

RESEARCH POSTER ABSTRACTS 2017

NAME	TITLE	PROGRAM
Muhammad, Mustafa Noor	Volume Assessment in Patients with Pre Renal AKI using Urine Electrolytes and Ultrasound of the IVC	GBMC
Ombada, Mutaz	Impact of an Academic Rounds Checklist on Diagnostic Error	GBMC
Kambhampati, Swetha	Risk Factors for Progression of Barrett's Esophagus to High Grade Dysplasia and Esophageal Adenocarcinoma	Johns Hopkins/Broadway
Ashvetiya, Tamara	The Relationship Between Depression and Adverse Cardiovascular Events: Examining Serotonin Drive Platelet Activation as a Factor	Johns Hopkins/Bayview
Insetta, Emily	Teaching about Intimate Partner Violence: Assessment of a Curriculum for IM Residents	Johns Hopkins/Bayview
Pytell, Jarratt	Who Leaves Early? Factors Associated with AMA Discharge During Alcohol Withdrawal Treatment	Johns Hopkins/Bayview
Schulman, Jacqueline	Infusing High Value Care Education Directly into Patient Care on the Medicine Wards	Johns Hopkins/Bayview
Bhoite, Rahul	Impact of Parameter Analysis and Telemetry Alarm Optimization	MedStar Health Internal Medicine/Union Memorial
Shrestha, Ritesh	Time Study of Tableside vs. Bedside Inpatient Rounds	MedStar Health Internal Medicine/Union Memorial
Wong, Katherine	Effectiveness of Resident-Led, Resident-Implemented Low-Cost Educational Intervention on Hepatitis C Virus Screening	MedStar Health Internal Medicine/Union Memorial
Yahyapourjalaly, Niloofar	Evaluation of Factors Associated with a Pathogenic PRSS1, SP1NK1, CRFT, and/or CTSC Gene Mutation(s) in Patients with Idiopathic Pancreatitis	MedStar Health Internal Medicine/Union Memorial
Elledge, Christen	Five-Fraction Stereotactic Body Radiotherapy (SBRT) in Concert with Chemotherapy for Treatment of Inoperable Pancreatic Adenocarcinoma	MedStar Harbor
Han, Yong	Increased Frequency of Topical Steroids Provides Benefit in Treatment of Postsurgical Cystoid Macular Edema	MedStar Harbor
Ucisik-Keser, F. Eymen	Distant Metastatic Head and Neck Mucoepidermoid Carcinoma: A Seven-Year Institutional Experience	MedStar Harbor
Shin, Jaehoon	Unsupervised Characterization of Adult Hydrocephalus	MedStar Harbor
Vallabhaneni, Srilakshmi	A Quality Improvement Intervention to Lower Hemoglobin threshold for Red Blood Cell Transfusion	MedStar Harbor
Zhang, Xuemin	Drivers of Change in Choroidal Thickness with IOP Following Trabeculectomy	MedStar Harbor

NAME	TITLE	PROGRAM
Zhao, Jiawei	Periocular Infantile Hemangioma: Characteristics, Ocular Sequelae, and Outcomes	MedStar Harbor
Farooq, Nauman	Transfusion Practice in Non-Trauma Related Hemorrhagic Shock	St. Agnes Hospital
Le, Michelle	Etiology of Chronic Liver Disease is an Independent Predictor of Morbidity and Mortality	Sinai Hospital
Sinha, Amitasha	Epidemiological Trends of End-Organ Damage with Alcohol Consumption: Liver, Pancreas and Neuropsychiatric Disorders	Sinai Hospital
Balasubramanian, Shanti	Assessing Calorie and Protein Recommendations for Survivors of Critical Illness Weaning from Prolonged Mechanical Ventilation – Can we Find a Proper Balance?	UMMC/VA
Cafarchio, Michael	Assessing Perceptions and Experiences of Adult-Care Providers with Transition from Pediatric to Adult Care	UMMC/VA
Glick, Danielle	Exploratory Study of Anticipatory Grief Among Surrogate Decision Makers of Patients Admitted to Medical, Surgical and Trauma Intensive Care Units	UMMC/VA
Khural, Jasjeet	Pulmonary Vein Adipose Tissue Volume Predicts Late Outcomes of Atrial Fibrillation Ablation	UMMC/VA
Park, Ji Eun	The Epidemiology of Acute Decompensated Heart Failure in an Urban, Predominantly Black Population	UMMC/VA
Perinbasekar, Rajiv	Proactive Monitoring of Infliximab and Adalimumab Drug and Anti-Drug Antibody Concentration Utilizing the LabCorp Assay in Inflammatory Bowel Disease Patients	UMMC/VA
Sivasailam, Barathi	Gastroenterology Consults and Fecal Microbiota Transplant for Clostridium Difficile Infection Patients After the Implementation of a Multi-Disciplinary Action Team	UMMC/VA
Maddy, Nora	High Value Cost Conscious Care: A Multi-Step Reduction in Unnecessary Diagnostic Testing	Walter Reed

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**MARYLAND CHAPTER
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MAY 18, 2017**

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Poster

Oral

Either

General Classification:

Clinical Vignette

Research Competition

Basic Science

**Evidence based medicine
review**

Quality/Safety

Clinical Research

**Indicate your participation
in research process (4 sentences or
less):**

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Program Director's Name: Paul Foster MD

(indicating review of abstract)

**Volume assessment in patients with pre renal AKI using urine
electrolytes and ultrasound of the IVC**

Introduction: Early stage AKI is associated with increased mortality. Historically patient's volume status is measured by capillary refill, orthostatic hypotension or by placement of a central line. The former are not sensitive whereas the placement of central line is invasive. The treatment of volume responsive AKI requires accurate identification of the patient population that will benefit from volume resuscitation. However, accurate assessment of volume status possess a major challenge during the early stages of acute renal injury. Urine biomarkers provide objective evidence of intravascular volume status, and in recent years point of care ultrasound has been used to assess volume status as well.

Methods and results: Our team conducted a retrospective chart review with the aim to assess the association of inferior vena cava collapsibility by point of care ultrasound (POC US) and urine electrolytes (urine sodium, fractional excretion of sodium) during early stage AKI (defined by stage 1-2 of KDIGO guidelines). We reviewed 150 cases based on the provisional diagnosis reflecting hypovolemia. 37 patients met all the criteria for further review. Using bivariate analysis, we found a strong association between > 50% IVC collapsibility with FENa < than 0.4 % with an odds ratio of 5.94 (CI 0.99-30, p=0.05), and urine sodium <20 meq/dl with an odds ratio of 5.3 (CI 1.29-22.3, p=0.02) . Subsequently, multivariate analysis and spearman correlation showed an inverse relation between IVC collapsibility and fractional excretion of sodium FENa ($\beta = -0.4, p=0.03$) and ($r=-0.4, p=0.02$).

Conclusion: These findings suggest the role of using POC US and urinary markers in predicting the intravascular volume status during the early stage of AKI. Ready availability and objective information provided by the bedside ultrasound makes it a valuable tool to predict volume status in cases of early stages of AKI and difficult to interpret urine studies. Further prospective studies are needed to confirm this association.

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Program Director's Name: Paul Foster

(indicating review of abstract)

Impact of an academic rounds checklist on diagnostic error – an initial pilot

IOM defines a diagnostic error as failure to find an accurate and timely explanation for the patient's health problems and/or failure to communicate that explanation to the patient. Approach to diagnosis is a complicated process and quantifying error rates is even more challenging. Patient admission and diagnosis process in an academic service gives us an excellent opportunity to measure diagnostic errors as every resident admission is evaluated by an attending and thus a standardized evaluation tool can help measure diagnostic errors and can help us understand the challenges faced in doing so.

We have developed a checklist tool (TACT) to formalize resident rounding team assessment of night-float patients. Surveys of residents who used the tool showed that it impacted perception of engagement and learning and anecdotally improved patient care. TACT has not been studied in a controlled fashion that clearly demonstrates improved accuracy, length or cost of care. Multiple methodologic questions need answers in designing such investigation, primarily controlling for patient and practitioner variability and assessing outcomes. We also need an effective surrogate marker that predicts diagnostic error and allows rapid testing of similar tools. We performed our first 2-week pilot trial, with daily alternating use of TACT. Residents and attendings were paired for analysis to control for personal differences.

Outcome measures included anticipation of principal diagnosis at discharge, and 60 days as seen from perspective of patient and primary physician, cost of care and length of stay. We also created a worksheet comparing admitting resident's and attending's impression in three dimensions: whether to test for alternate diagnoses, essential clinical questions affecting diagnostic approaches, and complications needing prophylactic action. All are reported as a single correction score. This score captures the attending's impact on the diagnostic and care plan. We also qualitatively assessed the team's clinical discussion and participant reactions. The correction score increased with use of TACT, indicating that it influenced attending action. The impact of the pilot mechanics on clinical work appeared acceptable. Given only 15 total cases, we detected no difference in diagnostic accuracy. Use of TACT was variable and relatively superficial consistent with incomplete training. Residents with more training felt the tool more helpful. Although we designed the correction score to monitor the impact of TACT itself, we found it may represent a marker for diagnostic error in an academic setting. In simplest terms, improving diagnosis requires better discrimination of when to test and treat. Articulating resident's perception of risk in relation to their perceived threshold for action appears to normalize them across multiple complex and diverse decisions. A comparison of attending correction of the residents' decisions can then occur with rigor and simplicity. We report the analysis behind this insight and lessons learned from this initial pilot. We plan further pilot trials to guide design of a definitive larger trial.

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Indicate your participation in research process (4 sentences or less):

I designed the project along with my mentor Dr. Meltzer, collected the data from the electronic health record, performed a preliminary analysis and wrote up the results.

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(indicating review of abstract)

RISK FACTORS FOR PROGRESSION OF BARRETT'S ESOPHAGUS TO HIGH GRADE DYSPLASIA AND ESOPHAGEAL ADENOCARCINOMA

Introduction:

Over the past 3 decades, the incidence of esophageal adenocarcinoma (EAC) has been increasing rapidly in the United States. Barrett's esophagus (BE) is a premalignant condition that can potentially progress to low-grade dysplasia (LGD), high-grade dysplasia (HGD), or ultimately EAC. This study aims to identify BE patients at high risk for progression to EAC in order to improve screening outcomes.

Methods:

Our single center retrospective cohort study comprised 460 patients at Johns Hopkins Hospital who had undergone at least 2 upper endoscopies 6 months apart showing biopsy-documented BE between 1992 and 2013. Patients with HGD or EAC on their initial EGD were excluded. Demographic, clinical, and endoscopic data were collected. Univariate and Multivariate Cox proportional hazards analyses with time to progression to HGD and EAC was performed to identify risk factors.

Results:

132 BE patients developed HGD and 62 developed EAC. The 10-year cumulative incidence curves for HGD and EAC were 40% and 17%. On multivariate analysis, significant risk factors for developing HGD included age, caffeine intake, history of regurgitation, solid organ transplant and colonic adenomas as well as low-grade dysplasia; significant risk factors for developing EAC were age, abdominal obesity, caffeine intake, usage of oral anti-diabetic medications, and the presence of HGD. Long-segment BE was a significant risk factor on univariate analysis, but after multivariate adjustment no longer remained significant. Notably, statin or selective serotonin reuptake inhibitor (SSRI) intake significantly reduced the risk of developing EAC or HGD by 49%, and 61%, respectively.

Conclusions:

This large retrospective cohort study validated known risk factors including age, abdominal obesity, and smoking history but also identified several novel risk factors, including history of regurgitation, solid organ transplantation, colonic adenomas, and caffeine usage. Notably, SSRIs may be a potential novel protective medication. These risk factors and protective medications merit further study.

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**Indicate your participation
in research process (4 sentences or
less): I assisted in gathering the data
(calling patients and completing
questionnaires over the phone as well as
reviewing charts to extract and log
relevant data), working with a statistician
to analyze the data, and writing the
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Program Director's Name: Paul O'Rourke, MD, MPH

**THE RELATIONSHIP BETWEEN DEPRESSION
AND ADVERSE CARDIOVASCULAR EVENTS:
EXAMINING SEROTONIN DRIVEN PLATELET
ACTIVATION AS A FACTOR.**

Background/Purpose: Depression and coronary artery disease (CAD) are often linked. The aim of this study is to explore the effects of depression on the incidence of adverse events, and to correlate platelet activation with such events.

Methods: Patients with acute coronary syndrome (N=135) or stable CAD (N=152) were assessed for depressive symptoms using the Beck Depression Inventory (BDI). Rates of major and minor adverse events at 12-month follow-up were correlated with severity of depression. Platelet aggregation was measured using increasing epinephrine-augmented serotonin or adenosine diphosphate (ADP). Results were expressed as the agonist concentration producing half-maximal effect (EC50).

Results: Patients with BDI>10 experienced significantly more minor adverse events ($p<0.001$) and there was a trend toward increased incidence of major events at 12-month follow-up ($p=0.055$). The occurrence of ≥ 1 minor event was correlated with increased platelet response to serotonin, but did not reach significance ($p=0.18$).

Conclusion: Depressive symptoms are associated with increased incidence of minor adverse events, with a trend toward increased major events. Increased platelet response to serotonin did not reach statistical significance leaving the role for serotonin-driven platelet activation unproven. These results demonstrate the deleterious impact of even minor depressive symptoms in cardiac patients. The role of platelet function in this relationship deserves further inquiry.

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Indicate your participation in research process (4 sentences or less):

I performed a literature review and designed the curriculum with guidance from my mentor, Dr. Christmas. She and I took turns teaching the curriculum. Lastly we collaborated to complete the data analysis.

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Program Director's Name: Erica Johnson MD, Johns Hopkins Bayview

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Title: Teaching about Intimate Partner Violence: Assessment of a Curriculum for Internal Medicine Residents

Background: Intimate partner violence (IPV) is a widespread problem in the US, affecting 1 in 4 women and 1 in 7 men. IPV is associated with detrimental physical, mental, and behavioral health consequences.

However, there are no standardized IPV requirements in medical education. Studies show that physicians in training and practice have limited IPV knowledge and desire more education. Existing curricula for medical students and practicing physicians have improved IPV knowledge and screening. There are little data for IPV education in residency. This study evaluated a curriculum designed to improve residents' knowledge, attitudes, and practices in caring for IPV victims.

Methods: 15 first-year internal medicine residents at Johns Hopkins-Bayview participated in two, 1-hour classes during July and August of 2016. The first class included a speaker with IPV experience, a case discussion, and a didactic presentation. The second part reviewed evidence for IPV interventions and focused on patient-doctor communication using role plays. Data were collected via voluntary, pre- and post-curriculum surveys with questions adapted from the validated tool, PREMIS (Physician Readiness to Manage Intimate Partner Violence Survey). Pre- and post-survey responses were compared using paired, two-tailed t tests and descriptive statistics.

Results: 15 residents participated in the baseline survey and 12 participated after the intervention. IPV knowledge was high at baseline and did not improve except for one question about health consequences of IPV ($p=0.032$). Assessment of attitudes showed an existing recognition of IPV and its health impact, which did not change. The curriculum significantly improved confidence in detecting IPV ($p=0.022$), documenting IPV ($p=0.000035$), and referring to resources ($p<0.00001$). Participants reported increased comfort with managing their emotions regarding IPV ($p=0.0080$) and discussing IPV with female (<0.00001) and male ($p=0.021$) patients. Self-reported frequency of IPV screening for female patients remained the same ($p=0.45$) but improved for male patients ($p=0.033$). All participants agreed or strongly agreed that after the curriculum they would be more skillful in discussing IPV, more likely to screen for IPV, and better equipped to refer to IPV resources.

Conclusions: A curriculum for residents improved their confidence and comfort in addressing IPV. After training, all participants felt they were more prepared to screen for IPV, discuss IPV, and refer to resources. Incorporating IPV curricula into residency may promote greater detection of IPV and better care for victims.

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Quality/Safety

Clinical Research

Indicate your participation in research process (4 sentences or less):

I completed the literature search, designed and conducted the analysis using SAS, created the data tables, wrote the abstract, and designed the poster. The second author collected the data.

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Darius Rastegar, MD

Title: Who Leaves Early? Factors Associated with AMA Discharge During Alcohol Withdrawal Treatment.

Objective: To investigate the rate of discharges against medical advice (AMA) and clinical and patient factors associated with leaving AMA among patients admitted for treatment of alcohol withdrawal.

Methods: Data from all patients admitted to a dedicated unit for treatment of alcohol withdrawal were collected over a 6-month period from September 2015 to February 2016. Data was abstracted from the electronic medical record to capture patients' demographic and clinical data, discharge disposition, and previous admissions for the treatment of alcohol withdrawal. Initial and peak scores on alcohol withdrawal scales were grouped on "below median" and "at or above the median." Comparisons between AMA and non-AMA discharges were made on the various clinical and patient factors in an unadjusted analysis. An adjusted analysis using logistic regression was performed on those factors with significant between group differences.

Results: The study population included 655 patient encounters. A total of 93 (14%) discharges were AMA. Patients who left AMA were on average younger (43 years vs 46 years; $p < 0.05$), more likely to be admitted from the ED (55%) compared to directly admitted from the community (35%; $p < 0.05$), more likely to leave on a Tuesday-Thursday (AMA 30% vs non-AMA 20%, $p < 0.05$), and a higher proportion had an initial withdrawal score at or above the median (AMA 69% vs non-AMA 55%; $p < 0.05$). There were no between group differences in gender, concurrent opioid withdrawal treatment, prior admissions for alcohol withdrawal treatment, or the amount of benzodiazepines administered per day. The adjusted analysis demonstrated the significant effect of increasing age (OR 0.97, CI 0.94-0.99) and admission from the ED (OR 2.04, CI 1.28-3.25) and the odds of discharge AMA. The effect of initial alcohol withdrawal score was no longer significant.

Conclusions: AMA discharges occurred in 14% of admissions. Being admitted from the ED and younger age were associated with leaving AMA. No other patient or clinical factors were found to be associated with AMA discharges.

Program Director's Name: Paul O'Rourke, MD, MPH

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Quality/Safety-→Of note, this is a medical education innovation project pertaining to development of a revised high value care/health care quality curriculum

Clinical Research

Indicate your participation in research process (4 sentences or less):

Jackie took the lead in developing, implementing, and evaluating a revised high value care inpatient curriculum at Johns Hopkins Bayview.

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Institution: Johns Hopkins Bayview

Co-Author(s) Associates: Sonali Palchaudhuri MD, Paul O'Rourke MD MPH

INFUSING HIGH VALUE CARE EDUCATION DIRECTLY INTO PATIENT CARE ON THE MEDICINE WARDS

Objectives: In order to augment high value care (HVC) education in the clinical setting, we developed a curriculum that aims to teach and practice HVC on the inpatient medicine wards. Our goal is to teach material that is directly related to the care being provided by the team. Rather than teaching concepts that are separated from the clinical work, we explicitly aimed to introduce material that can be utilized at the point of care.

Target Audience: Internal medicine housestaff and medical students

Description of Program: One of the four medical ward teams has been designated the HVC team. Core components of the HVC curriculum are two collaborative educational sessions organized on non-admitting days. These sessions emphasize the importance and impact of HVC on patients and health care, while providing trainees with the tools to practice HVC and incorporate it into patient care. Learners are introduced to Bayesian thinking and are encouraged to incorporate pre-test probabilities into their patient rounding discussions. The team learns about resources that provide information on costs, harms, and benefits of medical tests and therapies. They also learn how to assess and counsel patients about financial burden, with the expectation that they will practice this skill at the bedside. In the second session, the team is guided through shared reflection of the care they provided during the rotation and is encouraged to evaluate whether Bayesian thinking and HVC principles were applied. They also review an itemized hospital bill for one of their patients. The bill review allows the team to assess whether and how the tests and treatments ordered impacted the care of the patient, and to propose alternative approaches for future patients.

Evaluation: We are measuring impact by asking learners to complete pre- and post-rotation online surveys. The surveys measure change in knowledge of HVC and attitudes toward HVC and assess the degree to which HVC principles were incorporated into patient care throughout the rotation. Evaluation data currently being collected.

Conclusions: We implemented a curriculum that is concise and not excessively demanding, with the hope of delivering maximum value to the participants. Rather than teaching concepts that are separated from the clinical work, we explicitly aimed to introduce material that can be utilized at the point of care. After participation in the curriculum, we hope to enhance knowledge, attitudes, and practice patterns pertaining to HVC.

Program Director's Name: Paul O'Rourke, MD, MPH

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in research process (4 sentences or

less): The first author conducted study design under the supervision of the last author, data collection, analysis, literature review and abstract writing. Work on this project started earlier during the previous appointment of the first author at MD Anderson Cancer Center and was completed during a research elective at the same institution as part of MedStar Harbor Hospital internal medicine residency.

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¹ MedStar Harbor Hospital, Department of Medicine. ² The University of Texas MD Anderson Cancer Center, Department of Diagnostic Radiology, Section of Neuroradiology. ³ The University of Texas MD Anderson Cancer Center, Department of Pathology

DISTANT METASTATIC HEAD AND NECK MUCOEPIDERMOID CARCINOMA: A SEVEN-YEAR INSTITUTIONAL EXPERIENCE

Purpose: This is a retrospective case series of the distant metastatic head and neck mucoepidermoid carcinoma (MEC). The purpose of this study was to describe the spectrum of the distant metastatic spread of MEC and the corresponding patient characteristics. Because MEC is a rare malignancy which rarely metastasizes to distant locations, little is known about distant metastatic disease. Learning more about the distant metastasis sites could lead to earlier detection of distant recurrence.

Method: We studied all histologically proven distant metastatic head and neck MEC cases that presented to University of Texas MD Anderson Cancer Center from January 2008 to May 2015. Surgical specimens from the primary tumors and from metastatic lesions, if available, were reviewed by a head and neck pathologist. Clinical, epidemiological, treatment, and follow-up data were collected from the medical records. A review of the literature was performed to determine the rates of distant metastatic head and neck MECs reported by other studies, and a cumulative distant metastasis rate was calculated.

Results: Three-hundred thirty-six patients with MEC were referred to our center of which 21 (6.24%) were identified with distant metastases. The primary sites were the parotid gland (n=11), submandibular gland (n=3), base of tongue (n=3), soft palate (n=1), buccal mucosa (n=1), maxilla (n=1), and nasal cavity (n=1). The most common metastasis sites included lung, bone, liver, and skin. Most metastatic tumors were high grade, but five were intermediate grade. Perineural invasion was seen in the majority of the primary tumors. Male patients predominated in the distant metastatic population (15 [71.4%] of 21). The median age at diagnosis was 58 years (range: 23 to 78 years). Our review of the literature revealed a total of 111 distant metastatic cases out of 1284 MEC cases, resulting in a cumulative distant metastasis rate of 8.2%

Conclusion: The distant metastatic potential of MEC, involving a wide range of organs, should not be underestimated for both high and intermediate grade tumors. Perineural invasion seems to be a common feature of primary tumors which later metastasize to distant locations. The most common metastasis sites included lung, bone, liver, and skin.

Program Director's Name: Richard Williams, MD
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Indicate your participation
in research process (4 sentences or
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study design, implementation, data
collection and writing.

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Program Director's Name: Dr.
Stephanie Detterline

**Effectiveness of Resident-Led, Resident-Implemented
Low-Cost Educational Intervention on Hepatitis C Virus
Screening**

Introduction: Electronic reminders with clinical patient counseling have proven effective in response to national recommendations to increase risk factor and birth cohort HCV screening. It is not known whether an educational intervention alone could increase screening and testing rates where support for electronic intervention may be lacking. We hypothesized that a resident-designed, resident-implemented low-cost educational intervention alone would significantly improve HCV screening and testing rates in primary care clinics.

Methods: Baseline HCV screening rate was determined retrospectively in resident community-based primary care clinics in our hospital network. We then implemented an educational intervention that included brief presentations in house staff conference and use of signs and handouts in clinic areas. We prospectively collected screening rate data and compared the screen rate among baseline and 3 and 6 months post-intervention. Overall screening rate was defined as patients previously and newly screened divided by the number of patients eligible for screening.

Results: The overall screening rate increased significantly from pre-intervention (64/1023 [6.26%]) to 3 months (363/1026 [35.4%]) and 6 months (443/1070 [41.4%]) and between 3 and 6 months ($P < 0.001$) The percentage of screened patients who pursued testing increased significantly between baseline (16/26 [61.5%]) and 6 months (105/130 [80.8%]) and between 3 (95/141 [67.4%]) and 6 months ($P=0.02$).

Conclusion: Our study has shown that an educational intervention designed and implemented by residents at low cost significantly increased the screening and testing rates for HCV in community-based resident clinics.

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Indicate your participation in research process (4 sentences or less): Resident was responsible for study design, data collection and statistical analysis.

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Program Director's Name: Stephanie Detterline, MD

Evaluation of Factors Associated with a Pathogenic PRSS1, SPINK1, CTFR, and/or CTRC Gene Mutation(s) in Patients with Idiopathic Pancreatitis

Background: In approximately 10-30% of pancreatitis, if no etiologic factor can be found after a thorough evaluation, the cause is classified as idiopathic pancreatitis. We evaluated the factors associated with pathogenic gene mutations in patients with idiopathic acute recurrent pancreatitis (ARIP) and idiopathic chronic pancreatitis (ICP).

Methods: Adult patients referred to a multidisciplinary pancreatitis clinic from 2010 to 2015 who underwent commercially available gene testing [cystic fibrosis transmembrane conductance regulator (CFTR), protease serine 1 (PRSS1), serine protease inhibitor, Kazal type 1 (SPINK1) and chymotrypsin C (CTRC)] were included in the study. ARIP was defined as 2 or more episodes of acute pancreatitis (AP) and ICP was defined according to M-ANNHEIM criteria. Gene mutation testing was defined as positive if the pathogenic mutation was present in at least one of the 4 tested genes. All patients were categorized into the following groups based on commonly employed criteria for gene mutation testing: 1) ARIP; 2) ICP without a history of ARIP; 3) unexplained first episode of AP < 35 years of age; and 4) family history of pancreatitis. Pathogenic gene mutation positivity was then evaluated using a logistic regression model adjusted for a history of smoking, alcohol use, pancreas divisum, and prior cholecystectomy.

Results: Among 413 ARIP and/or ICP patients evaluated from 2010 to 2015, 139 (32.4%) with idiopathic pancreatitis underwent gene mutation testing. Among patients with ARIP, 56 out of 97 patients (57.7%) had one or more of the following pathogenic gene mutation(s) including: 49 CFTR, 22 SPINK1, 5 PRSS1 and 2 CTRC mutation(s). Among patients with definitive or probable ICP without a history of ARIP, 7 (26.9%) had pathogenic gene mutation(s), including: 6 CFTR and 2 SPINK1 mutation(s). In patients with a first episode of AP < 35 years of age, 37 out of 59 patients (62.7%) had one or more pathogenic gene mutation(s) and only 12 patients had a family history of pancreatitis with 6 (50%) patients found to have one or more pathogenic gene mutation(s). On multiple logistic regression, only ARIP (OR: 18.1; 95%CI: 2.1 – 151.9; p = 0.008) and first episode of AP < 35 years of age (OR: 2.4; 95%CI: 1.1 - 5.1; p = 0.017) were associated with pathogenic gene mutation(s).

Conclusion: The greatest diagnostic yield of gene mutation testing was in patients with ARIP and patients with an unexplained first episode of AP < 35 years of age. Genetic testing in these patient populations may delineate an etiology and prevent unnecessary diagnostic testing and procedures.

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**FIVE-FRACTION STEREOTACTIC BODY
RADIOTHERAPY (SBRT) IN CONCERT WITH
CHEMOTHERAPY FOR TREATMENT OF INOPERABLE
PANCREATIC ADENOCARCINOMA**

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Background: SBRT has emerged as an attractive treatment
option for inoperable pancreatic adenocarcinoma due to its short
treatment duration, minimal chemotherapy disruption, and
acceptable side effect profile. Here we report the clinical
outcomes from a large single institutional cohort treated
definitively with SBRT.

Methods: This retrospective analysis examines 75 patients with
inoperable adenocarcinoma of the pancreas. SBRT was delivered
in 5 fractions to a total dose of 25 to 30 Gray (Gy). Chemotherapy
was concurrently administered if it was given within one week of
the start of SBRT treatment. Toxicities were scored using the
Common Terminology Criteria for Adverse Events version 3.
Local control was determined with radiological follow up using
Response Evaluation Criteria in Solid Tumors (RECIST). Both
local control and overall survival were calculated using the
Kaplan-Meier method.

Results: A total of 75 patients with a median age of 69 years (45
to 90) were analyzed. Median pre-treatment ECOG was 1 and the
majority of patients were female (53%). The majority of tumors
were localized to the pancreatic head (81%) and the most
common reason for inoperability was locally advanced disease
(75%). Concurrent chemotherapy was delivered in 55 (73%)
patients. Combination folinic acid, fluorouracil, and oxaliplatin
(FOLFOX) and single-agent gemcitabine were the most common
concurrent systemic regimens used in 47% and 40% of cases,
respectively. Kaplan-Meier 6- and 12-month local control was
88% and 72%, respectively. Kaplan-Meier 1-year and median
survival was 55% and 12.26 months, respectively.

Conclusions: Five-fraction SBRT can be practically delivered in
concert with chemotherapy and achieves excellent local control in
this cohort of patients with inoperable pancreatic cancer.

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INCREASED FREQUENCY OF TOPICAL STEROIDS PROVIDES
BENEFIT IN TREATMENT OF POSTSURGICAL CYSTOID
MACULAR EDEMA
Yong Han, MD¹

Introduction: Cystoid macular edema (CME) is a painless disorder that affects the macula and presents with cyst-like areas causing retinal swelling. This condition eventually leads to decreased central vision and causes permanent damage if left untreated. CME can occur secondary to a variety of conditions such as retinal vein occlusion, uveitis or diabetes. However, it most commonly arises after cataract surgery. The purpose of this study is to compare standard and frequent administration of topical steroids in the treatment of postsurgical cystoid macular edema.

Methods: Patients with postsurgical CME were stratified into post-cataract and post-other surgery and randomized to ketorolac qid + 1% prednisolone acetate (PA) qid or every hour while awake (q1hWA). The primary endpoint was the mean change from baseline best corrected visual acuity (BCVA) at week 12 after which patients randomized to PA qid were changed to PA q1hWA if edema was not resolved. Secondary endpoints were the mean change from baseline central subfield thickness and IOP at week 12 and mean change from week 12 BCVA and CST at week 24.

Results: Twenty-two patients (13 post-cataract and 9 post-other surgery) were randomized to PA q1hWA and twenty patients (12 post-cataract and 8 post-other surgery) to PA qid. At week 12, the change from baseline BCVA in the PA q1hWA group vs the PA qid group was 11.6 vs 8.5 (p=0.32). Subgroup analysis showed PA q1hWA vs PA qid of 10.6 vs 7.8 in the post-cataract group and 13.1 vs 9.4 in the post-other surgery group. The change from baseline CST at week 12 in the PA q1hWA group vs the PA qid group was -103.3 vs -60.6 (p=0.30). The mean change from baseline IOP was 1.7 vs 2.6 mmHg (p=0.52). Ten patients in the PA qid group with residual edema at week 12 were switched to PA q1hWA and at week 24, the mean changes from week 12 BCVA and CST were 5.0 letters (p=0.053) and -74.0 μ m (p=0.047).

Conclusions: Our data suggest that patients with postsurgical CME should initially be treated with ketorolac and PA qid, but if edema does not resolve after 12 weeks, a switch to ketorolac qid and PA q1hWA may provide additional benefit.

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UNSUPERVISED CHARACTERIZATION OF ADULT HYDROCEPHALUS

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Purpose: Adult hydrocephalus (AH) is a heterogeneous group of diseases resulting in abnormal building up of cerebrospinal fluid (CSF) in the ventricular system. Systematic categorization and characterization of AH have not been achieved yet. Here, we analyze a large number of subjects using unbiased mathematical approaches to classifying and characterizing AH.

Methods: We used an unsupervised cluster-based approach to integrating over 100 parameters from volumetric analysis, cerebral aqueductal flow analysis and clinical data of 495 subjects (mean age: 58.7) with varying degree of ventricular enlargement and responses to shunt surgery.

Results: Evan's index is a poor predictor for the extent of ventricular volume enlargement. Unsupervised clustering of volumetric data provides consistent results to a clinical MRI classification scheme. Cross correlation tables are presented from the results of volumetric analysis and phase contrast imaging to reveal clusters of associated variables.

Conclusions: Our study uses an unbiased approach to define relationships between data derived from phase-contrast CSF flow imaging, volumetrics and clinical data. These relationships provide important insights of various forms of adult hydrocephalus and require further study.

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A Quality Improvement Intervention to Lower Hemoglobin Threshold for Red Blood Cell Transfusion

Srilakshmi Vallabhaneni MD, Kavita Jain MS III, Richard Williams MD, FACP

Background and Objectives: Implementation of stricter indications for transfusion has reduced cost, resource consumption, and adverse events associated with RBC transfusion including transmission of blood-borne pathogens and transfusion reactions. Consequently, current guidelines now maintain absolute indication for transfusion in patients with a hemoglobin concentration below 6 g/dL, a drastic decrease from the "10 (hemoglobin)/30 (hematocrit) rule" that has been used previously. Our hospital created a new set of guidelines sources that included specific indications for transfusion in patients with hemoglobin concentration less than 8 g/dL and a separate set of indications for those with hemoglobin concentration less than 7 g/dL.

Methods and Analysis: We will discuss results of an intervention aimed at achieving adherence to these guidelines in an inpatient clinical setting by educating Resident as well as Attending Physicians. Our intervention lasted 4 months, from January to April of 2015, and had multiple components. Firstly, we invoked a mandatory Sitel module for all hospital prescribers. We also incorporated indications for transfusion into the software used to place orders. Physicians placing an order for transfusion would thus have to enter an indication before ordering RBCs. We also organized mandatory educational conferences in which these guidelines were discussed. In coordination with the blood bank, we tracked the total units of RBCs ordered both before and after our intervention.

Results: In the nine-month period preceding intervention, from April to December of 2014, there were a total of 735 units of RBCs ordered by Residents and 707 units ordered by Attending Physicians. In the nine-month period following this intervention, April to December of 2015, we saw a decrease to 623 units ordered by Residents and 495 units ordered by Attending Physicians. In the period preceding the intervention, 40.8 percent of patients that were transfused had hemoglobin concentration less than 7, which saw a drastic increase to 56.4 percent in the period following intervention.

Conclusion: The results from this initiative show the efficacy of a simple, cost effective, and resource limited intervention. The measures we took were effective in reducing the number of transfusions ordered by our hospital personnel consistent with the current guidelines for RBC transfusion. We intend that adherence to this lower hemoglobin threshold has reduced cost, saved resources, and has also decreased the occurrence of adverse transfusion-related events. This has contributed to increased hematologic patient safety in the realm of RBC transfusion.

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**DRIVERS OF CHANGE IN CHOROIDAL THICKNESS WITH IOP
FOLLOWING TRABECULECTOMY**

Purpose: Choroidal thickness (CT) has been shown to increase with intraocular pressure (IOP)-lowering following trabeculectomy. We studied the relationship between IOP and the change in the large choroidal vessels to determine the physiology behind change in CT.

Methods: 21 eyes of 20 patients undergoing trabeculectomy were examined pre-operatively, then post-operatively at 1 week and 1, 3, and 6 months with IOP checks and Enhanced Depth Imaging SD-OCT (Spectralis, Heidelberg Instruments) centered on the posterior 6mm surrounding the fovea. Two techniques were used to measure the choroidal vessel (CV) thickness, one focusing on the large choroidal vessel layer (LCVL), and the other determining the thickness (diameter) of the visible choroidal vessels themselves. Interstitial thickness was defined ($1 - CV$ thickness). The relationship between the change in CV thickness, choroidal interstitial thickness, LCVL, change in IOP, and change in CT after trabeculectomy was analyzed using linear regression model to calculate the coefficient of determination (R^2), at one month and at greatest change.

Results: CV thickness increased with decrease in IOP at one month ($p=0.03$, 95% CI: -3.1, -0.2) but not at largest change in IOP ($P=0.19$, 95% CI: -3.3, 0.7). Similarly, interstitial thickness increased with decrease in IOP at one month ($P=0.01$, 95% CI: -2.8, -0.4), but not at the largest change in IOP ($P=0.08$, 95% CI: -2.8, 0.2). We found change in LCVL to be linearly correlated with change in CT nasally, temporally, and subfoveally at 1 month ($b=1.10-1.49$, $R^2=0.82-0.94$, $p<0.05$) and largest difference ($b=1.21-1.40$, $R^2=0.40-0.62$, $p<0.05$). In this sample, CV thickness was not linearly correlated with change in IOP ($b=-1.6$, $R^2=0.291$).

Conclusions: Our data show that the increase in CT with IOP-lowering following trabeculectomy is due to both changes in intravascular volume and interstitial space. CT increases linearly with the large choroidal vessel layer.

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PERIOcular INFANTILE HEMANGIOMA: CHARACTERISTICS, OCULAR SEQUELAE, AND OUTCOMES

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Purpose

To determine the characteristics of periocular infantile hemangioma (IH) that predicts complications and the prevalence of ocular complications before and after interventions to better guide management.

Methods

A Retrospective chart review of 89 patients with periocular IH (ages 0-18) seen at a pediatric dermatology clinic between 2001 and 2013. Patients were identified using a database of photographs taken during patients' previous clinic visits with parental approval. A follow up telephone interview with parents was conducted in July to September of 2015.

Results

Ocular sequelae were observed in 60% of patient. Deep (73%) and mixed (80%) IH were associated with higher rate of ocular complications than superficial IH (50%) ($p=0.045$). Notably, 33% had astigmatism, 7% had lacrimal gland obstruction, 4% had ptosis, 3% had amblyopia and 1% had strabismus. Patients that received systemic therapy had a significant decrease in the rate of astigmatism 40% pre-treatment versus 18% post-treatment ($p=0.027$). 76% of patients had complete regression by the time they started kindergarten. In our cohort, 14% of all patients had residual astigmatism after resolution of IH. Of these patients, most of the IH involved facial segment 1 (87.5%), which includes the upper eyelid.

Conclusion

Our study suggests a lower rate of amblyopia in patients with periocular IH compared to studies from the pre-propranolol era. Deep and mixed IH were more likely to have ocular complications than superficial IH. Following systemic treatment, a lower rate of astigmatism was observed.

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Transfusion practice in non-trauma related hemorrhagic shock

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Background: Evidence suggests that trauma patients with hemorrhagic shock requiring massive transfusion (MT), greater than 10 units of packed red blood cells (pRBC) in 24 hours, may have improved outcomes if resuscitated with a prescribed massive transfusion protocol (MTP). Currently, the recommended MTP follows a 1:1:1 ratio of pRBC, fresh frozen plasma, and platelets. However, MTP has never been studied in non-trauma related hemorrhagic shock patients.

Methods: This was a retrospective observational study of all patients who were treated with a massive transfusion protocol from 2011 to 2016 for non-traumatic hemorrhagic shock at an urban community hospital. We dichotomized the group into survivors versus non-survivors. We compared the distribution of outcomes of interest within the two categories by Mann-Whitney U test. Summary statistics are expressed as mean \pm standard deviation

Results: There were 102 orders for MTP during the study period, 47 patients met criteria for MTP. Of these 47 patients, 28 (60%) were female, average age was 55.3 ± 19.8 , and 24 were medical patients (9 were obstetric patients and 14 were surgical patients). Twenty-four (51%) of the 47 patients who received MTP survived. There was no difference in age between survivors versus non-survivors (50.37 ± 22.34 years old versus 60.77 ± 15.17 years old, respectively; $p = 0.107$, 95% CI = 0.57 – 21.35). Furthermore, there was no difference in the ratio of blood product transfusion between survivors and non-survivors, both groups were transfused with a 1:1:2 ratio of pRBC, fresh frozen plasma and platelets respectively. Of note, higher lactic acid levels were seen in non-survivors (10.56 ± 6.20 mmol/L) versus survivors (4.34 ± 3.88 mmol/L) ($p=0.0056$, 95% CI, 3.26-9.20).

Conclusion: Half of the patients treated with massive transfusion protocols for non-trauma related hemorrhagic shock survived. While there are many other variables to take into account related to survival in hemorrhagic shock due to non-traumatic etiologies, it is unclear if massive transfusion protocols created for trauma-related hemorrhagic shock are effective in non-trauma related hemorrhagic shock. Further research is needed to investigate best practices for transfusion in non-trauma related hemorrhagic shock.

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**ETIOLOGY OF CHRONIC LIVER DISEASE IS AN
INDEPENDENT PREDICTOR OF MORBIDITY AND
MORTALITY**

Michelle Le DO¹, Sayeedul Hasan MBBS¹, Amitasha Sinha
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Background

Chronic liver disease (CLD) and viral hepatitis accounts for more
than 240,000 admissions, and \$3.3 billion hospitalization charges
per annum in US, per 2015 estimates. It is unclear whether
etiology of CLD affects morbidity and mortality in CLD.

Objective: The aim of this study was to evaluate the association
of etiology with outcomes in CLD

Methods: The National Inpatient Sample (NIS) database for year
2011 was queried for ICD-9 discharge diagnosis of chronic
alcoholic liver disease (ALD), chronic liver disease due to viral
hepatitis (CLD-V) and non-alcoholic fatty liver disease (NAFLD).
Patients were then grouped into ALD only, CLD-V only, NAFLD
and ALD+CLD-V. Acute hepatitis was excluded from the study
cohort. Demographic characters, complications of CLD,
gastrointestinal (GI) bleeding, presence of liver cancer, transfer
status were used as predictors of length of stay, hospitalization
charges and death. Univariable and multivariable analysis were
performed using logistic regression. A p value of <0.01 was
considered significant.

Results: A total of 173,043 admissions were retrieved, with a
mean age of 56 ± 13.8 years, 58.6% males, and 68% white.
More than 50% of the study cohort were CLD-V, followed by
34.9% of ALD+CLD-V, ALD only at 9.7% and NAFLD at 4.9%. GI
bleeding was more common in alcoholic and viral etiology of
CLD, and only occurred in 2.5% of patients with NAFLD. Of these
211 patients in NAFLD with GI bleeding, over 50% were due to
variceal bleeding. Prevalence of liver cancer was also
significantly associated with alcoholic and viral etiology. Only
1.4% of patients with NAFLD died during hospitalization. On
multivariable analysis, sepsis was the strongest predictor of
mortality (Odds Ratio of 12.5). Viral etiology of CLD was
associated with a significant lowered hospitalization charges as
compared to ALD and NAFLD.

Conclusion: Sepsis is the strongest predictor of mortality across
all etiologies of CLD. NAFLD is associated with a significant lower
prevalence of GI bleeding, sepsis, liver cancer, and death as
compared to other etiologies of CL.

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EPIDEMIOLOGICAL TRENDS OF END-ORGAN DAMAGE WITH ALCOHOL CONSUMPTION: LIVER, PANCREAS AND NEUROPSYCHIATRIC DISORDERS

Amitasha Sinha MBBS¹, Sayeedul Hasan MBBS¹, Michelle Le
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Background

Alcohol use disorder was estimated to affect 16.3 million adults, accounted for \$249.0 billion in healthcare costs and is known to be the 4th leading cause of preventable death in United States. Alcohol consumption is associated with development of liver disease, pancreatitis, and alcohol induced mental disorders. However, little is known of the differences in rates of prevalence and hospitalization of these disorders, and whether there is an overlap between these disorders in chronic alcoholics.

Objective: The aim of this study was to evaluate the rates of alcohol related pancreatitis, liver diseases and neuropsychiatric disorders.

Methods: The National Inpatient Sample (NIS) database for year 2011 was queried for ICD-9 discharge diagnosis of alcoholic liver disease (ALD), alcoholic acute- or chronic -pancreatitis (ALP), and alcohol related mental disorders (ALMS) including withdrawal, psychosis and delirium. Patients were grouped into 7 groups ALD only, ALP only, ALMS only, ALD+ALP, ALD+ALM, ALP+ALM, and ALD+ALP+ALM. Demographics, length of stay, hospitalization charges and death were noted for all the groups. Univariable analysis was performed using logistic regression among the groups, and a p value of <0.01 was considered significant.

Results: A total of 158, 407 admissions were retrieved, with a mean age of 51 ± 12.6 years, 72.8% males, and 68% white. There was minimal overlap between the 3 groups of <16% of the entire cohort. Patients with ALD only were significantly older than other groups, and were associated with higher hospitalization charges and increased LOS. Patients with ALD only had a higher rate of mortality at 7% compared to an average of 3% in other groups.

Conclusion: There is a significant difference in the rates and mortality of alcoholic pancreatitis, alcoholic liver disease, and alcohol related mental disorders. There is little overlap between the prevalence of these 3 disorders, and further studies are needed to investigate the different pathways of end-organ damage in alcoholic consumption

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ASSESSING CALORIE AND PROTEIN RECOMMENDATIONS FOR SURVIVORS OF CRITICAL ILLNESS WEANING FROM PROLONGED MECHANICAL VENTILATION - CAN WE FIND A PROPER BALANCE? Balasubramanian S, MD, Serra M, PhD, Diaz-Abad M, MD, Deepak J, MBBS, Geraschenko Y, PA-C, Kigaya C, CNP, Netzer G, MD, McCurdy M, MD, Verceles AC, MD. University of Maryland School of Medicine, Baltimore, MD.

Background: Survivors of critical illness requiring prolonged mechanical ventilation (PMV) are predisposed to developing malnutrition, which could delay weaning from mechanical ventilation. Nitrogen balance can be estimated in these patients to determine their dietary protein requirements. The purpose of this retrospective, cohort study was to determine if patients admitted to a long-term acute care (LTAC) facility requiring PMV achieved registered dietician (RD) recommended goals for calories and protein, and if the recommendations were adequate to avoid negative nitrogen balance.

Methods: Survivors of critical illness receiving PMV in a LTAC facility who had 24-hour urine collections for urea nitrogen (24hrUUN) ordered for clinical purposes were studied. We determined 24-hour caloric and protein intake by calculating the calories and protein from each patient's tube feeding and protein supplement intakes for the 24-hour period that the patients underwent the 24hrUUN collection. Dietary intake was compared to RD recommendations for calories and protein to determine the percent of RD recommendations achieved. Nitrogen balance was calculated using the known protein intake from tube feeds and the measured nitrogen from the 24hrUUN. Negative nitrogen balance was defined as protein intake minus 24hrUUN less than -1.

Results: Subjects (N=9) were 55% male and 77% African American (mean± SEM: age: 64.6± 3.7 years; BMI: 27.9±2.3 kg/m²). Duration of hospitalization was 35 days ±15. On average, caloric intake was 24.4±2.3 kcal/kg/d and protein intake was 1.3±0.1 g/kg/d, which corresponded to 99% and 98% of RD caloric and protein recommendations, respectively. Negative nitrogen balance was avoided in eight patients (mean 3.8±1.5g), while only one was in negative balance.

Conclusion: The study demonstrates that survivors of critical illness being weaned from PMV achieve nearly 100% of RD recommended protein and calories, which results in a majority of these patients avoiding a negative nitrogen balance. Although we did not account for physiology that may result in an increased catabolic state, these results demonstrated that dietary recommendations are sufficient to avoid negative nitrogen balance in these patients.

Program Director's Name: Susan D. Wolfsthal

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Clinical Research

Indicate your participation in research process (4 sentences or less):

Data collection, analysis, primary author of abstract

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ASSESSING PERCEPTIONS AND EXPERIENCES OF ADULT-CARE PROVIDERS WITH TRANSITION FROM PEDIATRIC TO ADULT MEDICAL CARE. Cafarchio M, MD, Hurrell R, MD, Millstein L, MD, Tepper V, Ph.D. The University of Maryland School of Medicine and VA Medical Center, Baltimore, MD.

Background: With advances in medical care, there is a growing population with childhood-onset chronic health conditions reaching adulthood. The purpose of this study was to better understand the perceptions and experiences of adult-care providers with transitional care at a large, academic tertiary care medical center.

Methods: A 14 item anonymous survey was disseminated via email to 280 providers representing 12 divisions of Internal Medicine in May 2015. The survey consisted of 4 demographic items, eight questions ranking provider opinions on a 5-point Likert scale and two free-response questions regarding barriers and suggestions for improvement.

Results: The survey completion rate was 12.8%, including 36 internal medicine providers in 9 divisions. Most respondents (78%) strongly agreed that transitioning young adults with chronic childhood illnesses is important. Opinions were mixed on whether pediatricians should continue caring for chronic illnesses into adulthood -36% disagree or strongly disagree, 22% agree or strongly agree and 42% neutral. Most adult providers (72%) feel comfortable taking care of patients with childhood-onset chronic illnesses, but 50% felt this was challenging. Only 6 providers (17%) felt their division had an effective transition plan and only 4 (11%) reported adequate support staff. Nearly all providers surveyed (35/36) are comfortable including family members in the medical visit. The most commonly reported barriers to transition were poor communication between providers and inadequate preparation of patients (12 and 10, respectively). Seventeen responses noted patient-related barriers (e.g. poor preparation, poor adherence, complexity/ social issues and reluctance to transition). Ten cited adult provider-related barriers (e.g. insufficient availability of providers and support staff, lack of training and time).

Discussion: Overall, providers for adult patients at this academic medical center consider transitioning young adults with chronic childhood illnesses important. However, very few have transition programs in place due to a variety of barriers, reflective of the national trends. This survey better describes the perceptions of adult providers on this important topic and illustrates key target areas for improvement of transitional care.

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**in research process (4 sentences or
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**This abstract has been accepted for
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Program Director's Name: Susan D. Wolfsthal

**EXPLORATORY STUDY OF ANTICIPATORY GRIEF AMONG
SURROGATE DECISION MAKERS OF PATIENTS ADMITTED
TO MEDICAL, SURGICAL, AND TRAUMA INTENSIVE CARE
UNITS. Glick D, MD, Motta M, MD, Wiegand D, PhD, Range P,
LCSW, Reed R, MD, Verceles A, MD, Shah N, MD, Netzer G, MD.
The University of Maryland Medical Center, Baltimore, MD.**

BACKGROUND: Anticipatory Grief (AG), the experience of grief and bereavement prior to the actual death of a mourned individual, is common among those with seriously ill loved ones. In these settings, high levels of AG have been associated with impaired problem solving ability. The frequency of AG among surrogate decision makers (surrogates) in the Intensive Care Unit (ICU) is unknown. We hypothesized that AG would be common among this population and may be associated with impaired problem solving.

METHODS: We conducted an exploratory, cross-sectional pilot study of surrogates of patients in a medical center ICU at the University of Maryland Medical Center for seven days or more. A 78-question, self-administered questionnaire was used to collect demographic and clinical data, as well as three validated instruments: the Anticipatory Grief Scale (AGS), the Hospital Anxiety and Depression Scale (HADS), and the Social Problem Solving Inventory Revised Short Form (SPSI-R:S).

RESULTS: Surveys were completed by 10 surrogates, 7 of whom were women. Of the surrogates, half were adult children, 4 were spouses, and 1 was a parent. Respondent median age was 55 (interquartile range, IQR, 40 to 58) and patient median age was 59.5 (IQR 38.5 to 71.3). Patients had median APACHE II scores of 22.5 (IQR 17.8 to 33.5), and median Charlson comorbidity scores of 5 (IQR 1.8 to 6.3). The median HADS anxiety score was 10.5 (IQR 6.8 to 15), while the median depression score was 8.5 (IQR 4.8 to 10.3), both of which are considered borderline scores. The median AGS score among respondents was 89 (IQR 85 to 112). All 10 surrogates had scores >81, consistent with high levels of AG. Among surrogates, the median SPSI-R:S score was 104 (IQR 95 to 111), with all values within or above the age-adjusted normal range.

DISCUSSION: Among an exploratory sample of surrogate decision makers of critically ill patients, levels of AG were high. These AG scores were consistent with previously reported values in caretakers of patients with dementia. In this small sample, social problem solving scores were within normal range. Further data collection is ongoing to better characterize AG levels among surrogate decision makers in the ICU, their association with problem solving, and risk factors for high levels of AG. In addition, strategies for targeting AG may be needed to better support ICU surrogates.

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**PULMONARY VEIN ADIPOSE TISSUE VOLUME PREDICTS
LATE OUTCOMES OF ATRIAL FIBRILLATION ABLATION.**

**Khural J, MD, Jeudy J, MD, Vunnam R, MD, Dickfeld TM, MD,
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Christenson R, PhD, DeFilippi C, MD, and See VY, MD. The
University of Maryland School of Medicine and VA Medical Center,
Baltimore, MD.**

Purpose: We investigate the association between pulmonary vein
adipose tissue (PVAT), Galectin-3 (Gal-3) production, ST2 production,
CRP production, and atrial fibrillation (AF) ablation outcome.

Method: Total 23 patients undergoing AF ablation were enrolled.
Baseline computed tomography (CT) of the heart was acquired.
Epicardial adipose tissue (EAT), Left atrial adipose tissue (LAAT), and
PVAT volumes were summed from CT using Phillips Intellispace Portal
Tissue Segmentation analysis (-15 to -180 Hounsfield units) and
stratified by medians. Wide antral circumferential ablation for
bidirectional pulmonary vein isolation was performed. Gal-3, ST2, and
CRP were measured pre-, post-, and 6 hours post-ablation. Recurrence
was defined as any atrial fibrillation, flutter, or tachycardia > 30 seconds
within 24-months after ablation. Chi-squared and 2-tailed t-test were
used for statistical analysis.

Results: CT imaging, biomarker measurements, and time to recurrence
(622±218 days) was available for 15/23 patients [Caucasian 15 (100%),
Male 14 (93%), age 59±12 years]. High PVAT group (>11.32mL) had
significantly more recurrence of AF after 18 months (high v low: 18
mos. 85% v 25%, p = 0.031; 24-mos. 100% v 37.5%, p = 0.038). High
EAT volume was associated with high LAAT and PVAT volumes
(p<0.05). Total body weight was significantly greater for high volumes
of all 3 adipose tissue types (p<0.05); however, BMI was significantly
greater in high PVAT and LAAT only (p <0.05). Patients with high
EAT (>227mL) had greater rise in log[CRP] (high v low: 0.189±0.172 v
0.044±0.077, p=0.049) post- ablation. However, no significant
difference was noted in recurrence of AF post-ablation nor changes in
other biomarkers (p>0.05). No differences were noted in recurrence of
AF nor changes in biomarkers for high EAT or LAAT. No differences
were observed in biomarker production between high and low PVAT.

Conclusion: Baseline PVAT predicts recurrence of AF after ablation.
However, suspected biomarkers underlying the inflammatory
mechanism for recurrence of AF were not different between low and
high PVAT volume. Baseline EAT volume stratified CRP production
after ablation. Other mechanistic pathways that may link adiposity and
AF ablation outcome need further investigation.

Program Director's Name: Susan D. Wolfsthal

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**THE EPIDEMIOLOGY OF ACUTE DECOMPENSATED HEART FAILURE IN
AN URBAN, PREDOMINANTLY BLACK POPULATION. Park JE, MD. The
University of Maryland School of Medicine, Baltimore, MD; Temple
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Background: Black patients have the highest incidence and prevalence of heart failure (HF) at ages <75 years compared to whites, Asians, and Hispanic Latinos. Yet, the representation of minority populations in studies of HF has remained a challenge, with randomized, controlled trials in HF consistently underrepresenting minority populations. We seek to describe the demographic and clinical characteristics of a predominantly resource-poor, black population of HF patients and compare these characteristics with those in the African American Heart Failure Trial (AHeFT).

Methods: The study is a retrospective analysis of routinely collected data on patients admitted for HF at Temple University Hospital (an urban academic hospital with 721 inpatient beds and over 37,000 admissions per year) for a 7-month period in 2014. Admissions for HF were identified based on a primary or secondary admitting or discharge diagnosis of HF. The endpoint was 300 patients, determined ad hoc to be adequate sample size. Standard descriptive statistics were obtained for the entire sample and for subgroups.

Results: Of 287 patients, 190 self-identified as black. We compared these patients to the population in AHeFT.

	North Philadelphia		AHeFT		p
	N	Mean	N	Mean	
Age, y	190	62.01	1050	56.7	<0.001
Female, %	190	56.80	1050	40	0.0002
Body mass index, kg/m ²	184	35.56	1050	31.8	<0.001
Systolic blood pressure, mm Hg	190	143.02	1050	126	<0.001
Diastolic blood pressure, mm Hg	190	86.33	1050	76.6	<0.001
Left ventricular ejection fraction, %	190	36.72	1050	35.15	0.26
Etiology, ischemic, %	120	23.30	1050	23	0.94
Diabetes mellitus, %	190	47.00	1050	41	<0.05

Discussion: In this study, we have identified a primarily black, resource poor population of HF patients admitted for HF, different from the typical population studied in HF. This population is older, with higher BMIs, rates of diabetes mellitus, and systolic and diastolic blood pressures, demonstrating many of the co-morbidities found in this population. With the identified potential physiological differences in this population in regards to response to some treatments for HF as compared to whites, it is even more important to include this population in the populations studied. These findings highlight the need for further research in black patients and efforts to more fully represent this traditionally underrepresented population.

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() **Evidence based medicine
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() **Quality/Safety**

(X) **Clinical Research**

**Indicate your participation
in research process (4 sentences or
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PROACTIVE MONITORING OF INFlixIMAB AND ADALIMUMAB DRUG AND ANTI-DRUG ANTIBODY CONCENTRATION UTILIZING THE LABCORP ASSAY IN INFLAMMATORY BOWEL DISEASE PATIENTS.
Perinbasekar R, MD, Brown S, MD, Syed N, MD, Lonsako S, MD, Cross R, MD. University of Maryland School of Medicine.
Purpose: Infliximab (IFX) and Adalimumab (ADA) are agents used in the treatment of medically refractory Inflammatory Bowel Disease (IBD); however, 40% of responders lose response over time. A sustained response to IFX and ADA is more likely when a therapeutic drug concentration is maintained. The purpose of this study was to determine if proactive monitoring of IFX/ADA and anti-infliximab (ATI) and anti-adalimumab antibody levels (ATA) impacted clinical outcomes and persistence with anti-TNFs using the LabCorp assay.
Methods: IBD patients treated with IFX or ADA were identified. Patients on anti-TNFs who had measurement of IFX/ATI and ADA/ATA levels were included in the proactive group. Patients on anti-TNFs who did not have proactive monitoring were included in the control group. Primary outcomes were clinical response at 60 days, clinical response at 1 year, endoscopic response, and persistence with anti-TNF at 1 year.
Results: 97 and 30 patients were included in the proactive and control groups, respectively. When comparing demographics between the proactive and control groups, median age was 34 and 28, 57 and 60% were female, 71 and 87% were Caucasian, and 72 and 77% had Crohn's Disease. The proactive group was more likely to be treated with IFX (77%), while the control group was treated more often with ADA (57%) [p<0.001]. Clinical response at 60 days was higher in the proactive group compared to the control group (99 vs. 87%, p=0.01). Similarly, clinical response at 1 year was higher in the proactive group (99 vs. 90%, p=0.07). Persistence with anti-TNF at 1 year was high in both groups (93 and 90%) but not significantly different between groups. In a subset of patients undergoing endoscopic assessment after initiating anti-TNF, 97 and 76% had endoscopic improvement in the proactive and control group respectively (p=0.04).
Discussion: Proactive monitoring of anti-TNF and anti-drug antibody levels using the LabCorp assay is associated with higher short and long-term clinical response rates and higher rates of endoscopic response. However, proactive monitoring is not associated with a higher rate of persistence with anti-TNF at 1 year. Additional studies are needed to determine if long-term persistence with anti-TNF and clinical outcomes are improved through use of proactive drug monitoring.

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Evidence based medicine review

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GASTROENTEROLOGY CONSULTS AND FECAL MICROBIOTA TRANSPLANT FOR CLOSTRIDIUM DIFFICILE INFECTION PATIENTS AFTER THE IMPLEMENTATION OF A MULTI-DISCIPLINARY ACTION TEAM. Sivasailam B, MD, Heil E, PharmD, von Rosenvigne E, MD, Park S, Leeka S, MD. The University of Maryland School of Medicine, Baltimore, MD.

Introduction: *Clostridium difficile* infection (CDI) is associated with increased length of hospital stay, morbidity, mortality and cost of hospitalization in both adult and pediatric patients. However, early intervention by experts from multiple areas of practice such as gastroenterology (GI) can be essential to optimize care of patients with CDI and increase utilization of novel treatment modalities such as fecal microbiota transplant (FMT), which has a reported 90% efficacy.

Methods: A multi-disciplinary *C.difficile* action team (MD-CAT) was implemented at University of Maryland Medical Center in March 2016 to engage consultants in care of CDI patients in a timely manner. The MD-CAT reviews positive *C.difficile* tests in the inpatient setting and provides guidance and suggestions to the primary team including optimum antibiotic treatment, and consultant involvement including infectious disease, surgery, and GI when appropriate. Using retrospective chart review, CDI patient management and outcomes were compared before and after implementation of MD-CAT. In this study, we analyzed differences in the frequency of GI consults, time to GI consult, and frequency of FMT using Chi-square test to compare two proportions and Mann-Whitney test to compare two medians.

Results: We compared 48 patients with CDI in the pre-intervention with 89 patients from the post-intervention period. Demographic and clinical characteristics of the groups were similar. At the time of *C.difficile* test order, GI was consulted in 2% (1/48) patients pre-intervention and 13.5% (12/89) patients post-intervention ($p=0.06$). At any point during CDI treatment, GI was consulted in 18.8% (9/48) of the pre intervention group and 18.0% (16/89) of the post intervention group. The median time to GI consult was 1 day pre-intervention and 0 days post-intervention ($p=0.01$). 0% (0/48) of patients received FMTs in the pre-intervention group compared to .02% (2/89) of patients who received FMTs in the post-intervention group ($p=0.75$).

Conclusion: There was a statistically significant reduction in the time to GI consultation in the post MD-CAT patient population. Although the numbers were small, limiting statistical analysis, there was an increase in the proportion of patients that underwent fecal microbiota transplants, suggesting that engaging consultants earlier in a patient's course may increase utilization of specialized therapy.

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Indicate your participation in research process (4 sentences or less): I was part of the team involved with initiating the third cycle of changes assisting with writing proposals for committee for approval and analyzing data from third cycle.

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HIGH VALUE COST-CONCIOUS CARE: A MULTI-STEP REDUCTION IN UNNECESSARY DIAGNOSTIC TESTING

Nora Maddy, MD (member) ; Sara Robinson, MD (member); Alison Lane, MD (member); Rebecca Wetzels, DO (member); Brett Sadowski, MD (Member)

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BACKGROUND: Inappropriate lab testing contributes to the growing problem of health care costs in the United States. We designed iterative systems-based interventions to reduce the number of unnecessary diagnostic tests run on patients admitted to the internal medicine wards at our facility. While there are many factors contributing to the incidence of unnecessary testing, we isolated the computer-based, automated order entry system as a target for sustainable intervention. Prior to any intervention, the default setting in the admission order set for basic labs (complete blood count, basic and comprehensive metabolic panels, coagulation and mineral panels) was 'qAM' and without any cost displayed for the provider. Discrete orders could be repeated indefinitely every day without ordering provider reassessment. **METHODS:** Intervention 1 of this multi-year initiative eliminated the option to order indefinite daily labs at admission, replacing the option with a one-time only order. The second cycle expanded modifications to the order set and discrete orders by displaying price with the order name. The third iteration (ongoing) eliminated the automatically recurring daily lab option from discrete orders, mandating providers reassess testing needs at least every 3 days. The primary outcome was the total number of routine tests controlled for number of inpatient bed days, compared to the same two-month period in the years preceding the interventions.

RESULTS: The first intervention led to 0.97 fewer total labs being drawn per inpatient bed day, a decrease of 19.4%. The cost display intervention led to a sustained reduction in the number of total labs when controlling for inpatient bed days, although by less of a margin than seen with order set modifications alone (15.3%). Preliminary data from the third intervention indicate that it has expanded the impact of the prior interventions with cumulative total reduction of labs per inpatient bed day over the last 3 years estimated to be 50.2%.

CONCLUSIONS: This series of high-yield interventions targeting automated electronic order entry systems resulted in significant reduction in the rates of ordering daily routine labs, thereby demonstrating that multiple, step-wise iterations can have an additive effect to improve the delivery of cost-conscious care in a teaching hospital.

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TIME STUDY OF TABLESIDE VS. BEDSIDE INPATIENT ROUNDS

Background:

We set out to determine if there is a measurable difference in time spent between bedside rounding and conference room rounding on an inpatient teaching team in a community hospital setting.

Methods:

This study was conducted between 1 November 2016 and 31 January 2017, at the intermediate care unit (IMCU) of MedStar Union Memorial Hospital. The two participating medical teams, IMCU1 and IMCU2, were provided with pre-study education materials to perform inpatient rounds in a conference room or at the bedside, respectively. All patients on whom daily rounds were conducted were included. The data was recorded by independent research volunteers, and included the time spent rounding and the number of days that patients were admitted. A satisfaction survey was administered every day to the team members including residents, nurses and the case manager.

In the conference room rounding team, the total rounding time was calculated by adding the time spent during table discussion, any bedside examination or discussion, and the time spent reviewing the plan with the care team.

The bedside rounding team included residents, nursing, and case management and the total rounding time was equal to the amount of time spent at the bedside, in addition to any other patient care discussion necessary for patient management. The cumulative time spent on each patient and the duration of participation in the study were recorded, and compared between the two study groups.

Results:

During the study period, 42 patients were enrolled in the conference room rounding group, and 43 patients in the bedside rounding. The median time spent to round on patients in the conference room group was 14 minutes per patient per day (IQR= 10.5 -20.5), whereas the median time spent rounding the patients in the bedside group was 9 minutes per patient per day (IQR= 6.5 -12) (P<0.001). The mean participation-duration was 2.1±1.2 days, and 2.3±1.4 for patients in bedside and tableside groups, respectively (p=0.54).

Conclusion:

Inter-professional bedside rounds are significantly shorter than conference-room rounding, and may increase the efficiency of patient care.

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IMPACT OF PARAMETER ANALYSIS AND TELEMTERY ALARM OPTIMIZATION

Background and Objective Alarm management was one of the National Patient Safety Goals in 2015 due to concerns about the burden from unnecessary telemetry alarms on those who care for patients. We hypothesized that optimizing telemetry alarm threshold by increasing the high heart rate (HR HI) and decreasing the low heart rate (HR LO) alarm thresholds would significantly reduce the number of clinically unnecessary alarms.

Methods and Analysis We reviewed the existing settings for parameter alarms at the intermediate care unit (IMCU) at our community teaching hospital and obtained baseline data over a 96-day control period that included intervals in 2014, 2015, and 2016.

Parameter alarms are alarms triggered when a specific value falls outside of a defined range, such heart rate and premature ventricular contractions (PVC HI). Our analysis revealed that 80% of parameter alarms were caused by heart rates of 135-150 and 45-50 beats per minute (bpm).

Since previous default settings were arbitrary, we set clinically reasonable thresholds. After interdisciplinary consultation that included cardiology and nursing leadership, it was agreed that HR HI of 135-150 bpm or HR LO of 45-50 bpm did not represent a cause for immediate nursing attention. We reset the HR HI alarm threshold to 150 bpm and the HR LO threshold to 45 bpm. The PVC HI threshold was changed from 10 to 15 per minute. In conjunction with clinical engineering, we obtained the number of alarm events and calculated alarms per patient per day (APPD). Intervention data were collected at intervals in October, November, and December of 2016.

Results

Baseline data for 2,140 patient days showed an average of 212 ± 57 APPD. The total number of alarms decreased to 114 ± 54 APPD during the intervention period ($p=0.04$). HR HI was 39 APPD at baseline versus 7 APPD after the intervention. HR LO was 10 APPD at baseline and 6 APPD after the intervention and PVC HI was 40 APPD at baseline versus 0 APPD after the intervention.

Conclusion

Our study convincingly demonstrates that optimizing telemetry alarm thresholds decreased the number of unnecessary alarms. This may improve patient safety and job satisfaction by reducing alarm preceding the interventions.

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