

SAN ANTONIO UNIFORMED SERVICES HEALTH EDUCATION
CONSORTIUM (SAUSHEC) PRESENTS...

SOUTHWEST TEXAS ACP CONFERENCE

FRIDAY, SEPTEMBER 17, 2021

POSTER COMPETITION | ABSTRACT BOOKLET

QIPS & Research Abstracts

Presentation Number: Q1

Category: Quality Improvement

Title: Improving Medical Reconciliation during Residency: Outcomes in a Primary Care Outpatient Clinic

First Author: Maria Pesantez

Additional Authors: Garza R. Ramirez D.

Institution: UTRGV-DHR

Abstract: Background

According to the Food and Drug Administration (FDA) 100,000 medical errors are reported each year in the United States alone and 7,000 to 9,000 people die yearly as a result of a medication error. Medication reconciliation is the process of creating the most accurate list of medications a patient is taking and comparing it against the physician's admission, and discharge orders. It is an effective intervention to prevent drug-related events which are the leading cause of medical errors. Medical reconciliation training promotes patient safety and is imperative for a better transition of care.

Methods

We implemented a quality improvement project to promote awareness of medication reconciliation. We aimed to increase compliance of medication from 60% to 80% in 3 months and maintain it through March 2021.

Our interventions consisted in reminders to prompt residents to perform medication reconciliation. As an independent reviewer, our clinic manager shared a monthly metric reports for the number of missed medication reconciliations.

Results

Prior to our intervention, our percentage of medication reconciliation was 62% (August 2020). Following our intervention, the compliance increased to 82% in November 2020 and, in December, it peaked at 90%. At the end of our intervention, medication reconciliation plateaued at 85% (April 2021).

Conclusions

Our quality improvement project increased resident and staff awareness of medication reconciliation. We maintained medication reconciliation above 80% from January 2021 to

March 2021. In addition, we identified barriers in the process that were not recognized before including issues related with equipment, workflow and environment.

Our intervention allowed for accountability because residents were monthly informed about their own performance. Our initiative allowed for development and self-improvement during training which, ultimately, might result in less medical errors.

References:

Institute for Healthcare Improvement.

<http://www.ihl.org/Topics/ADEsMedicationReconciliation/Pages/default.aspx>
<https://www.nccmerp.org/about-medication-errors://www.fda.gov/drugs/information-consumers-and-patients-drugs/working-reduce-medication-errors>

Nassaralla C.L., Naessens J.M., Chaudhry R., Hansen M.A., Scheitel S.M. Implementation of a medication reconciliation process in an ambulatory internal medicine clinic. *Qual. Saf. Health Care.* 2007;16:90–94. doi: 10.1136/qshc.2006.021113.

National Coordinating Council for Medication Error Reporting and Preventing.

<https://www.nccmerp.org/about-medication-errors://www.fda.gov/drugs/information-consumers-and-patients-drugs/working-reduce-medication-errors>

Working to Reduce Medication Errors. Center for Drug Evaluation and

Research.<https://www.fda.gov/drugs/information-consumers-and-patients-drugs/working-reduce-medication-errors>

Presentation Number: Q2

Category: Quality Improvement

Title: Mind Those Muscles: Development of a Musculoskeletal Curriculum for Internal Medicine Residents

First Author: Justin Haloot

Additional Authors: Lucy Esteve MD, Kristen Glass MD, Ambili Ramachandran MD MS

Institution: Univ of Texas Hlth Sci Ctr Prog

Abstract: Musculoskeletal (MSK) complaints affect more than 50% of adult patients and comprise 20-30% of outpatient visits for general medicine. Medicine residents have identified MSK medicine as a gap in their training. Our goal was to develop a curriculum that would improve internal medicine residents' confidence, skills, and knowledge for managing common MSK conditions.

The curriculum included didactics and simulation sections and was administered to 43 first year internal medicine residents from January - June 2021. It focused on common shoulder and knee pathologies with didactics delivered over two afternoons via Microsoft Teams due to COVID19 pandemic. Afterwards, residents practiced physical exam techniques on standardized patients and simulated corticosteroid injections on models. Confidence was measured using 8 questions on a 5-point Likert scale developed from ACGME milestones and knowledge was measured using 8 multiple choice questions derived from MKSAP scenarios via pre-intervention and post-intervention surveys. Sustainability of confidence and knowledge was tested at 4 months post intervention with a long-term post-intervention survey. This consisted of the same 8 questions on the 5-point Likert scale and 8 physical exam videos demonstrating specialized maneuvers. Analysis completed with Wilcoxon Signed Rank test for confidence, t-test for mean questions correct, and Pearson Chi Square Analysis for attrition.

38 residents completed the pre-intervention survey and 30 completed the post-intervention survey and long-term post-intervention survey. There was an increase in medical knowledge based on average questions correct from pre-intervention to post-intervention (55% vs. 79%, $p = 0.08$) and long-term post-intervention (55% vs. 85%, $p < 0.01$). There was a significant increase in resident confidence in performing physical exam maneuvers and procedures based on Wilcoxon analysis and accounting for attrition bias ($p < 0.01$).

Our MSK curriculum featuring didactics and hands-on sessions in common shoulder and knee pathologies demonstrated an increase in intern confidence and medical knowledge.

References:

- (1) Houston TK, Connors RL, Cutler N, Nidiry MA. A primary care musculoskeletal clinic for residents: success and sustainability. *J Gen Intern Med.* 2004 May;19(5 Pt 2):524-9.
- (2) Pearson M, Barker AM, Battistone MJ, Bent S, Odden K, O'Brien B. Implementing an established musculoskeletal educational curriculum in a new context: a study of effectiveness and feasibility. *Med Educ Online.* 2020 Dec;25(1):1760466.
- (3) Denizard-Thompson N, Feiereisel KB, Pedley CF, Burns C, Campos C. Musculoskeletal Basics: The Shoulder and the Knee Workshop for Primary Care Residents. *MedEdPORTAL.* 2018 Sep 15;14:10749.

Presentation Number: Q3

Category: Quality Improvement

Title: Reducing the Use of Supplemental Oxygen in Acutely Ill Patients

First Author: Kim Minh Le

Additional Authors: Joanattan Calderon, MD, Patrick Shin, MD, Raymond Perkins, MD

Institution: Texas A&M Col of Med Scott & White

Abstract: Overuse of supplemental oxygen leads to harmful effects of hyperoxia, which increases mortality in acutely ill patients. The current problem of supplemental oxygen overuse was identified during morning rounds when supplemental oxygen was initiated despite 97-100% oxygen saturations. At Baylor Scott and White Round Rock, there is no protocol to initiate supplemental oxygen. This quality improvement project's goal was to decrease the overuse of supplemental oxygen on the third medical-surgery floor at Baylor Scott and White Round Rock.

Labels with oxygen saturation goals were created and placed near the oxygen flow meters in patient rooms. The labels were presented at nurses', respiratory therapists' and residents' workstations. They were also attached to weekly staff emails. The project's lead discussed the project and re-iterated oxygen goals at nursing huddles.

All data were collected by manual chart review. Patients on supplemental oxygen were assessed to see if the use was appropriate based on the label's criteria. Patients chronically on home oxygen were not considered as inappropriate if they were at their baseline liters.

Pre-intervention, the percentage of inappropriate supplemental oxygen use was 19.8%. Post-intervention, the percentage of inappropriate use was 9.6%.

The set of oxygen saturation recommendations led to a reduction in the overuse of supplemental oxygen. However, it is indeterminate whether the results are statistically significant as the data set did not meet general assumptions for statistical analysis. Moving forward, an order should be required for the initiation of supplemental oxygen because it is a medical therapy. By implementing an order requirement, not only will the initiation of oxygen be monitored but also the necessity for continuation and termination of supplemental oxygen based on the criteria. Of note, this project was carried out during the coronavirus pandemic; this could be a possible confounding factor due to the increased focus on oxygenation.

References:

Malhotra, A., Schwartzstein, R. Pulmonary consequences of supplemental oxygen. In: UpToDate.

Siemieniuk RAC et al. BMJ. 2018;363:k4169.

Presentation Number: Q4

Category: Quality Improvement

Title: Implementation of Targeted Telehealth Intervention to Decrease Colorectal Cancer Screening Discrepancies in a Residency Clinic

First Author: John Kelley

Additional Authors: Tayler Acton DO, Lancaster Weld DO, Kadilee Adams DO

Institution: Scott and White Hospital

Abstract: The utilization of age-defined cancer screening remains one of the primary ways for healthcare providers to ensure imperative preventative care to their patients. Screening for these conditions has become more difficult due to the COVID-19 pandemic resulting in increased rates of lapsed screening. This trend was seen in our group of resident physicians with rates of colorectal cancer screening below institutional goals. Colorectal cancer screening was achieved at goal for 50% of patients compared to an institutional goal of 54%. Through chart review, we identified patients who were not up-to-date on screening and completed a guided telehealth intervention. We were successful in increasing screening by 19% in the patient population for whom lapsed or refused to screen resulting in an overall improvement to 69%, above the institutional goal. With recent updates from the ACG demonstrating an increased urgency for colorectal screening, prompt evaluation, and intervention for patients in need are more important than ever. This study helped to demonstrate the role of directed telehealth intervention in residency clinics for optimal and prompt care of PCP patients. This tool may be utilized for further delivery of optimized care and a means for further use across other guideline-driven preventative interventions.

References: None used

Presentation Number: Q5

Category: QIPS

Title: Making the Right Call: A Quality Improvement-Focused Evaluation of COVID-19-Driven Telemedicine Initiatives

First Author: Arjun Kalra, CPT

Additional Authors: Capt Matthew J. Schwartz*, CPT Stephanie L. Wachs, Capt Matthew R. Bondaryk, Capt Elliot J. Runge, Lt Col Brian E. Neubauer

Institution: SAUSHEC/BAMC

Abstract:

Introduction: Telemedicine is a rapidly evolving aspect of clinical practice promoted as an efficient, cost-effective alternative to the traditional in-person model. In the current coronavirus of 2019 (COVID-19) pandemic, it also offers reduced patient and provider exposure; however, in clinics without established protocols or equipment the transition raises potential for arbitrary or inappropriate scheduling. Standardizing scheduling criteria may reduce overhead after a return to normal operations while also reducing repeat encounters in patients requiring in-person evaluation.

Methods: International Classification of Diseases (ICD) coding was reviewed among encounters between 01JUN2020 to 31DEC2020 at the Internal Medicine clinic located at Wilford Hall Ambulatory Surgical Center in San Antonio, Texas, and the four most common non-administrative codes were identified to establish a cohort. Procedure codes specified in-person versus telehealth (telephone-based) evaluations. Comparison with the clinic-stated goal (instated during COVID operations) of an 8:2 ratio of telehealth to in-person encounters was performed.

Results: ICD data showed 'low back pain', 'knee pain', 'dizziness', and 'cough' as the most common non-administrative presentations, totaling 1005 encounters, with 545 performed via telehealth and 460 in-person. The average age for telehealth patients was 68.4 years (SD 14.0), and in-person 70.3 years (SD 13.2). The percentage of telehealth appointments by diagnosis were as follows: low back pain at 57.8%, knee pain at 42.4%, dizziness at 59%, and cough at 67%. Of the 126 patients initially evaluated via telehealth, 57.1% required eventual in-person evaluation for the specified ICD codes.

Conclusion: We identified that all four complaints fell below the 80% goal, and 57.1% patients required eventual in-person evaluation. Such complaints may benefit from traditional evaluation. We plan to provide scheduling guidance and continued data collection for the following 6-month period. If post-intervention surveys from providers support continued interventions, we will consider expanding the ICD codes analyzed for future Plan-Do-Study-Act (PDSA) cycles.

Presentation Number: R1

Category: Research

Title: Cardiac Screening in College Athletes with Mild COVID-19: How Involved Should We Go?

First Author: Justin Haloot

Additional Authors: Allen S. Anderson MD

Institution: Univ of Texas Hlth Sci Ctr Prog

Abstract: Introduction:

Prior to COVID-19, up to 7.5% of sudden cardiac death in athletes has been associated with viral myocarditis. Coronavirus Disease-2019 (COVID-19) has been associated with myocardial injury and damage. Therefore, there is a need for data on the various modalities of cardiac screening in this patient population. The purpose of this study was to evaluate characteristics of college athletes with COVID-19 to determine an effective return-to-play cardiac screen.

Methods:

This is a retrospective observational study of college athletes who tested positive for SARS-CoV-2 between March and December 2020 in San Antonio, Texas. Student athletes were followed at the Cardiology clinic for history of COVID-19 symptoms. Cardiac studies included 12-lead electrocardiogram, echocardiography, cardiac troponin, and cardiac magnetic resonance (MR) imaging.

Results:

23 patients were identified as college athletes who tested positive for COVID-19. Mean age was 20.96 years old, mean weight 92.38 kg, and mean BMI of 28.21 kg/m² with 91% were male. 61% were asymptomatic when they tested positive for COVID-19. 13% had a troponin greater than 0.010 ng/mL with the peak troponin of 0.038 ng/mL. The most common EKG finding was sinus bradycardia (30.43%). On echocardiography, average ejection fraction was 59.67%, 4.3% had left ventricular diastolic dysfunction, and 8.7% had abnormal right ventricular function. Two patients had cardiac MR imaging, and none had late gadolinium enhancement or pericardial effusion. One patient had a COVID-19 related hospitalization, and none had COVID-19 related death.

Conclusion:

Data from this study support previous reports that college athletes with minimal to mild COVID-19 infection may not require extensive cardiac screening. Continued follow-up with these patients is critical to monitor for the development of new or worsening symptoms.

References:

- (1) Kitulwatte ID, Kim PJ, Pollanen MS. Sudden death related myocarditis: a study of 56 cases. *Forensic Sci Med Pathol*. 2010 Mar;6(1):13-9.
- (2) Stiles MK, Wilde AAM, Abrams DJ, Ackerman MJ, et al.. 2020 APHRS/HRS expert consensus statement on the investigation of decedents with sudden unexplained death and patients with sudden cardiac arrest, and of their families. *J Arrhythm*. 2021 Apr 8;37(3):481-534.
- (3) Maron BJ, Levine BD, Washington RL, et al. American Heart Association Electrocardiography and Arrhythmias... Preparticipation Screening for Cardiovascular Disease in Competitive Athletes: A Scientific Statement From the American Heart Association and American College of Cardiology. *Circulation*. 2015 Dec 1;132(22):e267-72.
- (4) Clark DE, Parikh A, Dendy JM, Diamond AB, et al. COVID-19 Myocardial Pathology Evaluation in Athletes With Cardiac Magnetic Resonance (COMPETE CMR). *Circulation*. 2021 Feb 9;143(6):609-612.
- (5) Daniels CJ, Rajpal S, Greenshields JT, et al. ; Big Ten COVID-19 Cardiac Registry Investigators. Prevalence of Clinical and Subclinical Myocarditis in Competitive Athletes With Recent SARS-CoV-2 Infection: Results From the Big Ten COVID-19 Cardiac Registry. *JAMA Cardiol*. 2021 May 27:e212065.

Presentation Number: R2

Category: Research

Title: Current Sepsis Criteria Poorly Predicts Blood Stream Infections in Extracorporeal Membrane Oxygenation

First Author: Daniel Lee

Additional Authors: Michal Sobieszczyk, MD, Alice Barsoumian, MD, Joseph Marcus, MD

Institution: SAUSHEC (Brooke Army Medical Center)

Abstract:

Introduction:

Extracorporeal membrane oxygenation (ECMO) is an increasingly used modality of life support for patients with cardiac or pulmonary failure. Patients receiving ECMO are at high risk for nosocomial infections. With multiple physiologic compensation mechanisms altered by circuit, the role of monitoring traditional infectious markers are unclear in this population. This study evaluates whether the American Burn Association burn sepsis score (ABA), Systemic Inflammatory Syndrome Score (SIRS), Sequential Organ Failure Assessment (SOFA), and the Logistic Organ Dysfunction Score (LODS) are sensitive or specific at identifying blood stream infections in patients receiving ECMO.

Method:

A retrospective chart review was performed on all patients who developed a blood stream infection while on ECMO between January 2012 and December 2020. Patients had demographic information collected as well as clinical information from the time the positive cultures were drawn so that the different sepsis scores could be calculated. As a comparison for when a patient did not have a blood stream infection, a second set of data was created with the same cohort with data collected at the first negative blood culture 72 hours after cannulation or after last positive blood culture. Nominal variables were calculated by chi-squared and continuous variables were compared by Mann-Whitney U test.

Results:

Of the 220 patients who received ECMO during the study period, 31 (14%) had a total 51 blood stream infections. Patients with blood stream infections were predominantly male (n=23, 74%) and had a median age of 39 (IQR: 29-47). 30 (97%) patients were on veno-venous modality and 1(3%) patient was on a venoarterial modality. Gram positive infections made up 57% (n=29) of infections with *E. faecalis* (n=12, 24%) being the most common organism isolated. Gram negative infections (n=13, 26%) and fungal infections (n=9, 18%) were less common. Infections tended to occur later in the ECMO course (median: 11 (IQR: 4-26) vs. 6 (5-9), p=0.05) when compared to times the patient did not have an infection. There were no significant differences

comparing the scores from infectious to non-infectious group for SOFA (median (IQR) 7 (5-9) vs. 6 (5-8), $p=0.22$), LODS (median (IQR) 12 (10-12) vs. 11 (10-13), $p=0.57$), ABA (median (IQR) 2 (1-3) vs. 2 (1-3) $p=0.46$), or SIRS (median (IQR) 3 (2-3) vs. 3 (2-3), $p=0.19$).

Discussion:

There are multiple scores available to determine if a patient is at risk of sepsis, but none have previously been studied in an ECMO population. With the increasing use of ECMO and their high risk of nosocomial infections, there is a need for better diagnostic criteria that are suggestive of an active infection in these critically ill patients. Our data shows that current sepsis criteria are not able to differentiate times when patients had blood stream infections from when they did not have a blood stream infection. Both time points were associated with elevated sepsis scores on the different criteria. As these scores have low predictive value, they should not be used clinically to predict blood stream infections in patients receiving ECMO.

Presentation Number: R3

Category: Research

Title: Validation of a Mortality Predictive Model for Acute Mesenteric Ischemia: A 10-year Retrospective Review

First Author: Maria Pesantez

Additional Authors: Maria Pesantez¹, Azucena Del Real¹ Jorge Alejandro Bernal¹ Asif Zamir² Chelsea Chang

Institution: UTRGV-DHR

Abstract: Introduction: The mortality of patients diagnosed with acute mesenteric ischemia (AMI) can go up to 90% despite revascularization. Duration of ischemia is crucial for prognosis, hence early diagnosis is pivotal. A mortality predictive model could facilitate patient risk stratification and improve outcomes by assisting physicians on early diagnosis.

Methods

We retrospectively analyzed charts of 73 confirmed cases of AMI by laparotomy, abdominal CT or angiography at 'Doctors Hospital at Renaissance' from October 2010 to October 2020.

Our aim was to use a published 4-variable scoring system as a predictor of mortality rather than for diagnosis (original developer's purpose). A chi square was used to describe the strength of relationship between AMI mortality and a positive score of 4, using the 4-variable scoring system given by leukocytosis ($>19.6 \times 10^9/L$), Mean Platelet Volume $>9.3fL$, D-dimer ($>693ng/ml$) and RDW ($>15\%$). Patients with hematologic, liver and kidney diseases were excluded.

Results

In our sample, 33%(24) of patients diagnosed with AMI died in the hospital and 6 were discharged to hospice. More than half of them had a score of 4 or more. The relationship between a score of 4 or more and mortality was not statistically significant ($p 0.06$). When using the 4 variables individually, leukocytosis ($>19.6 \times 10^9/L$) was statistically significant ($p 0.026$).

Mean Platelet Volume $>9.3fL$, D-dimer ($>693ng/ml$), Red Distribution Width ($>15\%$) were not statistically significant with p values of 0.75, 0.626 and 0.137, respectively.

Conclusion Patients with a score of 4 or more had a higher mortality. Leukocytosis seems to be the most important variable associated with mortality out of the 4 in the scoring system. While the scoring system did not show statistical significance, we believe that further analysis of more

variables including age and gender may provide more strength towards the development of a predictive model that may ultimately aid in early diagnosis and treatment.

References:

1. Memet O, Zhang L, Shen J. Serological biomarkers for acute mesenteric ischemia. *Ann Transl Med.* 2019 Aug;7(16):394. doi: 10.21037/atm.2019.07.51. PMID: 31555708; PMCID: PMC6736808.
2. Aliosmanoglu I, Gul M, Kapan M, Arikanoğlu Z, Taskesen F, Basol O, Aldemir M. Risk factors effecting mortality in acute mesenteric ischemia and mortality rates: a single center experience. *Int Surg.* 2013 Jan-Mar;98(1):76-81. doi: 10.9738/CC112.1. PMID: 23438281; PMCID: PMC3723155.
3. Klar E, Rahmanian PB, Bücken A, Hauenstein K, Jauch KW, Luther B. Acute mesenteric ischemia: a vascular emergency. *Dtsch Arztebl Int.* 2012;109(14):249-256. doi:10.3238/arztebl.2012.0249
- 4 Bala M, Kashuk J, Moore EE, et al. Acute mesenteric ischemia: guidelines of the World Society of Emergency Surgery. *World J Emerg Surg.* 2017;12:38. Published 2017 Aug 7. doi:10.1186/s13017-017-0150-5
- 5 Wang Z, Chen JQ, Liu JL, Tian L. A Novel Scoring System for Diagnosing Acute Mesenteric Ischemia in the Emergency Ward. *World J Surg.* 2017 Aug;41(8):1966-1974. doi: 10.1007/s00268-017-3984-9. PMID: 28321558.