and CAUTI cases.

***Results:*** Baseline data collected from January to December 2021 showed 16 CAUTIs. Post-implementation of the intervention bundle from January to March 2022 resulted in a 75% reduction in CAUTI incidence (1 CAUTI flagged).

***Conclusion:*** A targeted intervention bundle resulted in fewer CAUTI incidence by reducing inappropriate urinary catheter insertion and prolonged removal. Ongoing local initiatives focused on hospital-acquired infections such as this one are paramount to the persistent optimization of infection prevention, despite national trends.

## **ALL PRESENTATIONS**

### **Internal Medicine**

**Presentation #1:** *"Cardiac Care Checklist": An Initiative to Improve the Screening of Cardiovascular Diseases in a Resident Internal Medicine Clinic*

Presented by Vrushank Patel

Co-authors: Mishita Goel, Vrushank Patel, Kevser Yesilyaprak, Warda Zaidi, Sarwan Kumar\*

**Presentation #2:** *Improving Inpatient Management of Diabetes Mellitus: A QI Initiative*

Presented by Anooa Mathew

Co-authors: Anooa Mathew, Ranim Chamseddin, Aldin Jerome, Tamara Altaweel, Hanan Hannoodee, Vesna Tegeltija\*

**Presentation #3:** *Over-utilization of Amylase and Lipase Testing in Acute Pancreatitis*

Presented by Alaa Taha

Co-authors: Alaa Taha, Vatsal Khanna, Ranim Chamseddin, Vesna Tegeltija\*

**Presentation #4:** *Standardizing Treatment of Inpatient Asymptomatic Hypertension: A QI Initiative*

Presented by Trishya Reddy

Co-authors: Trishya Reddy, Bernadette Schmidt, Aldin Jerome, Mishita Goel, Abdullah Yesilyaprak, Sarwan Kumar,\* Vesna Tegeltija

**Presentation #5:** *Improving Hospital Discharge Time*

Presented by Shahed Hussain

Co-authors: Hassan Ishaq, Vatsal Khanna, Zarghoona Wajid, Shahed Hussain, Vesna Tegeltija,\* Joseph Vercellone\*

**Presentation #6:** *Improving the Quality of Managing Outpatient Diabetes*

Presented by Ranim Chamseddin

Co-authors: Ranim Chamseddin, Saad Chaudhry, Zachary Johnson, Warda Zaidi, Zarghoona Wajid, Zain Kulairi,\* Vesna Tegeltija\*

**Presentation #7:** *Improving Utility of Procalcitonin Test (PCT) to Guide Antibiotic Discontinuation in a Community Hospital: A QI Initiative*

Presented by Mishita Goel

Co-authors: Mishita Goel, Aldin Jerome, Abdullah Yesilyaprak, Ameer Khan, Hussein Tahanulqiwa, Vrushank Patel, Tripti Nagar, Sarwan Kumar,\* Vesna Tegeltija\*

**Presentation #8:** *Improving the Pneumococcal Vaccination Rates for Qualifying Adults Under 65*

Presented by Saad Chaudhry

Co-authors: Saad Chaudhry, Padmini Giri, Trishya Reddy, Anooa Mathew, Shahed Hussain, Joseph Vercellone\*

## ***Family Medicine/Transitional Year***

**Presentation #9:** *An Intervention to Improve Hand-Hygiene Compliance in Enhanced-Contact Precautions*

Presented by Katrina Siemiesz, Q&A by Lauren Hodge

Co-authors: Katrina Siemiesz, Abraham Baidoo, Lauren Hodge, David Kazanowski, Oneil Doha, Rasha Abdulridha, Eleanor King\*

**Presentation #10:** *Improving Resident Skills in Congestive Heart Failure Management with a Multidisciplinary Curriculum*

Presented by Ankur Kapadia, Q&A by Martin Dukaj

Co-authors: Leo Brayman, Donald Johnson, Victoria Prince, William Nham, Ankur Kapadia, Martin Dukaj, Eleanor King\*

**Presentation #11:** *Decreasing Hospital Readmission Rates at Ascension Providence Rochester Hospital*

Presented by Sarah Farooqi, Q&A by Hanna Hanna and Arshdeep Chauhan

Co-authors: Dana Achmar, Arshdeep Chauhan, Sarah Farooqi, Mohamad Hamdi, Hanna Hanna, Robert Richards, Andrea Milne\*

**Presentation #12:** *Decreasing Rates of Catheter Associated Urinary Tract Infections at Ascension Providence Rochester Hospital*

Presented by Thomas Hester, Q&A by Thomas Hester

Co-authors: Monica Hessler-Waning, Thomas Hester, Reem Kashlan, Osama Tariq, Bernadette Schmidt, Trishya Reddy, Jahanavi Ramakrishna, Tess McCready,\* Vesna Tegeltija\*

**Presentation #13:** *Improving Pediatric Lead Screening Exams Performed at 1 and 2 Years of Age at CHASS Center*

Presented by Danny Garcia, Q&A by Tahlianna Almonte

Co-authors: Danny Garcia, Haria Henry, Matthew Ellison, Mariam Japaridze, Tahlianna Almonte, Elizabeth Towner\*



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