Class of 2016

CAPSTONE COLLOQUIUM

THURSDAY, MARCH 17, 2016

OUWB School of MEDICINE

OAKLAND UNIVERSITY WILLIAM BEAUMONT

Dear OUWB students, faculty and staff,

It is my pleasure to welcome you to the Capstone Research Colloquium where we recognize the graduating members from the Class of 2016 for successfully completing their Capstone research projects.

We are grateful to you for attending and speaking personally with our students about their research as they present posters describing their work. This booklet affords you an additional opportunity to read their abstracts highlighting the wide range of research interests.

Our students have spent the last four years in medical school fulfilling the Capstone mission to foster an appreciation for lifelong, self-directed learning and to gain a clear understanding of how to implement and complete a research project. The goal of this program is to offer each student the potential to achieve scientific or social impact through his or her findings.

Capstone mentors guide our medical students throughout this journey, and we thank them for their commitment to our students' success in their research. The time taken from their responsibilities as basic science or clinical faculty to work with our students is recognized as a vital contribution to the future of OUWB and its graduates.

As our students complete this endeavor, we congratulate them on a job very well done, and we hope this experience has provided the knowledge and inspiration to continue exploring avenues for research as they embark on their careers as physicians.

Sincerely,

Robert Folberg, M.D.
Founding Dean, Oakland University William Beaumont School of Medicine
Chief Academic Officer, William Beaumont Hospital

MISSION

The OUWB Capstone Program looks to foster an appreciation for lifelong learning, and to graduate physicians with a clear understanding of how to implement outcomes-based research that has the potential to achieve scientific or social impact.

PROGRAM

WELCOME

Robert Folberg, M.D.
Founding Dean, Oakland University William Beaumont School of Medicine
Chief Academic Officer, William Beaumont Hospital

CAPSTONE POSTER PRESENTATION – SESSION I

Clinical Research (Posters 1-33)

CAPSTONE PROJECT PRESENTATIONS

James David
"Diagnostic Utility of Flow Cytometry Analysis of Reactive T Cells in Nodular Lymphocyte-Predominant Hodgkin Lymphoma"
Mentor: James Z. Huang, M.D.
Department of Clinical Pathology, Beaumont Health System

Fatima Fahs
"Inpatient Rehabilitation Unit Art Therapy Stress Management"
Mentor: Reyna Colombo, M.A., P.T.
Rehabilitation Services, Beaumont Health System

CAPSTONE POSTER PRESENTATION – SESSION II

Laboratory Research (Posters 34-39)
Global and Community Health Research (Posters 40-53)
Health Systems Research (Posters 54-61)
Medical Education Research (Posters 62-65)

CLOSING REMARKS

Robert Folberg, M.D.

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2	Ameer Al-Hadidi	Effect of Chronic Narcotic Use Before Colorectal Surgery on Length of Stay in Surgical Patients
3	Sameer Berry	Survival After Radioembolization for Metastatic Colorectal Cancer: Search for Prognostic Factors
4	Alessandra Boufford	Exercise Compliance and Reduction of Cardiovascular Risk Factors
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13	Danny A. Mammo	The Colectomy Improvement Project: Do Evidence-Based Guidelines Improve Institutional Colectomy Outcomes?
14	Victoria Mason	How Well Do We Follow the UTI Guidelines for Patients Discharged from the Emergency Center?
15	Neesurg Mehta	Beta-Blocker Premedication Does Not Increase the Frequency of Allergic Reactions from Coronary CT Angiography: Results From the Advanced Cardiovascular Imaging Consortium
16	Gerta Muho	Optical Coherence Tomography Scan Parameters and Variable Evaluation of Lamellar Macular Holes
17	Adewunmi Nuga	Enhancement of Patient Education Through Multidisciplinary Treatment Teams

CLINICAL RESEARCH ABSTRACTS

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19	Scott H. Pew	A Prospective Analysis of Questionnaire Outcomes after Trigger Point Injections for Chronic Pelvic Pain due to Pelvic Floor Hypertonicity
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21	Devasis Reddy	The Colectomy Improvement Project: Do Evidence-Based Guidelines Improve Institutional Colectomy Outcomes?
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23	Kerolos Shenouda	Multimodal Evaluation of Aortic Valve Area in Patients with Severe Aortic Stenosis
24	John Silva	The Effect of EMS Pre-hospital Catheterization Lab Activation on Mortality, Reperfusion, Length of Stay, Door to Balloon Time, and Cost for ST-Elevation Myocardial Infarction (STEMI) patients
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Poster #1

Association Between Magnetic Resonance Imaging Pattern of Brain Injury of Neonatal Hypoxic Ischemic Encephalopathy and Perinatal Characteristics Including Placental Pathologies

Lisa Akiyama
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Anant Krishnan, M.D.
Department of Diagnostic Radiology, Beaumont Health System
Department of Diagnostic Radiology and Molecular Imaging, Oakland University William Beaumont School of Medicine

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INTRODUCTION

Hypoxic ischemic encephalopathy (HIE) is a serious condition associated with various perinatal causes, including placental pathologies. Previous studies have reported that acute hypoxic injury is associated with predominantly basal ganglia and thalamus (BGT) injury, whereas prolonged hypoxic injury is associated with white matter/watershed (WMW) injury; severe injuries cause global injury patterns. To date very little has been studied on possible associations between HIE-related placental pathologies and brain MRI patterns. The goal of this study is to further investigate associations between placental pathologies and HIE MRI patterns.

METHODS

Neonates born between January 2003 and December 2014 with perinatal HIE admitted to William Beaumont Hospital Royal Oak's neonatal intensive care unit who obtained MR image by the 10th day of life and had placental and umbilical tissues sent for pathological investigation were retrospectively identified. Subjects were classified into 4 groups according to neuroradiologists' interpretation reports: normal, predominant BGT injury, WMW injury, and global injury. Maternal, perinatal and postnatal clinical information were collected. One-way ANOVA and Fisher Exact Test were performed.

RESULTS

16 out of 33 HIE patients (48%) had both MRI and placental pathology reports. 15 subjects were delivered via emergent cesarean section (94%) of which 14 (93%) were due to non-reassuring fetal heart tones (NRFHT) during labor. Mean gestational age was 38.2 weeks, mean age at MRI scan was 7.69 days, and 14 subjects (88%) underwent hypothermia treatment (HT) per protocol. The following were not significantly associated with MRI patterns: Gestational age at birth ($p=0.267$), maternal age ($p=0.053$), APGAR at 1 min ($p=0.358$) and 5 min ($p=0.249$), HT ($p=0.62$), NRFHT ($p=0.76$), chorioamnionitis ($p=0.62$), placental weight ($p=0.823$), placental thrombus ($p=0.42$), placental infarction ($p=0.65$) and velamentous insertion ($p=0.62$).

CONCLUSION

The study was limited due to the small sample size. Further investigation is needed to study associations between placental pathologies and MRI patterns.

Poster #2

Effect of Chronic Narcotic Use Before Colorectal Surgery on Length of Stay in Surgical Patients

Ameer Al-Hadidi
Class of 2016 M.D. Candidate, Oakland University William Beaumont School of Medicine

Wesley Barnes, M.D., Jason K. Shellnut, M.D.
Department of Surgical Services, Beaumont Health System

INTRODUCTION

Adequate oral pain control is required by any surgical patient to go home. Patients who were using narcotic pain medication prior to surgery might need higher doses of pain medication post-operatively. If the pain medication is not ordered in adequate doses, this will result in longer length of hospital stay due to lack of pain control. If pain is adequately controlled, patient discharge is permitted, reducing length of stay, and thereby cutting hospital costs and expenses. The use of existing hospital quality control data (NSQIP, National Surgical Quality Improvement Program) will be used to attempt to correlate length of stay and previous narcotic painkiller use.

METHODS

The NSQIP database was used to obtain data on laparoscopic colectomy patients at Beaumont Hospital from 2008 to 2013 in order to find patients' length of stay, including their 30 day post-surgical outcomes. Afterwards, EPIC records will be used to find patients' history of narcotic painkiller use. Statistical analysis will determine if there is a correlation o f length of stay with chronic narcotic use pre-operatively.

RESULTS

Compared to the narcotic-naïve group, the narcotic-users group exhibited a longer length of stay (n=88) 7.9 ± 8.2 (vs. (n=423) 5.7 ± 5.2), $p = 0.015$. Additionally, patients in the narcotic-users group required greater amounts of narcotic pain medication to control their pain post-operatively.

CONCLUSION

Knowing that chronic narcotic use before surgery will require a higher dose of narcotic pain medication post-operatively will lead to enhanced patient care after surgery. This will allow the patient to recover quicker and be discharged at an earlier date, decreasing their hospital stay.

Poster #3

Survival After Radioembolization for Metastatic Colorectal Cancer: Search for Prognostic Factors

Sameer Berry
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INTRODUCTION

Investigate clinical and procedural variables to determine if there is a correlation with survival after treatment with radioembolization for metastatic colorectal cancer (mCRC).

METHODS

Retrospective review was performed of patients treated with Y-90 radioembolization for mCRC at our institution between May 2008 and March 2012. Survival after radioembolization was the primary outcome variable. Variables studied included age, cancer stage, disease extent at treatment, tumor grade, treatment line of radioembolization, chemotherapy with or without bevacizumab (Avastin), time of the last bevacizumab dose to radioembolization date, tumor-to-normal liver vascularity ratio (TNVR), tumor volume, total target tumor dose, and total normal liver dose. Cox proportional hazards models were fitted to the data and Kaplan-Meier curves were drawn.

RESULTS

Thirty nine patients (22 M, 17 F) met the inclusion criteria with mean age of 64.1 years. Thirty one subjects expired at the time of the study. Presentation with mCRC at their initial diagnosis occurred in 25 subjects. Only hepatic metastatic disease was present in 23 patients. Bevacizumab pre-treatment occurred in 30 subjects. The mean values of total tumor volume (245±339 cc), highest tumor-to-lobe volume fraction (21.6±19.8%), total target tumor dose (272±202 Gray), total normal liver dose (89.6±74.5 Gray), and TNVR (3.2±0.8) are calculated. The mean survival from the first Y-90 infusion was 13.9±10.9 months and mean survival from mCRC diagnosis was 31.4±16.6 months. Treatment line of radioembolization had strongest correlation with survival and hazard ratios compared to first-line are 1.4, 22, and 87 are seen with second-line, third-line, and salvage (>3rd line) therapies, respectively. Also, the only other variables with statistically significant correlations were age, hepatic only vs. extra-hepatic disease extent, and tumor-to-lobe volume fraction of the most burdened hepatic lobe.

CONCLUSION

Age, disease extent, treatment line of radioembolization, and the tumor-to-lobe volume fraction had significant correlations with survival after radioembolization for mCRC. Survival compares favorably to historical survival after modern chemotherapy alone.

Exceptional performance by students to disseminate their Capstone research (see back of booklet)

Poster #4

Exercise Compliance and Reduction of Cardiovascular Risk Factors

Alessandra Boufford
Class of 2016 M.D. Candidate, Oakland University William Beaumont School of Medicine

Pamela Marcovitz, M.D.
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Oakland University William Beaumont School of Medicine

INTRODUCTION

Women over the age of 50 who have cardiovascular risk factors, including low HDL, elevated LDL, and hypertension are at risk of experiencing a major cardiovascular event such as a heart attack. This study was designed to demonstrate quantitative changes in participant's cardiovascular health risk factors when they participate in an organized exercise program.

METHODS

The Women Exercising to Live Longer (WELL) program is an exercise program offered through the Ministrelli Women's Heart Center. Participants in this study committed to exercising for 3 days a week for a minimum of 30 minutes each session for 6 months. Prior to beginning the program, participants complete a treadmill stress test, the Duke Activity Status Index (DASI) (a questionnaire to determine daily activity level and estimate daily METs), and a complete lipid panel. Blood pressure and heart rate were monitored quarterly throughout the program. At the end of the program a complete lipid panel was repeated. Participant weight, waist circumference, and BMI were also recorded at the beginning and end of the program.

RESULTS

There was a statistically significant positive association between the average time per week spent exercising and the total pounds lost (correlation of .22, $p=.005$), BMI reduction (correlation of .25 and $p=.001$) and LDL reduction (correlation of .17 and $p=.027$).
There were no statistically significant associations between the number of weeks that participants exercised and any changes in the cardiovascular risk factors.

CONCLUSION

It was determined that exercising at least 90 minutes a week can have a statistically significant effect some of the cardiovascular risk factors. However, there was no statistically significant change when looking at the number of weeks. Further studies should look at more long-term effects of exercise and dietary changes on participant's cardiovascular health.

Poster #5

Intervertebral Disc Regeneration Using Stem Cell Therapy

Jared Brougham
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INTRODUCTION

Degenerative Disc Disease (DDD) is a major cause of chronic back pain. There is currently no biological cure for this debilitating disease. Human Umbilical Cord Blood (HCB) stem cell therapy has the potential to restore the biological integrity of degenerated IVD. This work seeks to determine the feasibility and efficacy of two levels of differentiation the stem cell lines in a rabbit model.

METHODS

An *in vivo* rabbit model (n=20) of disc degeneration in the lumbar spine was created by flouroscopic guided needle puncture of the annulus fibrosis at the L2-3 and L4-5 level. The intervening L3-4 level acted as a control. At two weeks post puncture either the L2-3 or L4-5 laboratory created degenerated disc was subject to implantation of 1 million in 20 µl i) undifferentiated HCB mesenchymal stem cells or ii) differentiated HCB chondroprogenitor cells. Magnetic resonance imaging (MRI) was performed pre-operative, after inducing disc degeneration and 6 weeks post-implantation of stem cells. At 8 weeks post-implantation, rabbits were euthanized and control and experimental discs analyzed with haematoxylin and eosin (H & E) staining and immunohistochemical analysis. Biochemical analysis determined proteoglycan and glycosaminoglycan (GAG) content, and expression of specific markers to identify implanted cell viability.

RESULTS

Successful extraction and culture of mesenchymal stem cells from the umbilical cord was confirmed by specific surface antigen markers. The cells that were differentiated into chondroprenitor cells were found capable of producing GAG by alcian blue staining. MRI demonstrated degeneration in the punctured discs by loss of signal intensity. H & E staining showed significantly more viable cell and extracellular matrix density in chondroprogenitor cell implanted degenerated disc. This was further shown with immuno-histochemical analysis of collagen type two content, implanted cell viability and disc rehydration.

CONCLUSION

i) HCB derived mesenchymal stem cells and chondroprogenitor cells appear to be effective in disc regeneration. ii) Differentiated chondroprogenitor cells appear better suited for restoration of cellular and extracellular matrix within the nucleus pulposus. iii) Percutaneous disc puncture is a safe reproducible method for inducing IVD degeneration.

Poster #6

Racial Disparities in Prostate Cancer and Hypercholesterolemia

Grenville Fernandes
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Michael D. Lutz, M.D.
Department of Urology, Michigan Institute of Urology

INTRODUCTION

While consuming dietary animal fat is a well-established risk factor for developing prostate cancer, studies addressing cholesterol as a risk factor are sparse in comparison. This study aims not only to examine the relationship between high cholesterol and prostate cancer, but also to explore racial disparities in prostate cancer with regards to high cholesterol.

METHODS

Data from two annual free health-screening events was utilized for this study. The events were open to all males at or above the age of eighteen, regardless of race or socioeconomic status. Data was obtained from questionnaires and results from serum Prostate-specific Antigen (PSA) and total cholesterol measurements. Group comparisons were studied by performing Pearson correlation coefficient analyses. All data was de-identified prior to analysis.

RESULTS

No statistically significant correlations were found between PSA and cholesterol ($r = 0.67$, $p = .052$, $n = 829$). Across all ethnicities examined individually for covariance (African American, Caucasian, Hispanic, Asian, and “Other”), no statistically significant correlations were found ($p > .05$).

CONCLUSION

While no statistical significance was appreciable amongst the variables selected for investigation, continued data collection from future screening events may afford greater sample size to bolster the generalizability of the descriptive statistics. Furthermore, alternative variables may be chosen in the future for analysis in an effort to elucidate potential relationships in other areas. As the data unfolds with time, greater emphasis may be placed on health education; the importance of negating hyperlipidemia may be stressed not only to stave off prostate cancer predisposition, but as part of a comprehensive wellness approach.

Poster #7

Clinical Course and Treatment of Recent-Onset Atrial Fibrillation in the Emergency Department

J. Andrew Hartshorn
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INTRODUCTION

Atrial fibrillation (AF) is the most common cardiac rhythm disturbance in adults. Canadian studies have shown the importance of aggressive treatment of recent-onset AF (rAfib patients), combined with appropriate follow-up. Our objective is to describe the emergency care and disposition of rAfib patients in a large US Emergency Department.

METHODS

A retrospective chart review of ED patients presenting with atrial fibrillation or atrial flutter was performed. A structured chart review abstracted clinician's determination of AF < 48 hours of ED (rAfib). Calculating CHA2DS2-VASc (CHADV) and HAS-BLED (HB) scores stratified physician management of patients at risk for stroke and anti-coagulation related hemorrhage.

RESULTS

We identified 916 patients with an ED discharge diagnosis of AF (atrial fibrillation or atrial flutter), 200 of which were identified as having rAfib. They had a high rate of comorbidities, with the majority (127, 63.5%) having a CHADV >2. Most patients were admitted (149, 74.5%), a small number was admitted to a 23-hour observation unit (13, 6.5%), and the remainder (41, 20.5%) was discharged. Successful cardioversion increased rate of ED discharge (34.3% vs. 6.9%), OR =7.0 (95% CI 2.9, 16.8), although the majority of cardioverted patients were still admitted (63, 65.0%). A majority of patients at low risk for stroke (CHADV scores < 2) (47, 64.3%) were also admitted.

CONCLUSION

In this study few rAfib patients were discharged after ED treatment, even if ED cardioversion was successful or patients were at low risk for stroke. With more aggressive ED care and cardioversion of rAfib, the introduction of novel oral anticoagulants, and the economic pressures on the US healthcare system, ED physicians need to increase their knowledge of alternative treatments of AF and rAfib. The CHADV scoring tool provides a way for ED physicians to stratify risk of thromboembolic events and allows for better outcomes for patients.

Recipient of the Capstone Competitive Scholarship Award

Poster #8

Appropriateness of *Clostridium difficile* Therapy for Inpatient Treatment (ACTFIT)

Leah Hong
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INTRODUCTION

Clostridium difficile infection (CDI) is one of only three infections declared an urgent threat by the Centers of Disease Control and Prevention (CDC). There are an estimated 450,000 cases and 29,000 deaths per year in the United States, costing as much as $4.8 billion in excess health care costs. The Infectious Diseases Society of America (IDSA) published guidelines for the treatment of CDI in 2010 to improve the diagnosis and management of CDI.

METHODS

A retrospective analysis of the initial treatment of patients admitted to the three hospitals of Beaumont Health System between 1/1/2012 through 3/31/2012 with diarrhea and laboratory confirmed CDI was performed. We then determined whether the treatment choice was appropriate according to the IDSA guidelines based on the severity and history of prior episodes of CDI. We further determined whether the divergence from the guidelines was based on choice of antibiotic, route of antibiotic, dose of antibiotic, or a combination of the three.

RESULTS

Of 376 patients, 123 (32.7%) were treated per guidelines. The remaining 253 (67.3%) were treated inappropriately per the guidelines. Of the inappropriately treated patients, 60 patients were given vancomycin for mild/moderate CDI (23.7%), 62 patients had intravenous metronidazole added inappropriately (24.5%), 38 patients were given oral metronidazole for severe or severe/complicated CDI (15%), and 30 patients were given a higher dose of vancomycin than appropriate (11.9%). The remaining 25% had a variety of other choices, which did not abide by the guidelines.

CONCLUSION

Most CDI treatment is not initially in accordance with guidelines. Stricter stewardship over treatment of CDI or an electronic medical records based expert system, to guide physicians, may be of benefit.

Exceptional performance by students to disseminate their Capstone research (see back of booklet)

Poster #9

The Effect of Pulmonary Rehabilitation on Hospital Readmission Rates in Patients with COPD

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INTRODUCTION

Many patients with COPD face an indolent course of disease with frequent hospitalizations often followed by readmission within 30 and 90 days. This is often related to many factors including: smoking status, age, disease comorbidity and pharmacologic burden. A recent program has been developed to help these patients manage and cope with their COPD and other comorbid diseases. Specifically, pulmonary rehabilitation helps patients manage their disease, quit smoking, cope with associated morbidity and help show patients how to live healthier lifestyles. Our hypothesis is that this education and medical support will help prevent additional hospital readmissions and associated COPD comorbidities.

METHODS

Patients admitted to Royal Oak Beaumont Hospital with an admitting diagnosis of COPD exacerbation were identified between 2012-2014. All patients received a referral for pulmonary rehabilitation and those who enrolled were identified. Patient's charts were then examined retrospectively and information was gathered regarding the primary admission and any subsequent admissions within 30 and 90 days of the primary hospital admission or beginning of pulmonary rehabilitation. They were analyzed for specific factors, which may contribute and be confounding variables to our study. This included: length of hospital stay, demographic factors (age and weight), smoking and illicit drug use, other comorbid diseases, oxygen dependence, pharmacologic burden, pulmonary function tests, along with other medical factors that may also contribute to disease process. A comparison of 30 and 90 day readmission rates will be conducted to determine if pulmonary rehabilitation has any effect on COPD patients and their rates of hospital readmission.

CONCLUSION

If pulmonary rehabilitation is shown to alter the disease course of COPD it could have a large impact on patient management and the cost to the health care system.

Poster #10

Following Physical Activity and Weight Loss 6 Months Post-Bariatric Surgery

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INTRODUCTION

Bariatric surgery is an effective treatment for obesity but more needs to be understood about the role physical activity (PA) plays in weight outcomes. This study examined changes in PA following bariatric surgery and explored the relationship between PA levels and pre- and post-surgery weight and BMI outcomes.

METHODS

Eleven gastric bypass and 19 sleeve gastrectomy patients were recruited from a Southern Michigan hospital and followed for up to 6 months in this observational pilot study. Subjects completed the Long version of the International Physical Activity Questionnaire at pre-surgery and 6 months post-surgery. Weights were obtained through medical records. General linear models were used to identify relationships with physical activity variables at pre-surgery and 6 months post-surgery as well as between surgery types.

RESULTS

Six months after surgery average weight loss was 24.9% for bypass patients and 22.1% for sleeve patients. There were no significant differences in weight or BMI at 6 months between the two surgical groups. METs for leisure activity were significantly higher at 6 months ($p=0.009$). The mean minutes of leisure activity at baseline was 172 and at 6 months 410. There was a significant correlation between minutes of leisure physical activity and change in BMI at 6 months ($p=0.017$, $r2=0.35$).

CONCLUSION

At 6 months, total amount of PA doesn't seem to influence weight loss outcomes; however leisure activity may be an important component. Longer-term follow-up is needed to see if results persist.

Poster #11

Prevalence of Obesity in Children with Autism Spectrum Disorder

Amy K. Leder
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Virginia Uhley, Ph.D., R.D.N.
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INTRODUCTION

Obesity is a recognized and growing problem in the general pediatric population and recent research suggests that children with Autistic Spectrum Disorders (ASD) may be at even greater risk. The ASD population faces distinct challenges that may affect their risk for obesity. The primary goal of this study was to evaluate the prevalence of obesity in a population of children with ASD in the Metro Detroit area as well as identify possible secondary risk factors.

METHODS

An electronic survey was emailed to the OUCARES listserve. All parents with children between the ages of 8-12 years were invited to participate. A total of 29 responses were collected. BMI was calculated using the age, weight, and height provided in the survey responses. The WHO BMI percentiles were used to categorize each child as underweight, normal weight, overweight, or obese. Comparisons between those who were overweight/obese and normal weight were performed using chi-squared and two-sample t tests.

RESULTS

The majority of the children were white males. 54% (15) were overweight or obese, with 39% (11) being obese. There was no statistical difference between the overweight/obese and normal weight children with regards to race, stimulant use, SSRI use, non-drug use, types of meals, timing of snacks, or exercise and screen time. There was a difference with atypical antipsychotic use, with 40% of overweight/obese using atypical antipsychotics compared to 8% in the normal weight group. Factors that suggest a difference but were not statistically significant include age, alpha agonist use, snack timing, specifically late at night and throughout the day, and number of snacks.

CONCLUSION

This study supports the hypothesis that children with ASD are at risk for being obese, as 54% were overweight or obese. This is significantly higher than the national average of 17%.

Poster #12

The Opercular Index Score (OIS) as a Prognostic Tool in the Interventional Management of Stroke

Xiang Li
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Alexander Copelan, M.D., Jeffery Wilseck, D.O.
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INTRODUCTION

The overall prognosis from neuro-interventional endovascular procedures for stroke patients has been a subject that is garnering much interest over the past five years. It has been found recently that the presence of collateral flow following ischemic stroke positively contributes to better post-procedural prognosis. Our department has created a novel scoring tool, the Opercular Index Score (OIS), that employs CT-Angiography (CT-A) to measure the patient's collateral opercular vessels, instead of capillary vessels.

METHODS

CIS and OIS were calculated from pretreatment diagnostic cerebral angiograms and CT-A perfusion images, respectively, and the readers were blinded to outcome. Diagnostic cerebral angiogram images of sufficient quality were reviewed and CIS calculated for treated subjects with MCA occlusion. CIS (0-3) and OIS (opercular branches on normal side: opercular branches on affected side) scoring was dichotomized into favorable (f CIS and f OIS; 2 or above) and poor (p CIS and f OIS; less than 2). CIS and OIS scores were compared with each other and OIS was compared with good outcome, defined as modified Rankin Scale score≤2 at discharge or at 90 days.

RESULTS

Twenty-eight subjects met the inclusion criteria. f OIS correlated with f CIS and p OIS correlated with p CIS (chi square analysis, P= 0.007). Good clinical outcome was significantly different between the 2 OIS groups (79% for f OIS versus 22% for p OIS; P=0.004). The discharge NIHSS was significantly different between the 2 OIS groups (4.9 for f OIS versus 15.0 for p OIS, P= 0.007). No significant differences in age, side of stroke, gender, and TICI score were identified between f OIS and p OIS groups.

CONCLUSION

It is our expectation that the OIS will be a novel and useful screening tool supplement CT perfusion data, and also in instances of equivocal findings at CT perfusion and/or when perfusion software is not offered.

Poster #13

The Colectomy Improvement Project: Do Evidence-Based Guidelines Improve Institutional Colectomy Outcomes?

Danny A. Mammo
Class of 2016 M.D. Candidate, Oakland University William Beaumont School of Medicine

Harry Wasvary, M.D.
Department of Colon and Rectal Surgery, Oakland University William Beaumont School of Medicine

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INTRODUCTION
Much emphasis has been placed on improving outcomes after colorectal resection. This study evaluates whether improved adherence to 8 specific practice parameters after an educational intervention leads to improved outcomes in patients undergoing elective colorectal resections.

METHODS
Patients were identified using the National Surgical Quality Improvement Project and Michigan Surgical Quality Collaborative databases. Adherence to 8 practice parameters (undergoing a mechanical bowel prep (MBP), pre-operative antibiotics, pre-op heparin prophylaxis, maintaining intra-op normothermia [temperature > 36.6], foley catheter removed within 48 hours post-op, heparin prophylaxis post-op, use of sequential compression devices (SCDs), whether or not a central line was used and if so, if removed within 24 hours) was examined before an educational intervention and after the intervention to determine adherence and outcomes.

RESULTS
485 patients were identified over a 4-year period. There were 273 patients in the pre-education group and 212 patients in the post-education group. The groups were similar with respect to age, gender, proportion with diabetes mellitus, and technique (open vs laparoscopic). After the educational intervention there was improved compliance in using a MBP, receiving appropriate pre-operative antibiotics, maintaining intra-operative normothermia, receiving post-operative prophylactic heparin, and the use of SCDs ($p<0.05$). Post-intervention outcomes revealed a significantly improved readmission rate (8.4% vs 2.4%; $p=0.005$) and a significant decrease in the incidence of deep surgical infections (1.8% vs 0%; $p=0.01$). There was a trend towards a decreased rate of anastomotic leak (5.1% vs 1.9%) ($p=0.09$). Length of stay was overall the same between the two groups.

CONCLUSION
Education of the operative team improved adherence to best-practice guidelines. Such parameters have the ability to improve patient outcomes. By following the implemented practice parameters, re-admission rate and deep surgical site infection can be significantly reduced in patients undergoing colorectal resection.

Exceptional performance by students to disseminate their Capstone research (see back of booklet)

Recipient of the Capstone Competitive Scholarship Award

Poster #14

How Well Do We Follow the UTI Guidelines for Patients Discharged from the Emergency Center?

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INTRODUCTION

Urinary tract infections (UTIs) are one of the most commonly treated conditions in the emergency centers (EC) of Beaumont Hospitals (BH). The Infectious Disease Society of America has published guidelines for UTIs, and Beaumont guidelines are based on these. Most patients seen in the EC for UTI are admitted. For those sent home, adherence to guidelines is critical as they will not necessarily have rapid follow-up and tailoring of antibiotic therapy may be delayed.

METHODS

The electronic medical record from BH was queried to find adult patients seen in, and discharged from, the EC in 2014 diagnosed with UTI. 121 patients were identified and their records reviewed to determine if they were treated per guidelines.

RESULTS

Of the 121 patients, 104 (86%) were considered appropriate to treat, 16 (13.2%) were not appropriate to treat but received antibiotics, and 1 was correctly diagnosed as asymptomatic bacteriuria and not treated. Of the 104 patients who needed treatment, 63 (60.6%) received appropriate therapy per guidelines. 41 (39.4%) received either an inappropriate choice, duration, or dose of antibiotics. Of the 16 who were given antibiotics without infection, 8 (50%) had asymptomatic bacteriuria; the remaining 8 had symptoms unrelated to infection.

CONCLUSION

While overall recognition of UTIs in EC patients who can be discharged is good, the choice of treatment often does not follow the guidelines. Lack of recognition of asymptomatic bacteriuria is the most common cause of treatment without indication. Further education on the UTI guidelines may improve appropriateness of treatment.

Exceptional performance by students to disseminate their Capstone research (see back of booklet)

Poster #15

Beta-Blocker Premedication Does Not Increase the Frequency of Allergic Reactions from Coronary CT Angiography: Results From the Advanced Cardiovascular Imaging Consortium

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INTRODUCTION
Beta-Blockers are often used for heart rate control during coronary CT angiography (CTA). Increased frequency and severity of allergic reactions to radiocontrast media (RCM) have been reported with concomitant use of beta-blockers. The objectives of this study were to determine whether there is a higher incidence of allergic reactions to low-osmolar nonionic RCM in patients undergoing coronary CTA with concomitant beta-blockers and to define the overall incidence and severity of allergic reactions in patients undergoing coronary CTA with and without a history of allergy to RCM.

METHODS
Patients undergoing coronary CTA at 47 institutions participating in the Advanced Cardiovascular Imaging Consortium registry were analyzed. The incidence and severity of allergic reactions were compared between those patients who did and those who did not receive beta-blockers, as well as in subgroups of patients with and without a history of prior allergy to RCM.

RESULTS
The incidence of allergic reaction in patients who received beta-blockers was 45 of 23,867 (0.19%) compared with those who did not receive beta-blockers, which was 9 of 5232 (0.17%; P . .84; odds ratio . 1.1). Of the patients with history of allergy to RCM, 4 of 706 patients (0.6%) on beta-blockers experienced allergic reactions compared to 1 of 77 patients (1.3%) without beta-blockers (P . .40; odds ratio . 0.43).

CONCLUSION
Beta-Blocker pretreatment had no effect on the frequency or severity of allergic reaction in patients undergoing coronary CTA, even in patients with a past history of allergy to RCM.

Recipient of the Capstone Competitive Scholarship Award

Poster #16

Optical Coherence Tomography Scan Parameters and Variable Evaluation of Lamellar Macular Holes

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INTRODUCTION

The advent of optical coherence tomography (OCT) has revolutionized retinal imaging by facilitating the differentiation of vitreoretinal interface pathologies. In addition, it has enabled the identification of macular structures that can be used for monitoring surgical intervention outcome and response to therapy. The purpose of this study was to evaluate the relative ability of spectral domain optical coherence tomography (SD-OCT) macular scans using fast and detail parameters to evaluate lamellar macular holes.

METHODS

This was a retrospective observational case series. Patients with vitreomacular pathologies examined from 2013-2015 were identified. In order to be included in the analysis, patients had to have undergone concurrent SD OCT imaging by the fast and dense parameters. All SD OCT acquisitions were performed using the commercially available Heidelberg Spectralis unit. Two protocols were used to obtain scans. The standard “fast” macular volume OCT scan parameter consisting of 25 sections covering 20ox 20o (512 A scans per line at 240 um intervals) followed by the high-density “detail” scan consisting of 49 sections, 15o x 5o, 768 A-scan per line, 30 um interval. Retinal morphology was assessed for the presence of vitreomacular traction (VMT), lamellar hole, and full thickness macular hole (FTMH). Data analyses were performed in SPSS 22.0. Fischer’s exact test was used for comparisons of qualitative hole parameters in these same groups.

RESULTS

93 eyes of 89 patients were analyzed. The mean age was 73 ± 11, with a mean snellen visual acuity of 20/41.9 ± 3.47 lines on initial presentation. Of the 93 lamellar holes identified on the fast scan, 10 (10.8%; p=0.0015) were found to have full thickness defects on the detail scan. 46.2% were found to have ellipsoid zone abnormalities on the dense scan; while only 28.0% had abnormalities on the fast scan (p=0.0149). The average macular hole base diameter found on dense scan was 261.9±89.8 um.

CONCLUSION

Dense scan parameters improve the accuracy of lamellar hole evaluation, the detection of latent FTMH and ellipsoid zone disruptions.

Poster #17

Enhancement of Patient Education Through Multidisciplinary Treatment Teams

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INTRODUCTION

Multidisciplinary care refers to doctors and other medical professionals in different specialties working together to provide the most comprehensive and complete care to patients. Multidisciplinary patient care is considered the standard of care for many complex chronic diseases including cancer, COPD, HIV/AIDS and chronic kidney diseases. The team-based multidisciplinary approach improves patient outcomes clinically, and is associated with higher patient satisfaction and reduced overall medical costs. In addition, multidisciplinary clinics have been shown to increase patients' level of education about their disease, which plays a key role in therapy decision-making and decreases decisional regret. Patients are more likely to report higher satisfaction with care when they are fully engaged, and communicate well with all of their care-providers.

METHODS

Patients newly diagnosed with renal masses were identified at their initial visits with the multidisciplinary treatment team. First, a pre-visit survey was completed by each study participant, and at the end of the multidisciplinary clinic visit, patients completed the post-visit survey. Patients rated their level of confidence about each aspect of their diagnosis on a scale from 1 (not confident at all) to 5 (extremely confident). Survey questions were designed to assess each patient's confidence in their level of knowledge about their renal mass diagnosis.

RESULTS

13 patients completed both the pre- and post-appointment surveys. Multivariate analysis was used to determine if there was a correlation between multidisciplinary clinic visit and improved patient education. Although patients varied in their baseline level of confidence about their diagnosis, 100% of our participants reported a statistically significant increase ($p<0.005$) in their confidence in all the different measures.

CONCLUSION

This study revealed that a multidisciplinary treatment team approach likely improves patient education in individuals with renal masses. This will potentially lead to improvements in how patients with renal masses are treated in the future.

Poster #18

The Futility of Early TSH Testing in Graves' Patients Treated with I-131

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INTRODUCTION

The goal of this study is to determine the efficacy of collecting TSH levels in addition to fT4 levels in the early months following treatment of Grave's disease with radioactive I-131 (I-131).

METHODS

This retrospective study analyzes data from patients of Beaumont Health System diagnosed with Grave's disease and treated with I-131 between November 2008 and August 2013. Data concerning date of treatment and serum TSH and fT4 levels were collected. Data were analyzed using percentages and graphical trends.

RESULTS

161 of 250 patients met inclusion criteria. 47 were male and 114 were female with a mean age of 49.5 (+/- 14.3). The number of fT4 tests collected in months 1-5 was 31, 99, 67, 37 and 16 respectively. The number of TSH tests collected in months 1-5 was 23, 76, 62, 36 and 15 respectively. The percentage of fT4 tests above reference range decreased from 80.1% to 66.7% to 34.3% in months 1-3, and then increased to 43.2% and 50.0% in months 4-5. The percentage of TSH tests above the reference range increased linearly in each month (8.7%, 23.7%, 51.6%, 58.3%, and 73.3%). The percentage of TSH tests ordered when concurrent fT4 levels were still above reference range decreased in months 1-4 from 91.3%, to 78.9%, to 53.2%, to 44.4% and rose in month 5 to 60%.

CONCLUSION

TSH levels may take more than 3-4 months to rise beyond reference range and are ordered unnecessarily in the first 2 months following treatment with I-131.

Exceptional performance by students to disseminate their Capstone research (see back of booklet)

Poster #19

A Prospective Analysis of Questionnaire Outcomes after Trigger Point Injections for Chronic Pelvic Pain due to Pelvic Floor Hypertonicity

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INTRODUCTION

Pelvic pain is diagnosed when there is pain in the lower abdomen, pelvis, or perineum and is described as tenderness or burning in the area of the perineum or abdomen. It is classified as chronic if the pain is experienced for greater than six months. The exact pathogenesis of chronic pelvic pain (CPP) in women is inadequately understood. Trigger point injection therapy is still considered by some to be a novel therapy that is underutilized and is in need of further analyses. The purpose of this study is to identify length of benefit of trigger point injections using the Brief Pain Inventory (BPI) and Global Response Assessment (GRA) by comparing pain scores pre and post trigger point injection intervention in patients with pelvic pain.

METHODS

This was a prospective pilot cohort study. Patients who met the inclusion and exclusion criteria filled out a BPI and GRA before injection to determine baseline information. The patient were given three additional BPI and GRA surveys with instructions to be filled out on their own at 7, 14 and 21 days after injection. They had the option of mailing in the surveys with provided self-addressed envelopes, or bringing in the three completed surveys during their follow up appointment 4-6 weeks following the injection.

RESULTS

Out of the patients who were able to be enrolled only 2 completed all of the surveys. Thus, no statistically significant data were able to collected.

CONCLUSION

More research needs to be done, possibly with less stringent exclusion criteria. Because fibromyalgia and other pain syndromes were listed in the exclusion criteria and yet commonly coincide with CPP this limited our patient population.

Poster #20

Outcomes of Sacral Neuromodulation in Patients with Prior Surgical Treatment of Stress Urinary Incontinence and Pelvic Organ Prolapse

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INTRODUCTION
Interstim or sacral nerve stimulation has been an effective option for patients with refractory urgency, frequency, and urinary incontinence who have been unable to achieve adequate control of their urinary symptoms with conservative measures such as lifestyle modifications and pharmacotherapy. There is limited data on sacral nerve stimulation following surgery for stress urinary incontinence (SUI) or pelvic organ prolapse (POP). This study seeks to explore the outcomes of sacral nerve stimulation in this patient population.

METHODS
Women enrolled in our prospective database that had SNM and urinary incontinence (UI) were grouped by history/no history of SUI/POP surgery. Outcomes, measured at 3, 6, 12 and 24 months with voiding diaries, Interstitial Cystitis Symptom/Problem indices (ICSI-PI), Overactive Bladder Symptom Severity (OAB-q SS)/Health related quality of life (HRQOL), and Global Response Assessment (GRA) were analyzed with Pearson's Chi-square, Fisher's Exact, and Wilcoxon rank sum tests.

RESULTS
Of 108 of 210 women with prior SUI/POP procedures, more had prior hysterectomy ($p<0.001$). Stage 2 implant rates were similar between groups ICSI-PI, OAB-q SS and HRQOL did not differ between groups at any time point. ICSI-PI scores improved over time ($p<0.0001$ for both groups). On diaries, SUI/POP group had more UI episodes/day at 1 year ($p=0.027$) and lower volume/void at 2 years ($p=0.041$). A higher proportions of SUI/POP patients leaked urine at 6 (92% vs. 73.2%; $p=0.009$) and 12 months (92% vs. 67%; $p= 0.002$). On GRA, a lower proportion (40% vs. 60%; $p=0.037$) had improved urgency at 6 months. Fewer SUI/POP patients reported moderately/markedly improved symptoms at 12 (51% vs. 71%; $p=0.045$) and 24 months (42% vs. 66%; $p= 0.031$). Satisfaction rates were similar between groups and the majority in each group would undergo SNM again.

CONCLUSION
Although SNM improves voiding symptoms in women with prior SUI/POP procedures, underlying voiding/pelvic floor dysfunction may limit level of improvement.

Exceptional performance by students to disseminate their Capstone research (see back of booklet)

Poster #21

The Colectomy Improvement Project: Do Evidence-Based Guidelines Improve Institutional Colectomy Outcomes?

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INTRODUCTION
To present the long-term anatomic and visual outcomes of retinal detachment repair in patients with Stickler syndrome.

METHODS
Retrospective, interventional, consecutive case series of patients with Stickler syndrome undergoing retinal reattachment surgery from 2009 to 2014 at our institution.

RESULTS
Sixteen eyes from 13 patients were identified. Patients underwent a mean of 3.1 surgical interventions (range 1-13) with mean post-operative follow-up of 94 months (range 5-313). Twelve eyes (75%) developed proliferative vitreoretinopathy. Retinal re-attachment was achieved in 100% of eyes, with 10 eyes (63%) requiring silicone oil tamponade at final follow-up. Mean pre-operative visual acuity was 20/914, which improved to 20/796 at final follow-up ($P = 0.81$). There was a significant correlation between presenting and final visual acuity ($P < 0.001$), and patients with poorer presenting visual acuities were more likely to require silicone oil tamponade at final follow-up ($P = 0.04$).

CONCLUSION
In our experience, repair of retinal detachment in patients with Stickler syndrome yields only modest visual acuity improvements and often requires multiple surgeries. Presenting visual acuity is significantly predictive of long-term visual acuity outcomes.

Poster #22

A Review of the Anterolateral Ligament of the Knee: Current Knowledge Regarding Its Incidence, Anatomy, Biomechanics, and Surgical Dissection

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INTRODUCTION
Recent research and media publications have brought attention to the anterolateral ligament (ALL) of the knee. Although several researchers have described a structure at the anterolateral aspect of the knee in literature, nomenclature and anatomic descriptions have not been consistent. Research of the ALL's incidence, its anatomy and morphometry, and its potential role in injury and repair is sparse.

METHODS
We searched the PubMed/Medline database for publications specifically addressing the ALL. We excluded studies not written in English, studies not using human cadavers or subjects, and studies not specifically addressing the ALL. Data extraction related to the incidence, anatomy, morphometry, biomechanics, and histology of the ALL and its relation to the Segond fracture was performed.

RESULTS
The incidence of the ALL ranged from 83% to 100%. This range in incidence is thought to be secondary to small discrepancies in the definition of the ALL's attachment sites. The ALL originates anterior and distal to the femoral attachment of the lateral collateral ligament, spanning the joint in an oblique fashion and inserting between the fibular head and Gerdy tubercle on the tibia. Exact anatomic and morphometric descriptions vary in the literature, and there are discrepancies regarding the ALL's attachment to the capsule and lateral meniscus. The ALL is a contributor to tibial internal rotation stability, and histologically, it exhibits parallel, crimped fibers consistent with a ligamentous microstructure. The footprint of the ALL has been shown to be at the exact location of the Segond fracture.

CONCLUSION
The ALL has been described as a distinct structure originating very close to the origin of the lateral collateral ligament and spanning the joint in an oblique fashion to Gerdy's tubercle. In recent literature, its incidence has been shown to be between 83% and 100%. No studies have assessed its contribution to native knee kinematics, its involvement in injury, and/or its role in surgical treatment. This review summarizes the current body of literature involving the ALL and describes a detailed surgical dissection and approach.

Exceptional performance by students to disseminate their Capstone research (see back of booklet)

Recipient of the Capstone Competitive Scholarship Award

Poster #23

Multimodal Evaluation of Aortic Valve Area in Patients with Severe Aortic Stenosis

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INTRODUCTION

Non-invasive imaging modalities, namely transthoracic echocardiography (ECHO), transesophageal echocardiography (TEE), and cardiac computed tomography (CCT) have often been utilized as methods of assessing the aortic valve area (AVA) in patients with severe aortic stenosis (AS). However, each of these methods has its own inherent limitations and collectively they have not been compared to invasive methods –namely cardiac catheterization (CATH)—nor adequately validated. The goals of our study were to examine the relationship between the non-invasive measures and also to examine the discrepancy in AVA as determined by invasive and non-invasive means.

METHODS

Forty-one patients with severe aortic stenosis who had undergone TTE, TEE, CT, and CATH as part of their pre-transcatheter aortic valve replacement (TAVR) care were included in the study. Five AVA measurements were recorded and compared to each other per patient, AVA-ECHO, AVA-TEE, AVA-CCT, AVA-CATH, and AVA-HYBRID (substituting CT LVOT into the continuity equation). In addition, patients were divided in two groups: normal flow (ECHO SVI ≥ 35 mL/m2) and low flow (ECHO SVI < 35 mL/m2) based on Doppler evaluation.

RESULTS

When compared to each other, there was no statistically significant difference between AVA-TEE, AVA-ECHO, AVA-CCT and AVA-CATH. AVA-ECHO, however, consistently reflected a smaller AVA than all other modalities. This discrepancy became only statistically significant in AS patients with low flow. AVA-HYBRID was variably larger than all other modalities; however, this difference did not reach statistical significance at any flow except when compared to AVA-ECHO in patients with low flow.

CONCLUSION

The study suggests that all non-invasive modalities seem to equally and accurately reflect the AVA as compared to Cath. However, our findings also highlight echocardiography's tendency to significantly underestimated AVA in AS patients with low flow. Therefore, this subset of patients may require additional evaluation to accurately assess their AVA.

Exceptional performance by students to disseminate their Capstone research (see back of booklet)

Poster #24

The Effect of EMS Pre-hospital Catheterization Lab Activation on Mortality, Reperfusion, Length of Stay, Door to Balloon Time, and Cost for ST-Elevation Myocardial Infarction (STEMI) Patients

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INTRODUCTION
Little work has been done to evaluate the independent impact of pre-hospital activation of the cardiac catheterization lab (PREACT) versus Emergency Department Activation of the Cardiac Catheterization Lab (EDACT) on ST-elevation Myocardial Infarction Patients (STEMI) outside of the hospital. The goal of our study is to shed further light on this subject by measuring the independent effect of PREACT on patient outcomes using data from two high volume, PCI equipped, suburban centers. Specifically, we decided to analyze the independent effects of PREACT compared to Emergency Department Activation of the Cardiac Catheterization Lab (EDACT) on metrics such as 30-day mortality, cost and length of stay.

METHODS
We performed a retrospective case control study analyzing data collected from Beaumont Health System's two suburban Emergency Departments (ED) and included all EMS-transported STEMI patients from May 2006 to January 2012. Data was extracted to evaluate patient demographics, clinical course, and throughput metrics as well as cost. Our primary outcome is 30-day mortality and our secondary outcomes include Length of Stay (LOS), Door-to-Balloon time (D2B), and total hospital costs.

RESULTS
Within the study period there were 531 EMS-transported STEMI patients. Of these, 232 (43.6%) were PREACT. PREACT resulted in a significant reduction in D2B (mean 53.3 min vs 77.9 min, $p<0.001$). Despite earlier reperfusion, there was no significant decrease in the overall 30-day mortality rate (7.6% vs 8.7%, $p=0.75$), LOS (5.0 days vs 5.9 days, 95% CI -2.0-0.35)), or hospital costs ($20,880 vs $24,618, 95% CI Diff (-$8,899, $1,222)).

CONCLUSION
Despite improved time to reperfusion, EMS pre-activation did not significantly improve mortality, decrease LOS, or reduce costs for STEMI patients.

Exceptional performance by students to disseminate their Capstone research (see back of booklet)

Poster #25

Risk Stratification of Pulmonary Embolism in the Emergency Department: There is Room for Improvement

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INTRODUCTION

Patients diagnosed with pulmonary embolism (PE) who also have right ventricular (RV) dysfunction and/or myocardial injury are at a higher risk for morbidity and mortality compared to those without. Risk stratification of patients with PE is suggested for treatment timely decision-making. The literature has suggested that cardiac biomarkers (such as troponin and B-type natriuretic peptide (BNP)) and assessment of right heart strain (via computed tomography (CT) or echocardiography) are valuable stratification tools. The objective of this study was to describe the risk stratification of PE patients in the emergency department (ED) of a large, community academic health system.

METHODS

A retrospective study was performed of adult patients who were diagnosed with PE in the ED between August 2007 and May 2013. Patients were identified based on admission ICD diagnosis codes and included if CT angiography in the ED was positive for PE. Structured chart review was used to collect demographics, diagnostic testing performed, and medications administered during the ED stay, as well as short term outcomes, including death or cardiac arrest after admission. Troponin I < 0.04 ng/mL and BNP < 100 pg/mL were considered as normal. CT reports were reviewed manually for signs of RV strain, including assessment of RV size, reflux of contrast, and deviation of the interventricular septum.

RESULTS

The population included 1,337 patients with acute PE (mean age 62.0 years (SD 17.17) and 46.6% female). Few patients ultimately died (n=27) or suffered cardiac arrest (n=9). In total, 79% and 48% had troponin and BNP testing, respectively. Signs of RV strain were documented as present in only 131 (9.8%) CT studies, with the vast majority of reports lacking mention of RV size or function. In those with RV strain on CT, 19/20 echocardiography studies confirmed +RV strain. Of patients with +RV strain on CT or echocardiography (n=167), 125 (74.9%) had initially abnormal biomarkers. Only 17 (15.2%) of these physiologically significant PEs received tPA. Of patients with strain unmentioned on CT (n=1108), 245 (22.1%) had no biomarker testing despite +RV strain on echo (n=5) and central PE on CT (n=16). Patients from this group accounted for 4 arrests and 5 deaths overall.

CONCLUSION

ED risk stratification of patients diagnosed with PE remains low. Implementation of a standardized protocol for risk stratification in the ED, including structured CT interpretation for RV strain, may be a key effort toward patient-centered outcomes in this population.

Exceptional performance by students to disseminate their Capstone research (see back of booklet)

Recipient of the Capstone Competitive Scholarship Award

Recipient of the Dean's Choice Capstone Presentation (Digital Poster) Award

Poster #26

Dose Uniformity of Topical Corticosteroids Fluorometholone Acetate 0.1% (Flarex®) and Loteprednol Etabonate Gel 0.5% (Lotemax®): A Simulated Trial

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INTRODUCTION

The purpose of the study was to determine the concentrations of Flarex® and Lotemax® when shaken and not shaken. Many patients fail to shake or inappropriately shake suspensions of corticosteroids prior to instillation as directed. This study was designed to help determine whether these patients are receiving the intended concentration of corticosteroid. In addition, independent confirmation of loteprednol etabonate ophthalmic gel dose uniformity was determined and compared as a possible alternative.

METHODS

Drug concentrations of shaken versus unshaken Flarex® and Lotemax® were determined over a 20 day simulated tapered course. Collected samples were analyzed by reversed phase high performance liquid chromatography (HPLC) with photodiode array detection at 240 nm.

RESULTS

Flarex® had a mean concentration of 93.7% of the declared concentration when shaken and 7.25% when not shaken. The difference between these groups was statistically significant ($p<0.0001\%$). Lotemax® had a mean concentration of 96.74% of the declared concentration when shaken and a mean concentration of 98.97% when not shaken. The difference between these groups was not statistically significant ($P<0.194$).

CONCLUSION

Flarex® maintains dose uniformity when shaken. When not shaken it has poor dose uniformity. Lotemax® was consistent whether shaken or not. Formulations of ocular corticosteroids that do not require shaking such as Lotemax® should be considered to eliminate the variability of poor patient compliance with shaking.

Poster #27

BMI, Age, and Gender Relationships to RTSA Assessment Measures: A Pilot Study

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INTRODUCTION
The purpose of this study was to examine potential relationships between patient gender, age, Body Mass Index (BMI) and postoperative outcomes as measured by American Shoulder and Elbow Surgeons Standardized Shoulder Form Patient Self-Report Section (ASES), Subjective Shoulder Value (SSV) and abduction at ninety degrees.

METHODS
39 RTSA patients retrieved from an Institutional Review Board–approved orthopedic research program at our institution for surgery in 2013. Charts were reviewed for gender, age, BMI, preoperative assessment and postoperative follow-up data.

RESULTS
The patient population consisted of 24 females and 15 males, with an average age of 68 years (range, 45-80 years) and 68 years (range, 52-80 years), respectively, and BMI of 32 (range, 21-49). However, there was significant effect of gender on Post ASES at the level of $p < .05$ [$F(4, 34) = 4.4$, $p = .04$].

CONCLUSION
The success of RTSA and lack of current data regarding pre-operative measurements and clinical outcomes demands that more information be gathered to improve outcomes. The results of this analysis are hugely beneficial in helping to predict and quantify risks of poor surgical outcomes among RTSA patients. Additionally, the results also help to identify critical measurements that can indicate excellent surgical outcomes. Information regarding predictability prior to surgery and beyond can help surgeons to better evaluate, treat, and when needed, alter treatment plans for RTSA candidates.

Poster #28

Study of Spatial Function in the Human Placenta with Diffusion Weighted Imaging

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INTRODUCTION

Magnetic resonance diffusion weighted imaging (DWI) has been widely used to quantitatively measure the random motion of water molecules within a voxel of tissue and represents this information in the form of apparent diffusion coefficient (ADC) maps. As the ADC map has been shown to be influenced by circulatory motion and perfusion at low b-values, we hypothesize that ADC values obtained from the placenta may vary as a function of distance to the umbilical cord insertion. The purpose of this research is to investigate the relationship between placental ADC values and distance from umbilical cord insertion.

METHODS

78 normal singleton pregnancies between 20 and 41 weeks gestational age (mean 27.5, range 19.9-37.3, SD of 5.1) were included in the study. MR DWI images were acquired on a 1.5 Tesla system. ADC maps were created using assigned b-values. Regions of interest (ROIs) were defined as the average ADC of the entire cross section of the placenta, and as 2 sq cm areas at distances of 1.5 cm, 3 cm, 6 cm, and 9 cm from the point of the umbilical cord insertion. The ADC values of individual ROIs were plotted vs. the distance from the insertion of the umbilical cord. The slopes of the linear fits were averaged. All ROIs for all placentas were compared using a standard ANOVA test.

RESULTS

There was no statistically significant difference in mean ADC values between samples taken from the entire cross-section of the placenta or single 2 sq cm samples at 1.5, 3, or 6 cm from the umbilical cord insertion shown in (ANOVA, $F=0.18$, $p= 0.91$).

CONCLUSION

The ADC values of placental tissues obtained at high b-values do not vary in normal human placentas with the distance to umbilical cord insertion.

Poster #29

Comparison of Robotic Versus Laparoscopic Transabdominal Preperitoneal (TAPP) Inguinal Hernia Repair

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INTRODUCTION

Despite growing popularity and potential advantages of robotics in general surgery, there is very little published data regarding robotic inguinal hernia repair. This study examines a single surgeon's early experience with robotic TAPP inguinal hernia repair compared to laparoscopic TAPP repair in terms of feasibility and cost.

METHODS

We performed a retrospective review of 63 consecutive patients (24 laparoscopic and 39 robotic) who underwent inguinal hernia repair between December 2012-December 2014 at a single institution by a single surgeon. Data examined included gender, age, BMI, hernia type, hernia laterality, operative times, recovery room times, pain scale ratings, and cost.

RESULTS

Patient groups were the same in terms of age, BMI, hernia type, and hernia laterality ($p>0.5$). The mean operative time (77.5 vs 60.7 min, $p<0.001$) and room time (109.3 vs 93.0 min, $p=0.001$) were significantly longer for the robotic vs the laparoscopic patients. Recovery room time (109.1 vs 133.5 min, $p=0.04$) and average pain scores in recovery (2.5 vs 3.8, $p=0.02$) were significantly less for the robotic group. The average direct cost of the laparoscopic group was $3,216 compared to $3479 for the robotic group. The average contribution margin for the laparoscopic group was $2396 compared to $2489 for the robotic group.

CONCLUSION

Robotic TAPP inguinal hernia repair had longer operative times, but patients spent less time in recovery and noted less pain than patients who underwent laparoscopic TAPP inguinal hernia repair. The direct cost and contribution margin are nearly equivalent. These results should allow the continued investigation of this technique without concern over excess cost.

Poster #30

False Cardiac Catheterization Lab Activation in a Two-Tiered STEMI System

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INTRODUCTION

Accurate ECG diagnosis of STEMI poses a substantial challenge to EM Physicians when posed with equivocal presentations. High rates of inappropriate STEMI team and cardiac catheterization laboratory (CCL) activation are costly and decrease the urgency of response to STEMI patients. To address a historical STEMI alert cancellation rate of 40%, we instituted a two-tiered, single page system to respond to confirmed or suspected STEMI patients. Our objective is to evaluate the impact of a two-tiered STEMI system on CCL activation rates and time to reperfusion of STEMI patients.

METHODS

Beginning in April 2012, our hospital developed two levels of alerts for patients with suspected STEMI. A Level 1 page was used for patients expected to require emergent CCL intervention. A Level 2 page alerted the STEMI team for consultation but did not mobilize the CCL. All adult, consecutive patients who received consultation at either of these levels were followed as part of a quality improvement database. Demographics, event time intervals (i.e. door to arrival, CCL activation, intervention (D2B)), and diagnostic test results were collected. Patients were excluded for presenting in cardiac arrest, in-hospital STEMI alert, refusing consent or DNR status, and missing data. Descriptive statistics are presented.

RESULTS

Between April 2012 and March 2014, 906 STEMI alerts were paged. After exclusions, 720 patients were included having a mean age of 66.6 and 38.2% were female. Rates of emergent catheterization were 76.3% among Level 1 pages and 16% for Level 2 pages. Median D2B intervals were 53.75 minutes and 77.50 minutes, respectively, for Level 1 and 2 pages. Of those Level 2 patients taken emergently to CCL, 66.7% were taken for evolving symptoms or ECG changes.

CONCLUSION

We conclude a two-tier STEMI system improved efficiency as rates of CCL activation were reduced while maintaining D2B times for STEMI patients.

Poster #31

Reoperation Rate Following Spinal Decompressive Surgery

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INTRODUCTION

Many suffer from various degrees of spinal degenerative disease, and some have disease so extensive it requires surgical treatment with spinal decompressive surgery. It is well established that many people who receive spinal decompressive surgery will require reoperations in the future for restabilization of the spine. However, only a handful of studies have been published concerning the rate of reoperation following surgical treatment of spinal degenerative diseases. The primary goal of this study is to determine if certain factors influence the reoperation rate after spinal decompressive surgery. A secondary goal is to determine an approximate rate of reoperation for specific types of spinal decompressive surgeries.

METHODS

Using CPT codes, charts were retrospectively reviewed from patients who received first-time lumbosacral spinal decompressive surgery from January to March 2009 at Beaumont Health. This chart review noted if patients received a reoperation following the initial decompressive surgery. Furthermore, the surgical approach used, any variations on the decompressive surgery, as well as patient demographics and BMI were recorded.

RESULTS

Comparing the reoperation rates between the 3 different types of decompressive surgeries, the 173 laminectomy procedures had a 19% reoperation rate while the non- laminectomy procedures had a 21% reoperation rate. This was not statistically significant ($p=0.743$). The 62 diskectomy procedures had a 16% reoperation rate while the non-diskectomy procedures had a 19% reoperation rate. This was not statistically significant ($p=0.608$). The 53 diskectomy procedures had a 17% reoperation rate while the non-diskectomy procedures had a 19% reoperation rate. This was not statistically significant ($p=0.789$). BMI and Open/MIS were not associated with a reoperation ($p=0.616$, $p=0.295$ respectively)

CONCLUSION

The results show that we are unable to establish a difference in the reoperation rates between different types of spinal decompressive surgery. Furthermore, we are unable to establish a difference in reoperation rate due to surgical approach or BMI.

Poster #32

Patient Perception of Preparedness Prior to Incontinence and Prolapse Surgery

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INTRODUCTION

The purpose of the informed consent process is to reinforce a patient's understanding of their condition, treatment alternatives, and to thoroughly review the risks and benefits of the chosen procedure. Despite detailed preoperative counseling, women may have knowledge deficiencies that affect their sense of preparedness for incontinence and prolapse surgeries. Identification of any knowledge deficits may suggest a need to change the currently used consent process.

METHODS

Physicians identified patients in their respective clinical offices that, after consultation, agreed to schedule a mid-urethral mesh sling (retropubic or transobturator) and/or a transvaginal mesh prolapse repair. The patient was asked if she was willing to complete a survey. If she agreed, she was handed the patient information sheet, a questionnaire developed for this study, and a return envelope to take home. If the questionnaire was not returned within two weeks, one phone call was made to the patient as a reminder to mail back the survey.

RESULTS

Responses were analyzed from 42 patient surveys. There were statistically significant differences in the understanding and preparedness for surgery questions with age, ethnicity, and number of times met with the physician as influencing factors. There were no statistically significant differences in understanding and preparedness for surgery based on level of education and previous surgical history.

CONCLUSION

The results uncover a need for further studies delineating the reasons for differences in patient understanding of risk factors, complications, and alternatives of surgery based on different informed consent practices and different patient populations.

Poster #33

A Descriptive Analysis of Patients Suffering Cardiac Arrest Treated with Therapeutic Hypothermia

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INTRODUCTION

Although therapeutic hypothermia after cardiac arrest is a standard of care, physicians have struggled to develop a standardized method of assessing prognosis after cardiac arrest. The medical community has loosely agreed on delaying all prognostication until 72 hours post arrest. This study sought to characterize the demographics of patients who had cardiac arrest treated with therapeutic hypothermia and to identify both the appropriateness of the 72-hour time-point and potential prognosticators of patient outcome.

METHODS

This was a retrospective chart review of all adult patients treated with therapeutic hypothermia after non-traumatic cardiac arrest admitted to two large, academic community hospitals between January 2010 and December 2013. Patient demographics, cardiac arrest characteristics, and post arrest outcomes were collected in a standardized quality improvement database. Stata 12.0 was utilized for analysis. Pearson t-test was utilized for continuous variables and Chi Square for categorical variables.

RESULTS

Of a total of 185 patients, 124 (67.03%) expired prior to discharge. An initial non-shockable cardiac rhythm and a longer total ischemic time were found to be associated with mortality (p value <0.001). Thirty-two (30.19%) patients had care withdrawn less than 72 hours from return of spontaneous circulation (ROSC). For those patients who woke up, the average number of hours from ROSC to awakening was 77.8 hours. Fourteen (22.95%) survivors had a ROSC to awakening time of greater than 72 hours. Forty-one (67.21%) survivors had a good neurologic outcome as defined as a Cerebral Performance Category of 1 or 2.

CONCLUSION

Early withdrawal of care was frequent in this population, and yet many survivors who awoke did so greater than 72 hours post arrest. Further research needs to identify tangible predictors that can be utilized for prognostication.

Exceptional performance by students to disseminate their Capstone research (see back of booklet)

Recipient of the Capstone Competitive Scholarship Award

LABORATORY RESEARCH ABSTRACTS

Poster	Student Name	Poster Title
34	James A. David	Diagnostic Utility of Flow Cytometry Analysis of Reactive T Cells in Nodular Lymphocyte-Predominant Hodgkin Lymphoma
35	Rachel Hanke	Can Peripheral Blood Leukocyte Phenotypes Predict Symptom Status in Carotid Atherosclerosis?
36	Julie Le	Effects of Irradiation on Vascular Marker Expression in a Subcutaneous Glioblastoma Mouse Model
37	Nichole McCaffrey	Limitations of Double Coverage for Gram-Negative Infections Based on Antibiotic Resistance
38	Satyum R. Parikh	CD133 as a Specific Marker Differentiating In-Situ and Invasive Carcinoma of the Colon from Reactive Colonic Epithelial Changes
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Poster #34

Diagnostic Utility of Flow Cytometry Analysis of Reactive T Cells in Nodular Lymphocyte-Predominant Hodgkin Lymphoma

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INTRODUCTION

Historically, diagnosis of Nodular Lymphocyte-Predominant Hodgkin Lymphoma NLPHL has been dependent on morphologic and immunohistochemical examination of paraffin-embedded sections, often making NLPHL a highly subjective diagnosis. One objective of this study was to determine if there was a qualitative flow cytometry pattern that could be useful in the differential diagnosis of NLPHL. An additional objective was to examine quantitative flow cytometry data with the aim of developing an objective threshold for diagnosis of NLPHL.

METHODS

Cases were retrospectively identified based on diagnosis with NLPHL (n = 30 samples), classic Hodgkin lymphoma (CHL; n = 33), and reactive lymphoid hyperplasia (RLH; n = 43). Pathology slides were reviewed. Flow cytometry list mode data were reanalyzed. Analysis of variance (ANOVA) was used to identify statistically significant differences among the three groups. Receiver operating characteristic (ROC) curve analysis was performed to determine the diagnostic sensitivity of CD57+ T cell percentages for NLPHL.

RESULTS

The mean proportion of CD4 + CD8 + T cells (8.4%) in cases of NLPHL was significantly higher than seen in CHL (1.0%) or RLH (0.6%). Of the T cells, 28.4% were CD57 + in NLPHL, significantly higher ($P < .05$) than in CHL (3.2%) or RLH (3.2%). When using a cutoff of 3.0% of CD4 + CD8 + T cells, the diagnostic sensitivity for NLPHL is 83.3% with a specificity of 97.4%. The diagnostic sensitivity was 96.7% with a specificity of 98.7% when using a cutoff of 12% for CD57 + T cells.

CONCLUSION

Increased portions of CD57 + T cells and CD4 + CD8 + T cells are highly suggestive of the possibility of NLPHL. NLPHL diagnosis appears unlikely if neither CD57 + T cells nor CD4 + CD8 + T cells are increased. Flow cytometry can be very useful in the diagnosis of NLPHL.

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Recipient of the Capstone Competitive Scholarship Award

Capstone Project Presentation Speaker

Poster #35

Can Peripheral Blood Leukocyte Phenotypes Predict Symptom Status in Carotid Atherosclerosis?

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INTRODUCTION
Carotid plaque instability is driven by local changes within the microenvironment of the plaque that are regulated through immune signal transduction pathways. Our working hypothesis is that peripheral blood leukocyte phenotypes relevant to the pathogenesis of plaque instability can ultimately be used to identify patients at risk for stroke.

METHODS
To determine whether peripheral blood leukocyte expression phenotypes correlate with symptom status, we examined the expression of selected regulatory immune molecules, identified via chip-on-chip genome wide screening (IRAK-3, GSK3a, STAT1, STAT6, TGF-β and CXCR4), in peripheral blood leukocytes of asymptomatic (n=9) and symptomatic (n=11) patients with carotid atherosclerosis as well as control subjects without clinical evidence of carotid atherosoclerotic disease (n=5). Steady state mRNA expression was measured by qRT-PCR, using GAPDH as endogenous control. Data were analyzed using the delta CT method and two-tailed t-test. Significance for all comparisons was assumed at p-value <.05.

RESULTS
Expression of CXCR4, a chemokine receptor involved in re-endothelization, was increased 1.6-fold in the peripheral blood leukocytes of asymptomatic patients when compared to symptomatic (p=.04). When compared to control subjects, IRAK-3 expression was significantly increased 2.4-fold in the asymptomatic cohort and 2.0-fold in the symptomatic cohort (p=.01, p=.04 respectively).

CONCLUSION
These results provide preliminary evidence to suggest that peripheral blood leukocyte expression phenotypes can be identified that are predictive of symptom status in carotid atherosclerosis. If confirmed prospectively, circulating leukocyte biomarkers could potentially be used for risk stratification in patients with carotid artery atherosclerosis.

Exceptional performance by students to disseminate their Capstone research (see back of booklet)

Recipient of the Capstone Competitive Scholarship Award

Poster #36

Effects of Irradiation on Vascular Marker Expression in a Subcutaneous Glioblastoma Mouse Model

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INTRODUCTION

Glioblastoma (GBM) is the most common adult primary malignant brain tumor. GBM patients have a median survival less than 15 months when treated with current standard therapy comprising surgery, irradiation, and Temozolomide. Pulsed radiotherapy (PRT) divides each continuous 2-Gy fraction of standard radiotherapy (SRT) into ten 0.2-Gy doses with 3-minute lapses. Preclinical animal models help investigate the differential effects that PRT has on tumor growth and normal tissue.

METHODS

Forty-six nude mice underwent subcutaneous injection to the flank with human GBM cells, either U87 or U251. Control tumors were grown to a range of volumes (445-2540 cc) prior to sacrifice. Tumors in the treatment group received 40 Gy SRT or 40 Gy PRT over four weeks. Serial caliper measurements of tumors were performed during treatment. At the end of the treatment, animals were sacrificed, brains were harvested for fixation and sectioning, and immunohistochemistry (IHC) was performed for the vascular marker CD34. IHC quantification was performed using Definiens software, and statistical analyses were performed with SPSS software.

RESULTS

U87 control tumors exhibited faster growth, greater centralization of blood vessels, and greater vessel densities compared to control U251 tumors. PRT was associated with a greater reduction in both U87 and U251 tumor growth, compared to SRT. U87 tumors treated with SRT or PRT had lower vessel densities compared to control tumors ($p<0.05$). U251 tumors treated with SRT and PRT had similar vessel densities compared to control tumors.

CONCLUSION

Compared to U251 tumors, U87 tumors exhibit faster growth and greater vascular abundance that is reduced by irradiation.

Poster #37

Limitations of Double Coverage for Gram-Negative Infections Based on Antibiotic Resistance

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INTRODUCTION

Initial treatment of a bacterial infection with antibiotics to which the bacteria are resistant leads to poor outcomes. Empiric use of two different antibiotics, or double coverage, for proven or suspected Gram-negative bacterial infections is commonly used to reduce the chance of inadequate treatment due to resistance. Ciprofloxacin is frequently chosen as the second antibiotic due to its perceived efficacy and lower side effect profile when compared to alternatives. Given high levels of resistance to ciprofloxacin, its use for double coverage is unlikely to be the most efficacious choice as a second antibiotic. The aim of this study is to investigate the activity of ciprofloxacin compared to the aminoglycosides (gentamicin, tobramycin, and amikacin) as second-line antibiotics for infections with resistance to one or more of the common first-line agents.

METHODS

All Gram-negative bacteria isolated in the clinical microbiology lab of Beaumont Health System between January 2011 and December 2014 were retrospectively identified via the Laboratory Information System. Antibiotic resistance profiles for each bacteria were examined to determine the percentage of isolates susceptible or non-susceptible to the second-line antibiotics (ciprofloxacin, gentamicin, tobramycin, and amikacin) in relation to susceptibility to the first-line antibiotics (piperacillin-tazobactam, cefepime, imipenem, and meropenem).

RESULTS

Gram-negative bacteria that are non-susceptible to at least one first-line antibiotic are 68% non-susceptible to ciprofloxacin, while only 12.5% are non-susceptible to amikacin. However, when there is non-susceptibility to all first-line antibiotics, 90.4% are non-susceptible to ciprofloxacin and 50.3% are non-susceptible to amikacin.

CONCLUSION

The use of ciprofloxacin as a second antibiotic to assure initial appropriate coverage is not supported by resistance data. Notably, in the case of multi-drug resistant pathogens, amikacin is the preferred second-line antibiotic.

Exceptional performance by students to disseminate their Capstone research (see back of booklet)

Recipient of the Capstone Competitive Scholarship Award

Poster #38

CD133 As a Specific Marker Differentiating In-Situ and Invasive Carcinoma of the Colon from Reactive Colonic Epithelial Changes

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INTRODUCTION

There has recently been a more widespread acceptance of the concept that stem tumor cells are involved in tumoriogenesis and resistance. CD133, a transmembranous protein, has proven to be expressed on the stem cells of several different types of malignant neoplasms. However, the diagnostic value of using stem cell markers in various malignant neoplasms is not well addressed. The primary objective of this study is to determine if CD133 can be a reliable maker to confirm dysplasia and carcinoma in the colon.
A secondary objective is to determine if CD133 expression profiles can differentiate colorectal carcinomas from various other colonic pathologies.

METHODS

Four groups of colectomy specimens were included in the study. Group 1 was composed of 11 cases of patients with ischemic/infarcted bowel segments. Group 2 included 11 cases with colonic resection for inflammatory bowel disease. Group 3 consisted of 13 colonic resections of in-situ and/or invasive carcinoma of colon. Group 4 consisted of 13 normal colonic mucosa at the base of glandular crypts (stem cell niche) specimen and was used as a control. Sections from each group were stained for CD133 using a monoclonal AC133 antibody against CD133 (1:50 dilution). The density and percent of CD133 expression was subsequently recorded.

RESULTS

In normal colonic mucosa (Group 4) 0/13 (0%) of the specimen stained positive for CD133. Focal and weak upregulation of CD133 was seen (1+) in 5/11 (45%) of IBD, but not in any of ischemic bowels (0/11, 0%). However, the in-situ or invasive carcinoma specimens revealed much stronger CD133 expression along luminal surface of carcinoma or around individual cells of mucinous carcinoma type, at 2+ to 3+ intensity and ranging from 10 to 90% of tumor areas (13/13, 100%).

CONCLUSION

There was negative CD133 staining in surface epithelium of infarcted bowel and inflammatory bowel disease. Conversely, there was strong and extensive CD133 expression in in-situ and invasive carcinoma of the colon. The results support the conclusion that CD133 is a reliable marker to differentiate colonic carcinoma from reactive colonic changes.

Exceptional performance by students to disseminate their Capstone research (see back of booklet)

Poster #39

Characterization of Bone Biomarkers as a Screening Tool for Aseptic Loosening after Shoulder Arthroplasty

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INTRODUCTION

Aseptic loosening (AL) is one of the most common causes of prosthesis failure after shoulder arthroplasty. Currently, diagnosis is made late in the disease progression often requiring costly revision surgery. Bone biomarkers (BBM) have received growing attention as a cost effective means for the early diagnosis of prosthetic disease. This study attempts to further characterize BBM to be used as an early post-operative screening tool for AL after shoulder arthroplasty.

METHODS

Twenty participants were recruited into the study having received a primary shoulder arthroplasty. The experimental group (n=10) consisted of participants suffering prosthesis failure with indications for revision surgery. The control group (n=10) consisted of participants with no prosthetic complications. Serum samples were collected and quantitatively assayed for twelve BBM. This data was then compared to the presence of AL as assessed intra-operatively, lifestyle factors known to influence BBM, and degree of loosening measured radiographically.

RESULTS

Demographic data was comparable between groups as there was no statistical variance in BMI (P=1.00) or gender (P=0.910). No significant variance was found between the groups' lifestyle factors known to influence the tested BBM. In radiographic analysis, the experimental group exhibited significantly more total radiographic findings of loosening (4/10) as compared to the control group (0.9/10) (P=<0.001). BBM data is still being analyzed and a subset is expected to demonstrate a significant variance between the experimental/control groups and correlate with graded radiographic data.

CONCLUSION

The collected data suggests that there is no association with the measured lifestyle factors and failure of the shoulder arthroplasty. As expected the radiographic data of graded loosening does provide an effective means of identifying AL once the prosthesis has failed, which is also expected to correlate significantly with a subset of the studied BBM. Biomarker results are also expected to suggest useful BBM for early post-operative screening of AL after shoulder arthroplasty.

GLOBAL AND COMMUNITY HEALTH RESEARCH ABSTRACTS

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Poster #40

Evaluation of Passport to Manhood Program

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INTRODUCTION

The Passport to Manhood program is a nation-wide program offered through the Boys and Girls Club of America and seeks to help young males transition through the trials of early adolescence in an effort to make its participants caring and responsible citizens.
The primary goal of this study is to determine if young males ages 13 to 18 who engage in the Passport to Manhood program at the Boys and Girls Club in Auburn Hills have improved dimensions of self-esteem, attitudes towards drug use, and gender biases.

METHODS

Males ages 13 to 18 were recruited from the Boys and Girls Club in Auburn Hills.
Pre-post surveys were to be administered at 3 sessions of the program that corresponded with self-esteem, attitudes toward drug use, and gender bias. Survey results on each session topic were to be compared immediately before and after the particular session in a matched manner and scored accordingly to determine if there was improvement in dimensions of self-esteem, attitudes towards drug use, and gender bias.

RESULTS

Recruitment took place over two days, with only 3 parents providing permission for their child to participate in the research study. Of these 3 children who had parental permission, none showed up for the program so data collection was terminated.

CONCLUSION

Despite efforts to recruit and implement a sound research project to assess the effectiveness of the local implementation of a nation-wide program, we were ultimately unsuccessful. There are many factors that should be considered prior to engaging in research with local community organizations, including potential staffing issues, mechanisms for program implementation, and history of successful implementation of similar programs.

Poster #41

Inpatient Rehabilitation Unit Art Therapy Stress Management

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INTRODUCTION

Current data is underwhelming for the use of art therapy as a modality of physical rehabilitation. Much of the literature discusses the benefits of art therapy for patients with mental disabilities, in psychiatric hospitals and suffering clinical depression. This research sought to identify the perception and management of patient stress by Inpatient Rehabilitation (IPR) unit staff as well as investigate if art therapy was a useful option to reduce stress and increase emotional health in patients undergoing physical rehab.

METHODS

This study involved two phases. The first employed an electronic needs-assessment survey directed at all individuals (n=31) working within the IPR unit to better understand aspects of patient stress management. After results were tabulated, a self-run art therapy pilot program was put into place. In phase two, patients (n=48) completed a post-experience survey after participating in the implemented art therapy project. Frequencies were calculated and percentages reported/compared to analyze the needs-assessment and post-experience surveys. Statistical analysis was used to determine the relationship between pre and post therapy stress levels reported by patients.

RESULTS

The phase one survey showed IPR staff spent over 30 minutes with individual patients and 63.3% reported observing a moderate degree of stress in their patients. Eighty percent of the staff that responded spoke with patients about emotional well being, but most did not have an actual technique for dispelling this stress. Results from the post-experience patient surveys indicated that the percent of patients who reported stress dropped from 75% prior to art therapy to 54.2% immediately after art therapy. The patients who reported the art therapy project to be beneficial included 97.9% of participants.

CONCLUSION

The present study identified current practices for IPR patient stress management during an often-exhausting rehabilitation period and that patients would indeed benefit from art therapy for stress management.

Exceptional performance by students to disseminate their Capstone research (see back of booklet)

Recipient of the Nicholson Capstone Competitive Scholarship Award

Capstone Project Presentation Speaker

Poster #42

Examining the Relationship Between Food Supplement Programs and Nutritional Choices in the Detroit Community

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INTRODUCTION

Obesity has become a leading public health concern in the United States over the last decade. In 2007-2008, the adult age-adjusted prevalence of obesity was 33.8% in the U.S. Obesity is known to be associated with many serious health conditions including diabetes mellitus, cardiovascular disease, hypertension, stroke, sleep apnea, and non-alcoholic fatty liver disease. In particular, there have been multiple studies showing a link between participation in a food supplement program and obesity. Despite many nationwide studies, a mechanism for why this is the case has yet to be uncovered. Our study sought to take a local approach to better understand why there is a relationship between participation at food pantries and obesity.

METHODS

The study was conducted via surveys administered at a pantry in the greater Detroit community. The survey focused on gathering information about eating habits and health of the participants. We hoped to gather sufficient data to assess the general eating habits of the population being examined, and then examine trends and relationships that may be suggestive of a deviation in nutritional choices in comparison to the population at large.

RESULTS

We found that there were strong relationships between frequent consumption of different types of food ($p=0.0425$, $p=0.0237$). Those who indicated that they frequently consume many types of food were also found to be more prone to health issues ($p=0.003$, $p=0.021$). We also found that those who had to care for multiple people often had more health issues as well ($p=0.027$, $p=0.019$). Additionally, we found that men who came to the pantry were more likely to have been that they need a change in diet than women ($p=0.002$).

CONCLUSION

Based on these findings, it is clear that certain groups who use food pantries are more at risk for obesity and health problems than others. This includes “high-consumers” – those who eat many types of food very frequently, those caring for multiple people, and men. We believe that identifying and targeting these vulnerable populations by using incentives in addition to educational measures will be the most effective way to promote healthy and nutritional habits.

Poster #43

“Choose Your Plate”: A Nutritional Education Curriculum Encompassing Photography and Visual Learning

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INTRODUCTION

As a focus on preventative health education continues to grow with recent changes in the healthcare industry, there is a rising need to deliver this information at an earlier age to establish long-term health behaviors, especially in the context of childhood obesity, now a documented epidemic affecting the nation. This study aims to develop a replicable educational framework derived from the United States Department of Agriculture’s “My Plate” nutritional standards.

METHODS

The educational curriculum for this study was developed based upon the fundamentals of a community-based participatory research study. Twelve female fourth grade students, ages 9-11, met with the principal investigator for four core nutritional education modules, each of which included a specific lesson and a correlating visual learning activity. Participants took photographs of three meals and completed corresponding worksheets before and after the curriculum was delivered to serve as comparison data points. A final “teach-back” activity was also completed to allow participants the opportunity to demonstrate what they had learned throughout the course of the curriculum.

RESULTS

Both qualitative and quantitative data were analyzed from participants’ responses from the photographs and corresponding worksheets. Answers to questions on the worksheets were analyzed using a matched pair t-test, resulting in a p-value of 0.02. Qualitative data analysis demonstrates that certain nutritional lessons created significant impact in how participants loaded their plates.

CONCLUSION

This study indicates that a school-based model for nutritional education may be both relevant and effective, especially for the pediatric population, who is likely to receive a bulk of their early nutritional science exposure through their elementary school teachers rather than their physicians.

Exceptional performance by students to disseminate their Capstone research (see back of booklet)

Recipient of the Nicholson Capstone Competitive Scholarship Award

Poster #44

Music Medicine as an Adjunctive Form of Therapy for Patients in Cardiac Rehabilitation

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INTRODUCTION

This study was done to clarify the potential additive effect of music medicine among patients with known heart disease. Our goal was to present music as an adjunctive form of therapy for patients who are presumably being optimally medically managed.

METHODS

Participants were recruited by the principal investigator in Royal Oak, MI and were selected based on the following criteria: participants have been adherent to medications, regularly exercising, male, ages of 45-70, have previously suffered an acute cardiovascular event and/or undergone coronary revascularization, not cognitively impaired, without a hearing aid, and not a smoker. Those randomly placed in the music group, selected music that they perceived to be relaxing. Those randomly placed in the relaxation group were given no further instructions. All received three baseline measurements prior to and following the intervention: (1) flow-mediated dilation, a process in which a blood pressure cuff is inflated for five minutes, deflated, and an ultrasound machine creates an image of the brachial artery which reflects the health of the coronary arteries (2) blood pressure (BP) (3) heart rate (HR).

RESULTS

Compared to the control, the treatment group exhibited no difference in the percent change of brachial artery diameter ($p = .917$), HR ($p = .689$), systolic BP [left] ($p = .853$), systolic BP [right] ($p = .748$), diastolic BP [left] ($p = .643$), and diastolic BP [right] ($p = .418$).

CONCLUSION

The results did not support the hypothesis that music would be a legitimate adjunctive form of cardiovascular therapy for patients who are presumably being optimally medically managed.

Poster #45

The Medical Student-Science Teacher Partnership: Promoting Healthy Habits through Teaching Physiology

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INTRODUCTION

This study explores the impact of an interactive health physiology educational program integrated into a Detroit middle school science curriculum as a new avenue for improving health literacy and motivation of adolescents to make healthy lifestyle choices.
The program sets up a model for a sustainable transfer of knowledge by creating a strong partnership between a medical student and a science teacher.

METHODS

This study employed a pre- and post-intervention survey of motivation and perceived ability to make healthy lifestyle choices in five categories relating to health. Eighth grade students at Dove Academy were enrolled into the study via an opt-in process involving parental permission. The procedures used in this study were classroom teaching and student assessment, survey administration, classroom observation, and debriefing among teachers. All of these procedures took place in Dove Academy of Detroit's science classroom. Quantitative analysis included paired t-tests of pre- and post-intervention surveys. Qualitative analysis consisted of the constant comparative method applied to free-response surveys, classroom observations, program evaluation, and teacher reflections.

RESULTS

While a slight increase in both motivation and perceived ability to make healthy lifestyle choices occurred in each health-related category, paired-samples t-tests did not show significant difference between the pre- and post-intervention surveys. The methods of qualitative analysis detected an increase in students' interest in their health and in learning more about human physiology. Furthermore, a positive response from the students regarding the medical student-science teacher model of teaching the curriculum was also identified via qualitative analysis.

CONCLUSION

Due to the limited power of the study, it is not clear whether or not a health physiology curriculum influences students' motivation to form healthy habits; further research is necessary.

Exceptional performance by students to disseminate their Capstone research (see back of booklet)

Poster #46

Stimulant Usage Among Medical Students

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INTRODUCTION

Illicit stimulant usage has reached epidemic levels and is now ubiquitous among all education levels. Medical students are a relatively unstudied population that may be at high risk for abuse due to their unique circumstance. This study aims to evaluate stimulant usage among a medical student population at a Midwestern school that has strong measures in place for student wellness and mentorship.

METHODS

A 20 question anonymous survey was offered online via survey monkey during spring semester 2013 at Oakland University William Beaumont School of Medicine. The survey was opened for a period of 2 weeks and extended to all medical students via emails. Data was analyzed using Chi-square, Fishers Exact test, and Pearson's coefficients were calculated.

RESULTS

92 students of 224 took the survey yielding a 41% response rate. Of these students, 42% were M1, 39% were M2, and 18.5% were M3. 15.56% students had taken prescription stimulants without a prescription during their lifetime. Students overwhelmingly reported motives as increasing academic performance (71.43%). 26% of students reported considering using stimulants since medical school has begun. Those taking prescription stimulants both in their lifetime and since the beginning of medical school were stratified into categories based on caffeine usage.

CONCLUSION

OUWB School of Medicine is well below the illicit stimulant usage values cited in literature despite having a high number of students considering taking stimulants and a high number of past users. This may be the results of certain demographic factors at play, or may be related to the unique curriculum at OUWB focused on student wellness and mentorship.

Poster #47

Primary Care Physicians and Screening for Mental Health Issues and Suicidality

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INTRODUCTION

Approximately 45% of those who complete suicide see their primary care physician (PCP) within a month of their death. The US Preventative Task Force on Suicide Prevention indicated that they could not prove the efficacy of routine suicide screening in their 2013 report. This survey, which was conducted in response to this report, was created to investigate how PCPs are screening for suicidality and mental illness and if they are accurately identifying risk factors.

METHODS

Surveys were presented to physicians in primary care specialties including OBGYN, Family Medicine, and Internal Medicine in the Beaumont Health System, during department meetings. The survey consisted of 13 questions designed to ascertain the frequency of mental health and suicide screening, indications for screening, and risk factors identified by the physicians for suicidality. Surveys were collected and the results were analyzed and separated by specialty. The survey contained "write-in" responses including: "what would prompt you to screen for suicide?" and "what do you believe are risk factors for suicidal behavior?" which were coded for the frequency that specific risk factors were identified.

RESULTS

Seventy-eight surveys were collected: 40.3% indicated that mental health screening is a part of first time visits, 44.7% also screen for suicidal ideation. In response to the question: "What would prompt you to screen for suicide?" 4.05% mentioned hopelessness, 18.91% mentioned anxiety, and 10.1%, all of whom were OBGYN physicians, indicated the postpartum period as a prompt for screening.

CONCLUSION

The results suggest that many PCPs may not be inquiring about key risk factors for suicide completion. Furthermore, the possibility for intervention may be missed by a lack of universal and routine screening.

Recipient of the Newman Family Foundation Capstone Competitive Scholarship Award

Poster #48

Associations of Bullying and Abuse with Pelvic Floor Symptoms and Sexual Health

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INTRODUCTION

Women with pelvic floor symptoms experience significant discomfort in their daily lives. Women with pelvic pain experience more abuse compared to the general population. Bullying has not clearly been associated with pelvic floor symptoms, however it has been associated with other medical morbidities. The purpose of this study is to investigate associations of bullying and abuse with pelvic floor symptoms, urogenital pain, and sexual health characteristics.

METHODS

This is a retrospective chart review of a women's urology center patient database. Patients completed intake questionnaires about bullying, abuse, and sexual health as well as validated questionnaires such as the Pelvic Floor Dysfunction Inventory (PFDI-20), Overactive Bladder Questionnaire (OAB-q), and Visual Analog Scale (VAS 0-10) for genitourinary pain. Statistical analyses included Chi squared and t-tests, which compared victims of bullying and/or abuse to non-victims.

RESULTS

381 patient questionnaires were reviewed. 340 contained data on bullying exposure, 257 on bullying victimization, and 376 on abuse history. 94/257 (36.6%) patients reported that they had been victims of bullying. 94/376 (25.0%) patients reported that they had been victims of abuse. Victims of bullying and victims of abuse did not report higher PFDI-20 scores, OAB-q scores, or VAS urogenital pain scores as compared to non-victims. A larger proportion of victims of bullying were sexually active compared to those who were not bullied ($p=.020$). Victims of bullying reported more dyspareunia ($p=.031$) and more dissatisfaction with their sexual activity status ($p=.047$) compared to non-victims.

CONCLUSION

Histories of bullying and abuse did not predict increased pelvic floor symptoms or urogenital pain. Victims of bullying reported being more sexually active and experiencing more dyspareunia and dissatisfaction with their sexual activity status compared to non-victims.

Recipient of the Capstone Competitive Scholarship Award

Poster #49

Efficacy Through Narrative: A Sweetened Beverage Intervention Involving 5th Graders

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INTRODUCTION

Currently, nearly 1 in 5 children in the U.S. under the age of 12 are obese, a growing epidemic that has been linked to the consumption of empty calories in the form of sweetened beverages. Objectives for this study were two-fold: First, to establish sweetened beverage consumption patterns of 5th grade students at a metro-Detroit elementary school. Second, to determine whether reading a narrative based, efficacy-promoting story would result in reduced consumption of sweetened beverages.

METHODS

Two fifth grade classes were randomized through a coin toss. 11 students in the control classroom and 9 students in the experimental classroom participated in the study.
A teacher focus group discussion was used to design beverage consumption surveys and a recall beverage log for children in both groups. Children in the control and experimental group were presented with sugar cubes and cups in different serving sizes to use as a visual guide while completing these. A children's story about sweetened beverages with fill-in-the-blank questions was then distributed to children in the experimental group followed by a post survey and beverage log to note any changes in consumption patterns post-reading.

RESULTS

Children in the experimental group consumed an average of 1.4 servings of sweetened beverages on weekdays and 2.1 servings on weekends pre-intervention. They self-reported slightly decreased sweetened beverage consumption after reading the self-efficacy promoting narrative story, and also demonstrated improved understanding of the sugar content of common sweetened beverages. Nevertheless, an insufficient number of children took part in the study to attain statistical significance.

CONCLUSION

The improved nutritional literacy regarding sweetened beverages and slightly decreased sweetened beverage consumption patterns found in this study may be further explored in a larger setting where statistically significant changes in consumption may be noted.

Exceptional performance by students to disseminate their Capstone research (see back of booklet)

Poster #50

Assessment of Unmet Needs in the Cancer Survivor Population

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INTRODUCTION

Patients diagnosed with cancer today will survive longer due to improved screening and treatment strategies. Cancer survivors often experience life effects after treatment including medical and nonmedical issues. The primary goal of this project was to identify the unmet needs in adult cancer survivors with solid organ pelvic tumors. Secondarily, patients' perception of whether those needs are being met by the health care system was assessed.

METHODS

A questionnaire composed of the Cancer Survivors' Unmet Needs Survey and sections of the 2012 LIVESTRONG Survey was sent out to 5,000 subjects from the Beaumont Cancer Registry. Two outcomes were assessed in this study: i) domain scores and ii) top 10 unmet needs with the highest mean response. The results of 100 randomly selected questionnaires were reviewed and analyzed.

RESULTS

Mean domain scores (0 - 4 = Very High Unmet Need): Unmet Information Needs = 0.3; Unmet Work and Financial Needs = 0.11; Unmet Needs for Access and Continuity of Health Care = 0.12; Coping and Sharing Needs = 0.15; Unmet Emotional Needs = 0.22. Top 10 unmet needs: being told I had cancer; dealing with not feeling sure that the cancer has gone; dealing with changes in my physical ability; dealing with feelings of worry between follow-ups; dealing with fears about cancer spreading; dealing with worry about whether the treatment has worked; dealing with feeling worried; dealing with feeling tired; coping with things not going back to how they were before I had cancer; knowing which sources to trust.

CONCLUSION

Absolute unmet needs exist; however, those unmet needs were found to be very low with an average domain score <1 and mean scores for individual unmet needs <1. Top ten unmet needs were highlighted to show which areas the healthcare team may want to address during survivorship clinic visits.

Poster #51

World Fit and Its Effects on Pre-Adolescent Self-Esteem

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INTRODUCTION

Research has previously identified a relationship between participation in physical activity-based youth development programs and changes in self-esteem. This study evaluated World Fit, a six-week walking program designed to encourage physical activity in individuals in grades 3-8. The purpose of this study was to determine if a relationship exists between participation in the World Fit program and pre-adolescent self-esteem.

METHODS

Participants were obtained from the Wilson Branch - Boys and Girls Club in Auburn Hills, MI. Inclusion criteria for this study were: 1) the participants must attend the Wilson Branch - Boys and Girls Club; and 2) the participants must be between the ages of 10-12. Two recruitment days were held at the club during which flyers advertising the program and study were distributed, and fifteen participants signed up for the study. Parental consent and pre-adolescent assent were obtained. The primary means of data collection was through the completion of the nationally used Rosenberg Self-Esteem Scale before and after participation in the World Fit walking program. A paired-t test was used to determine if there is a relationship between participation in World Fit and pre-adolescent self-esteem.

RESULTS

Four pre-adolescent participants completed both a pre and post-intervention Rosenberg Self-Esteem Scale. Results of the paired t-test showed no significant change in self-esteem with a $p=0.920$. The small sample size considerably limited the power of the test, and greatly affected the standard error of the mean. This study was also limited by participant attrition.

CONCLUSION

This study illuminates the challenges of working with community organizations. The results of the study are insignificant due to the low participant involvement, but this should not detract from the initial hypothesis that a walking program and self-esteem may have a positive correlation, as has been shown in previous literature. Should this specific project be expanded upon, an elementary school may present a more stable population from which to recruit participants.

Recipient of the Ravitz Foundation Capstone Competitive Scholarship Award

Poster #52

An Assessment of Needs of Church Coordinators Providing Meals to a Homeless Shelter

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INTRODUCTION

The OUWB School of Medicine has established a partnership with South Oakland Shelter of Oakland County with a goal to provide service-learning opportunities for students and strengthen the health system serving homeless clients. Few shelters, although crucial to sustaining the homeless, utilize dietitians or consider nutrition to meet particular health needs.1 A needs assessment was conducted among church coordinators responsible for providing meals to homeless clients.

METHODS

A survey and focus group of church coordinators assessed processes involved in planning, preparing, and providing meals to homeless clients, which provided further insight concerning nutritional aspects and other factors influencing meal planning.

RESULTS

The assessment yielded critical data information on meal planning and preparation. Majority of churches tried to include fruits and vegetables and meat food group requirements. A predominant theme from the focus group was the desire to satisfy clients, resulting in an abundance of comfort foods, which typically do not provide appropriate nutrition and prevent clients from making good choices. Another theme considered the struggle to incorporate vegetables into meals that clients will eat.

CONCLUSION

This project demonstrates challenges of altering the nutritional status of the homeless. Despite a basic knowledge of nutrition, the ability to provide healthy options is constrained by issues of collaboration between many volunteers, a desire to provide comfort foods, and difficulties dealing with diets for specific health problems.

Exceptional performance by students to disseminate their Capstone research (see back of booklet)

Recipient of the Nicholson Capstone Competitive Scholarship Award

Poster #53

Integration of Stress Management and Resilience Training (SMART) Program Among Medical Students: A Pilot Study

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INTRODUCTION

The Stress Management and Resilience Training (SMART) program was developed by Dr. Amit Sood of Mayo Clinic. It teaches mind-body techniques of focused attention and thoughtful interpretation of life experiences as stress management tools. Medical school is a stressful, anxiety-producing time. This research sought to identify if practicing the SMART program as a medical student decreases stress and anxiety, while increasing mindfulness.

METHODS

In this one arm case study, the principal investigator taught SMART techniques to 20 OUWB medical students: 12 second-year students and 8 first-year students. All participants came to the initial one hour session, with an option to attend up to three twenty minute follow up sessions explaining interpretation skills in more depth. Additionally, each was provided with a copy of Dr. Sood's book The Mayo Clinic Guide to Stress-Free Living, which explores detailed SMART concepts. Self reported measures of mindfulness, stress, and anxiety were scored by three previously validated surveys: Perceived Stress Scale (PSS), Generalized Anxiety Disorder 7-item Scale (GAD-7), and Mindful Attention Awareness Scale (MAAS). One-way univariate repeated measures analysis of variance (ANOVA) tests were conducted to assess scores over four time periods (baseline, 1 month, 3 months, and 12 months).

RESULTS

All participants completed the surveys, with no attrition. The overall F-test was non-significant for perceived stress ($p = .068$), however the overall F-tests for generalized anxiety ($p = .015$) and mindful attention ($p = .001$) were both significant. Generally, anxiety decreases over time and mindfulness increases over time.

CONCLUSION

Teaching the SMART program to medical students in abbreviated time intervals is feasible. The intervention provided statistically significant decreased anxiety and increased mindfulness. Further research could be considered with a broader sample group.

Exceptional performance by students to disseminate their Capstone research (see back of booklet)

HEALTH SYSTEMS RESEARCH ABSTRACTS

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Poster #54

Patrol Officers' Likelihood of Responding to a Hemorrhage Control Emergency

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INTRODUCTION

Police officers in Southeast Michigan face scenarios that involve battlefield-type injuries. While the military has improved soldier survival by providing advanced training/equipment to address hemorrhage control, law enforcement has not. We hypothesize that patterns and trends in fatal and nonfatal injuries occurring in Michigan, justify adapting military first responder training to local law enforcement agencies.

METHODS

Secondary data analysis of the National Vital Statistics System (NVSS), the Center for Disease Control National Center for Health Statistics, and the National Electronic Injury Surveillance System — All Injury Program (NEISS-AIP) was performed, using time series analysis to evaluate the changes in crimes that pose the highest likelihood of presenting patrol officers with a need to perform hemorrhage control. Finally, a stochastic analysis was performed to estimate the probability of an officer encountering an emergency where they may need to provide hemorrhage control.

RESULTS

Data will be presented comparing national estimates to Michigan, with further breakdown by type of emergency (e.g., stabbing, shooting) resulting in a fatality or injury. The predictive results will also be presented by type of emergency and geographic designation.

CONCLUSION

The patterns of crimes in Michigan, as has been observed nationwide, may demonstrate an increased need for improved hemorrhage control training/equipping of patrol officers. These results will inform future training of law enforcement and assist in the adaptation of military training/experience to improve local outcomes.

Poster #55

How Physicians and Patients Perceive Medical Jargon Used by Physicians

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INTRODUCTION

There is evidence that the use of medical jargon during patient encounters leads to impaired communication, suboptimal compliance and worsened patient outcomes. It is unclear whether patients have a positive or negative reaction to medical jargon use by their physician. This study examines patient and physician attitudes towards the use of jargon, to better understand why medical jargon is used in patient encounters.

METHODS

Patients, residents, and attending physicians at a community hospital were recruited to fill out a short survey about their experiences with medical jargon in their most recent encounters. Patients who attended the clinic over a four-day span were randomly selected and mailed the survey. Physicians who attended certain hospital meetings were randomly approached and given the survey in person.

RESULTS

Descriptive results show a pattern where 75% of surveyed patients (n=8) responded that the use of medical jargon is “sometimes” or “always” necessary during physician-patient encounters, compared to 30.3% of surveyed physicians (n=43). 88.4% of surveyed physicians, as well as 50% of surveyed patients, responded that patients don’t prefer a doctor who uses medical jargon compared to one who doesn’t. For the statement “Patients understand most of what the physician explained to them,” 65.1% of physicians responded “sometimes,” while 62.5% of patients responded “often” or “always.”

CONCLUSION

Results suggest that physicians seem to perceive that using medical jargon doesn’t positively influence patient perception of physicians. However, responses suggest that both patients and physicians recognize the frequency of medical jargon use, and responses indicate that some may see the use of medical jargon as necessary.

Poster #56

School-Based Clinic for Detroit Cristo Rey: A Needs-Assessment

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INTRODUCTION

Many students who come from underserved communities do not have adequate access to health care. Detroit Cristo Rey High School is a high school designed for students from underserved communities in the Detroit area. It is possible that access to health care through a school-based clinic may help reduce the incidence of diseases or medical issues among Detroit Cristo Rey students. This study was conducted to assess the health needs of the students at Detroit Cristo Rey High School to determine whether or not the students have health needs that can be improved by a school-based health clinic.

METHODS

Parents and students were surveyed at Detroit Cristo Rey High School in Detroit, Michigan. The surveys covered questions regarding the students' health, access to health, academics, and activities. The parent participants (N=50) were recruited during parent-teacher conferences. Permission forms for student participation were also acquired during the parent-teacher conferences. The student participants (N=48) were recruited during their extracurricular class hours. The student and parent/guardian surveys were not paired and there was no identifying information included in the surveys. The data was analyzed using descriptive statistics. The participants were not required to answer every question in the survey, so the total number of responses for each question were included in the analysis.

RESULTS

A total of 48 of the 253 students at all grade levels were surveyed: 14 freshmen, 10 sophomores, 16 juniors, and 8 seniors. The students identified themselves as 21 males and 24 females, 3 students chose not to disclose their gender. Some health concerns seen among the Detroit Cristo Rey students included asthma (14%), weight management issues (31%), sexual activity (32%) and lack of sexual education (48%), and symptoms of depression (41%).

CONCLUSION

Overall, our study attempted to identify the health needs of Detroit Cristo Rey Students and found that mental health, weight management, and sexual education are the most needed. With this data, a sexual and mental health curriculum is currently being developed for the Detroit Cristo Rey High School students.

Recipient of the Ravitz Foundation Capstone Competitive Scholarship Award

Poster #57

Comparing Differences in Perceived Importance of Leadership Experiences and Skills Among Medical Leaders

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INTRODUCTION

Medical leaders are a diverse group of individuals with varying past experiences, professional skills, and personality traits that guide their leadership styles. This study seeks to identify the experiences and skills medical leaders currently possess, as well as those they foresee as important for future medical leaders. It also seeks to identify if there is a difference in the experiences and skills between physician and non-physician leaders.

METHODS

A survey was developed consisting of questions about medical leaders' demographics, leadership experiences, and skills they currently possess, as well as leadership experiences and skills they foresee as needed by future medical leaders. 2,024 medical leaders from the 115 principal members of the University HealthSystem Consortium (UHC) received an electronic survey. Responses were analyzed in aggregate, then categorized into physician and non-physician groups for comparison.

RESULTS

There were 357 responses (18% response rate), of which 82% were physicians. Previous experience leading a team was both the most prevalent (74%) and most important (42%) experience in developing respondents' leadership skills. Respondents most frequently identified emotional intelligence, communication, and adaptability among the top five strongest skills they possess, as well as among the top five most important skills for future medical leaders. Of these skills, emotional intelligence was most frequently identified as both the strongest current skill (38%) and future skill (24%). In comparing the responses between physicians and non-physicians, non-physicians more frequently identified communication (75% v. 57%, $p \leq 0.02$) and decisiveness (44% v. 26%, $p \leq 0.01$) among their top five current leadership skills. Non-physicians more frequently identified vision planning (15% v. 6%, $p \leq 0.03$) as their strongest skill. For skills needed by future leaders, non-physicians more frequently identified innovation (47% v. 33%, $p \leq 0.04$) as a future skill.

CONCLUSION

Physician and non-physician medical leaders share similar experiences and skills. They prioritized skills that promote greater teamwork and interpersonal connections. They foresee a similar skill set needed for future medical leaders.

Poster #58

Evaluation of the Effect of Discharge Wristbands on Readmission Rates of Thoracic Surgery Patients

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INTRODUCTION

The Centers for Medicare & Medicaid Services (CMS) uses the 30-day readmission rates as grounds for monetary penalization when dealing with a variety of disease processes, including thoracic surgery. Lower rates may signify improved hospital quality. The Department of Cardiovascular Surgery at Beaumont Health Systems implemented a Discharge Wristband protocol for patients in March of 2012. These wristbands contain a 24/7 call number, which is covered by a nurse, nurse practitioner, or physician assistant. Patients are instructed to call with questions or concerns, possibly decreasing unnecessary readmissions and triaging patients over the phone. The purpose of this study is to determine if the Wristband protocol has decreased readmission rates as well as analyze reasons for readmission.

METHODS

This study focuses on 901 Coronary Artery Bypass Graft (CABG) patients from June 2011 through July 2014. The control group consisted of patients from June 2011 to March of 2012, prior to wristband initiation, while the treatment group spanned patients from March of 2012 to July 2014. Specific demographic and symptomatic data were collected and analyzed, comparing the control and treatment groups for significant changes both in readmission as well as comparing population and presentation.

RESULTS

Compared to the control, the treatment group did not show a significant change in readmissions, $p = 0.992$, however, patients who experienced Post-Operative Pulmonary-Ventilation Prolongation ($p = 0.004$), Neurologic-Stroke symptoms ($p = 0.08$), and Renal-Renal Failure ($p = 0.053$) exhibited a change. Post-operative length of stay also showed a decreased before and after the implication of the wristbands ($p = 0.025$).

CONCLUSION

The results do not support the hypothesis that the Discharge Wristbands have decreased readmission rates in CABG patients at Beaumont Health System – Royal Oak, MI.

Poster #59

Decreasing Ambulance Out of Service Time Through Streamlining of Communication with Emergency Department Staff, a Needs Assessment

Woodrow Sams
Class of 2016 M.D. Candidate, Oakland University William Beaumont School of Medicine

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Department of Emergency Medicine, Beaumont Health System

INTRODUCTION

Emergency Medicine Service (EMS) agencies were created for the rapid treatment and transport of patients to hospitals for emergency care. However, as public use of EMS increases, a rising number of low-acuity patients are utilizing 9-1-1 systems, potentially causing delays in the treatment of higher acuity patients. In order to mitigate these effects it's necessary for EMS agencies to have as rapid and accurate a turn over in the Emergency Department (ED) as possible. This study is designed to determine the feasibility of electronic communication with ED triage prior to EMS arrival with low acuity patients.

METHODS

Local fire department personnel were surveyed regarding their satisfaction with current triage processes and out of service (OOS) times they've experienced when transporting low acuity patients to Beaumont Royal Oak ED. Participants were also asked whether or not they believe electronic communication prior to arrival is feasible and if they believed this form of communication would diminish patient care in any way when compared with traditional contact.

RESULTS

While 89% of participants agreed electronic communication prior to arrival would decrease OOS times, 55% believe this sort of communication would diminish patient care. 55% of participants are satisfied with the current triage process at Beaumont, while 17% strongly disagree with this statement.

CONCLUSION

Participants were concerned that electronic communication with ED staff would diminish patient care, and more research is needed to evaluate the validity of these concerns. However, participants agree that this system could decrease OOS times therefore moving forward with this research would be justifiable.

Poster #60

How Personality Assessment Can Predict Physicians' Attitudes Towards Computerized Physician Order Entry

Erik Sweet
Class of 2016 M.D. Candidate, Oakland University William Beaumont School of Medicine

Carleen Penoza, R.N.
Clinical Informatics, Beaumont Health System

INTRODUCTION

Currently, physician resistance is a significant barrier to implementation of computerized physician order entry (CPOE), serving as a source of stress and financial loss for hospitals as they implement electronic health records. A greater understanding of what contributes to this resistance may help to improve current CPOE platforms and streamline further implementation. The primary goal of this study is to determine how personality traits may affect attitudes towards CPOE.

METHODS

A survey was administered to physicians of the Beaumont Health System, with 274 respondents. The survey contained questions to assess the physicians' viewpoints towards the CPOE system. An abbreviated Big Five Inventory assessment was also included in the survey to assess physician personalities in terms of 'Extraversion', 'Agreeableness', 'Conscientiousness', 'Neuroticism', and 'Openness'. Statistical analysis focused on how results of the personality assessment and physician demographics correlate with attitudes towards CPOE.

RESULTS

As anticipated, physician age has the strongest correlation with the physician's attitude towards CPOE, having a correlation coefficient of $r = -0.273$, $p < 0.01$, two-tailed. In addition, several personality traits correlate with attitudes towards CPOE. Of greatest significance, a greater score in the trait of 'Agreeableness' correlated with a more positive attitude towards CPOE, having a correlation coefficient of $r = 0.186$, $p = 0.02$, two-tailed.

CONCLUSION

The results support the hypothesis that physicians' personality traits are correlated with their attitude towards CPOE and may be a significant factor in physician resistance of CPOE and EHR implementation.

Poster #61

Effects and Implications of the Readmissions Reduction Program on Beaumont Health System

Raymond Y. Yeow
Class of 2016 M.D. Candidate, Oakland University William Beaumont School of Medicine

Paula Levesque, R.N., M.S.A., C.P.P.S.
Department of Quality and Patient Safety, Beaumont Health System

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INTRODUCTION

In 2012, Medicare spent an estimated $17.4 billion on excessive hospital readmissions. The Readmissions Reduction Program implemented on October 1, 2012, penalizes acute care hospitals with excessive readmissions by withholding a portion of their Medicare reimbursements. The primary objective of this study was to evaluate the changes in readmission rates of various health conditions at Beaumont Health System hospitals following the enactment of the Readmissions Reduction Program. The secondary objective of this study was to identify infrastructural components that contributed to changes in readmission rates.

METHODS

Monthly, all-cause, 30-day readmission rates for various conditions, spanning October 2009 through September 2014, were obtained from Beaumont Health System's Clinical Decision Support team. Rates were modeled with uninterrupted and interrupted time series using SPSS programming. Significance was determined using analysis of variance (ANOVA) and an of 0.05. Data points were trended using the T4253H smoother and graphed to illustrate the trends over time.

RESULTS

Interrupted time series analysis of all conditions demonstrated no statistically significant changes in readmission rates when comparing pre- and post-implementation trends. Uninterrupted time series analysis also showed no statistically significant changes in readmission rates over the 5-year period, with the exception of HF ($p=0.04$) and pneumonia ($p=0.02$).

CONCLUSION

Significant decreases in heart failure and pneumonia readmissions were noted in the uninterrupted time series analysis, which were attributed to infrastructural components such as the "Heart Failure Home Liaison Program" and "Pulmonary Mobility Unit", among others. Though changes in readmission rates cannot be directly attributed to the Readmissions Reduction Program, there are early signs that overall readmission rates are decreasing. Ultimately, additional long-term analyses with regards to the effects of the Readmissions Reduction Program are needed.

Recipient of the Capstone Competitive Scholarship Award

MEDICAL EDUCATION RESEARCH ABSTRACTS

Poster	Student Name	Poster Title
62	Anthony Kraus	Force Vector Diagrams as a Muscular Anatomy Teaching Tool: Creation and Assessment
63	Danielle Rush	Determining Medical Students Perceptions and Understanding of Sexual Abuse to Assess Curricular Need
64	Sunita Saith	OUWB School of Medicine End-of-Life Communication Training: An Exploratory Study
65	Joseph Vercellone	Measuring the Effectiveness of Peer-Assisted Clinical Skills Training

Poster #62

Force Vector Diagrams as a Muscular Anatomy Teaching Tool: Creation and Assessment

Anthony Kraus
Class of 2016 M.D. Candidate, Oakland University William Beaumont School of Medicine

Malli Barremkala, M.D.
Department of Biomedical Sciences, Oakland University William Beaumont School of Medicine

Mark Hankin, Ph.D.
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INTRODUCTION

Medical students are required to learn the origin, insertion, and actions of most muscles in the human body. Muscles and joints operate on physical and mechanical principles (e.g. force, lever arms, torque). This study developed annotated anatomical illustrations indicating these principles and provided them to first-year medical students, for use in addition to standard anatomy education resources. This study seeks to understand whether students' self-study of these physical principlines in the context of anatomy leads to better student comprehension and retention of the standard medical anatomy currciculum.

METHODS

Participation was open to first-year medical students between the ages of 18-60, with target enrollment being 60-100 and actual enrollment being 42 students. Students were sorted based on previous completion of college-level anatomy coursework (any vs. none). Participants were pseudo-randomized into either control or intervention groups. All participants completed an anatomy quiz modeled on standard medical school-level anatomy assessments. Participants in the intervention group were then provided hardcopies of 10 annotated anatomy illustrations covering muscles of the upper limb for use at their discretion during home study. After 6 weeks, all study participants were re-administered the anatomy quiz.

RESULTS

The control group (N=21) demonstrated a mean pre-test quiz score of (2.429) and a mean post-test score of (5.524). The intervention group (N=20) demonstrated a mean pre-test quiz score of (2.545) and a mean post-test score of (4.818). This generated a mean score increase of (+3.095) for the control group vs. (+2.272) in the intervention group, which was not a statistically significant difference (t=.2427, p=.8095).

CONCLUSION

After development of a novel anatomy study tool, this study did not find a significant difference in medical student performance among those who used conventional study tools (control group) vs. those who used conventional study tools plus the novel study tool (intervention group).

Poster #63

Determining Medical Students Perceptions and Understanding of Sexual Abuse to Assess Curricular Need

Danielle Rush
Class of 2016 M.D. Candidate, Oakland University William Beaumont School of Medicine

Judith Venuti, Ph.D.
Department of Biomedical Sciences, Oakland University William Beaumont School of Medicine

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INTRODUCTION

The objective of the study was to determine how introducing a session on sexual abuse into the M2 Reproductive Organ System course influenced students perceptions of perpetrators and victims of sexual abuse.

METHODS

Following an initial survey to assess students' knowledge and beliefs regarding sexual abuse, a forensic nurse from Haven Clinic in Pontiac, MI, delivered an informational session to 74 M2 students and the same survey was administered immediately after the session. Data (n=54) was analyzed to determine if individual responses varied between the pre-session survey and post-session survey. Participants were organized into demographic categories in order to further stratify results by age, gender, and personal or familial experience with sexual abuse.

RESULTS

The differences in responses between the pre- and post-session surveys suggest that the information session helped dispel many myths and misperceptions among the M2 medical students regarding sexual abuse. Data collection strongly suggests that educational sessions similar to the one provided not only will help to prepare students for clinical interactions with victims of sexual abuse, but will also improve their understanding of what role physicians may play in dealing with victims of sexual assault.

CONCLUSION

The purpose of this project was to serve as a preliminary study highlighting the need for longitudinal and comprehensive medical school curricula to narrow the gap between expectations from the healthcare sector in regards to IPV and victims of abuse and the realities of health professionals' educational experiences and formal preparation.

Recipient of the Newman Family Foundation Capstone Competitive Scholarship Award

Poster #64

OUWB School of Medicine End-of-Life Communication Training: An Exploratory Study

Sunita Saith
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Department of Palliative Care, Beaumont Health System

INTRODUCTION

End-of-life (EOL) care is defined as the care of patients with terminal illnesses as their illnesses become more advanced and incurable. Patients and families identify physicians' communication skills as being crucial to high quality EOL care. However, physicians-in-training at all levels report a lack of preparation in communicating issues related to EOL care. Multiple studies indicate that physicians-in-training receive little formal training during medical school and have low self-perceived comfort and skill with many important aspects of EOL communication. These findings raise questions about how the EOL communication training at Oakland University William Beaumont School of Medicine (OUWB SOM) addresses students' needs and concerns.

METHODS

Participants were medical students enrolled at OUWB SOM and who have had memorable EOL care experiences during their clinical rotations. Subjects were asked to write narratives in response to open-ended prompts about their experiences with EOL care and their beliefs about EOL communication training. The text responses will be analyzed for common themes using Ethnograph, an open-source qualitative research program. Subjects also completed a background questionnaire and rated their comfort with various aspects of EOL care, such as giving bad news, expressing empathy, and eliciting patients' hopes and fears.

RESULTS

We anticipate that 5-7 subjects will participate in the study. From the responses provided, we seek to construct a framework for how students perceive the EOL communication curriculum after caring for patients with terminal illnesses. The analysis will explore connections among participants' recent experiences with EOL communication, self-perceived comfort and skill with EOL communication, previous educational and life experiences relevant to EOL communication, and attitudes towards current EOL communication skills training.

CONCLUSION

This study will aid in identifying the strengths and weaknesses of EOL communication training at OUWB SOM. The curriculum may be improved in order to address student concerns and better prepare them for their experiences on the wards.

Poster #65

Measuring the Effectiveness of Peer-Assisted Clinical Skills Training

Joseph Vercellone
Class of 2016 M.D. Candidate, Oakland University William Beaumont School of Medicine

Lynda Misra, D.O., F.A.C.P., M.Ed.
Associate Dean for Undergraduate Clinical Education,
Oakland University William Beaumont School of Medicine

INTRODUCTION

A medical student's confidence in clinical skills has a dramatic effect on their learning experience during clerkships. This has been demonstrated in studies pertaining to Simulation Training during the first two years of medical training. Despite research on peer-assisted skills training, little quantitative research exists. The goal of this study was to quantify the impact of peer-assisted training on students' confidence and their performance during Objective Structured Clinical Examinations (OSCE).

METHODS

101 First- and second-year medical students at Oakland University William Beaumont School of Medicine were self-selected into one of two categories: Workshop students participating in workshop sessions or Control students participating in the survey and data analysis without participating in the workshops. A series of workshops were held throughout the curriculum year focusing on proper techniques for taking histories and performing physical exams. Second-year medical students provided exam demonstrations to first-year medical students. The study analyzes changes in student confidence, through pre- and post-surveys, and compares end-of-year Objective Structured Clinical Examination (OSCE) Global Rating Scales of Workshop Group participants to the Control Group.

RESULTS

A comparison of the Workshop Group and Control Group showed that although there was an increase in confidence for both performing and teaching skills within each group, the increase was, for the most part, not substantial enough to be significant ($p>0.04$ across all measures). The one exception is that the Workshop Group for the Class of 2017 showed significant improvement in their confidence in Teaching Vital Signs ($P = 0.004$). There was no significant difference in performance on end-of-year OSCEs when comparing Workshop Group and Control Group participants ($p>0.04$ across all measures).

CONCLUSION

The results of the study failed to demonstrate a significant difference between students participating solely in the APM Clinical Skills curriculum and students acquiring additional practice through peer-assisted workshops. Limitations associated with the study, including a small study population and poor attendance in workshops, may have limited the impact of the provided peer-assisted training.

Recipient of the Dean's Choice Capstone Presentation (Digital Poster) Award

Class of 2016

STUDENTS RECOGNIZED FOR EXCEPTIONAL CAPSTONE-RELATED PRESENTATIONS

The following students are recognized for extending their Capstone experience with poster and oral presentations at local, national, and international medical conferences. Their actions embrace the Capstone mission and serve as inspiration to the community of OUWB medical students whose research is in progress.

Samir Berry

Goldin D, Berry SK, Mansoor BM, et al. Survival after radioembolization for metastatic colorectal cancer: Search for prognostic factors. Poster presented at: 38th Annual Scientific Meeting, Society of Interventional Radiology; April 13, 2013; New Orleans, LA.

Goldin D, Mansoor B, Berry S, et al. Bevacizumab effects on Y-90 microsphere infusion, tumor-to-normal vascularity ratio, and survival in metastatic colorectal cancer. Poster presented at: 5th Annual Symposium on Clinical Interventional Oncology; January 18, 2013; Miami Beach, FL.

James David

David JA, Huang JZ. Diagnostic utility of flow cytometry analysis of reactive T cells in nodular Llymphocyte-predominant hodgkin lymphoma. Poster presented: The annual meeting of the United States and Canadian Academy of Pathology; March 06, 2014; San Diego, CA.

David JA, Huang JZ. Diagnostic utility of flow cytometry analysis of reactive T cells in nodular Llymphocyte-predominant hodgkin lymphoma. Am J Clin Pathol. 2016 Jan;145(1):107-15. doi: 10.1093/ajcp/aqv017.

Fatima Fahs

Fahs F, Colombo R. Inpatient rehabilitation unit art therapy stress management phase 2. Poster presented: Michigan State Medical Society Annual Meeting; October 23, 2014; Troy, MI.

Fahs F, Colombo R. Inpatient rehabilitation unit art therapy stress management phase 2. Poster presented: American College of Physicians Michigan Chapter Annual Scientific Meeting; October 18, 2014; Gaylord, MI.

Fahs F, Colombo R. Inpatient rehabilitation unit art therapy stress management phase 1. Poster presented: American Medical Women's Association 99th Annual Conference; March 14, 2014; Washington DC.

Aditi Gupta
Gupta A, Dereski. Choose your plate: a nutritional education curriculum intended to create young health advocates. Poster presented: Experimental Biology 2015 Conference; March 2015; Boston, MA.

Gupta A, Dereski M. Choose your plate: a nutritional education curriculum encompassing photography and visual learning. Poster presented: The Michigan Academy of Science, Arts & Letters Annual Conference; February 2014; Rochester, MI.

Rachel Hanke
Hanke R, Studzinski D, Ragheb S, Shanley C. Can peripheral blood leukocyte phenotypes predict symptom status in carotid atherosclerosis? Poster presented at: American College of Surgeons 2015 Clinical Congress; October 4, 2015; Chicago, IL.

Hanke R, Ragheb S, Studzinski D, Shanley C. Carotid atherosclerosis: biomarkers to identify patients at risk for stroke. Poster presented at: American Medical Women's Association Annual Meeting; March 15, 2014; Washington, D.C.

Leah Hong
Hong L., Sims MD. Appropriateness of Clostridium difficile therapy for Initial therapy. Poster presented at: 2015 Michigan ACP Conference; September 2015; Acme, MI.

Anna Karpov
Karpov A, Eastwood JL. Improving motivation to make healthy lifestyle choices by teaching physiology in low SES schools: a pilot study. Poster presented: Michigan Chapter of American College of Physicians; October 2014; Gaylord, MI.

Danny Mammo
Mammo DA, Peeples C, Honaker D, Grodsky M, Wasvary H. The colectomy improvement project: do evidence-based guidelines improve institutional colectomy outcomes? Poster presented: Southeastern Surgical Congress; February 20, 2016; Atlanta, GA.

Victoria Mason
Mason VA, Sims MD. How well do we follow the UTI guidelines for patients discharged from the Emergency Center? Poster presentation at: The Michigan Chapter of the American College of Physicians Annual Scientific Meeting; September 25–27, 2015; Acme, MI.

Nichole McCaffrey
McCaffrey N, Makin J, Sims MD. Do current prescribing practices for the double coverage of gram negative infections actually provide double coverage? Poster presented at: Interscience Conference on Antimicrobial Agents and Chemotherapy; 2014; Washington, DC.

Roslyn Oakley
Oakley R, Uhley V. Efficacy through narrative: a sweetened beverage intervention involving 5th graders. Poster presented at: 4th International Conference and Exhibition on Obesity and Weight Management; December 7-9, 2015; Atlanta, GA.

Satyum Parikh
Parikh SR, Qu Z, Zhang, PL. CD133 as a specific marker to differentiate in-situ and invasive colonic carcinoma from reactive colonic epithelial changes. Poster presented at: American Society of Clinical Pathology; October 28, 2015; Long Beach, CA.

James Payne
Payne J, Ospina L. The futility of early TSH testing in graves' patients treated with I-131. Poster presented at: American Association of Clinical Endocrinologists; May 2015; Nashville, TN.

Payne J, Ospina L. The futility of early TSH testing in graves' patients treated with I-131. Poster presented at: American College of Physicians: Michigan Chapter – Residents Day; May 2015; Troy, MI.

Verity Ramirez
Ramireza V, Bartley JM, Killinger K, et al. Outcomes of sacral neuromodulation in patients with prior surgical treatment of stress urinary incontinence and pelvic organ prolapse. Poster presented at: The Annual Meeting of the American Medical Women's Association; April 23-25, 2015; Chicago, IL.

Ramireza V, Bartley JM, Killinger K, et al. Outcomes of sacral neuromodulation in patients with prior surgical treatment of stress urinary incontinence and pelvic organ prolapse. Moderated poster presented at: The Annual Meeting of the Society of Urodynamics, Female Pelvic Medicine & Urogenital Reconstruction; February 26, 2016; New Orleans, LA.

Danielle Rush
Rush D, Venuti J. Determining medical students perceptions and understanding of sexual abuse to assess curricular need. Poster presented at: Association of American Medical Colleges Joint Regional Meeting; April 2014; Columbus, OH.

Rush D, Venuti J. Determining medical students perceptions and understanding of sexual abuse to assess curricular need. Poster presented at: American College of Physicians; October 2014; Gaylord, MI.

Samantha Scouten
Scouten S, Lucia V, Wunderlich T, et al. Assessment of needs of church coordinators providing meals to a homeless shelter. Poster presented at: Oakland University Research Symposium; August, 2013; Rochester, MI.

Scouten S, Lucia V, Wunderlich T, et al. Assessment of needs of church coordinators providing meals to a homeless shelter. Presented at: Oakland University William Beaumont School of Medicine Lunch n' Learn; October 2013; Rochester, MI.

Scouten S, Lucia V, Wunderlich T, et al. Assessment of needs of church coordinators providing meals to a homeless shelter. Presented at: Michigan Academy of Science Arts and Letters; February 2014; Rochester, MI.

Scouten S, Lucia V, Wunderlich T, et al. Assessment of needs of church coordinators providing meals to a homeless shelter. Poster Presented at: Henry Ford Hospital Global Health Symposium; October 2014; Detroit, MI.

Scouten S, Lucia V, Wunderlich T, et al. Assessment of needs of church coordinators providing meals to a homeless shelter. Poster Presented at: Inaugural Global Health Lecture; November 2014; Birmingham, MI.

Christienne Shams
Pomajzl R, Maerz T, Shams C, et al. A Review of the anterolateral ligament of the knee: current knowledge regarding Its incidence, anatomy, biomechanics, and surgical dissection. Arthroscopy. March 2015;31(3)583-591.

Kerolos Shenouda
Abbas A, Sakwa M, Shannon F, Shenouda K, et al. TCT-678 Comparison of invasive and non-invasive data of the ratio between the effective and geometric aortic valve area in normal and low flow patients: overestimation of aortic stenosis severity by doppler with low flow: a TAVR study. J Am Coll Cardiol. 2014;64.

Abbas A., Hanson I., Shenouda K., et al. Utilizing CTA-derived LVOT area in determining AVA in patients with AS referred to TAVR: A Hybrid AVA? Poster presented at: The Society for Cardiac Angiography and Interventions scientific sessions; May 2014; Las Vegas, NV.

John Silva
Silva J, Swor R, Bastani A, Sawyer K. The Effect of EMS Pre-hospital Catheterization Lab Activation on Mortality, Reperfusion, Length of Stay, Door to Balloon Time, and Cost for ST-Elevation Myocardial Infarction (STEMI) Patients. Poster presented at: Society of Academic Emergency Medicine Midwest Regional Annual Meeting; 2014.

Silva J, Swor R, Bastani A, Sawyer K. The Effect of EMS Pre-hospital Catheterization Lab Activation on Mortality, Reperfusion, Length of Stay, Door to Balloon Time, and Cost for ST-Elevation Myocardial Infarction (STEMI) Patients. Poster presented at: National Association of EMS Physicians Annual Meeting; January 2014. Tuscon, AZ.

Amanda Stahl
Stahl AR, Qu L, Swor RA, Sawyer KN. Risk stratification of pulmonary embolism in the emergency department: there is room for improvement. Poster presented: Academic Emergency Medicine; May 2014; Dallas, TX

Stahl AR, Qu L, Swor RA, Sawyer KN. Risk stratification of pulmonary embolism in the emergency department: there is room for improvement. Digital poster presented: Society for Academic Emergency Medicine Midwest Regional Meeting; September 11, 2014.

Laura Steinkraus
Steinkraus L, Joyce B, Sood A. Attention and interpretation training in medical students reduces anxiety and increases mindfulness. Poster presented at: Association of American Medical Colleges Meeting of the Central Group on Educational Affairs and Central Group on Student Affairs; April 2015; Columbus, OH.
First Place Winner- Best Student Poster

Steinkraus L, Joyce B, Sood A. Attention and interpretation training in medical students reduces anxiety and increases mindfulness. Poster presented at: William Davidson Medical Education Week; May 2015; Birmingham, MI.
First Place Winner- Best Poster

Katie Zanyk McLean

Zanyk McLean K, Sawyer KN. The effect of BMI in time to target temperature in post-cardiac arrest therapeutic hypothermia. Poster presented at: American College of Physicians National Conference; May 2015; Boston, MA.

Zanyk McLean K, Sawyer KN. The effect of BMI in time to target temperature in post-cardiac arrest therapeutic hypothermia. Poster presented at: American College of Physicians Michigan Chapter Conference; October 2014; Gaylord, MI.

Zanyk McLean K, VanRaemdonck J, Cappocia D, et al. An assessment of who dies after cardiac arrest in the era of therapeutic hypothermia. Poster presented at: American Heart Association Resuscitation Science Symposium; November 2014; Chicago, Illinois

Zanyk McLean K, VanRaemdonck J, Devlin W, et al. Time to awakening and delayed awakening after post cardiac arrest therapeutic hypothermia. Presented at: Society for Academic Emergency Medicine Midwest Conference; September 2014; Detroit, MI.

Zanyk McLean K, VanRaemdonck J, Devlin W, et al. Time to awakening and delayed awakening after post cardiac arrest therapeutic hypothermia. Poster presented at: Society for Academic Emergency Medicine National Conference; May 2014; Dallas, TX.

CAPSTONE COMPETITIVE SCHOLARSHIP AWARD RECIPIENTS

THE RAVITZ FOUNDATION CAPSTONE COMPETITIVE SCHOLARSHIP AWARDS

Gabriela Ganddini
School-Based Clinic for Detroit Cristo Rey: A Needs-Assessment

Kelsey Satkowiak
World Fit and Its Effects on Pre-Adolescent Self-Esteem.

THE NEWMAN FAMILY FOUNDATION CAPSTONE COMPETITIVE SCHOLARSHIP AWARDS

Kaitlin Liroff
Primary Care Physicians and Screening for Mental Health Issues and Suicidality

Danielle Rush
Determining Medical Students Perceptions and Understanding of Sexual Abuse to Assess Curricular Need

THE NICHOLSON CAPSTONE COMPETITIVE SCHOLARSHIP AWARDS

Fatima Fahs
Inpatient Rehabilitation Unit Art Therapy Stress Management

Aditi Gupta
"Choose Your Plate": A Nutritional Education Curriculum Encompassing Photography and Visual Learning

Samantha Scouten
Assessment of Needs of Church Coordinators Providing Meals to a Homeless Shelter

CAPSTONE COMPETITIVE SCHOLARSHIP AWARDS

James David
Flow Cytometry of Reactive T-cells in Nodular Lymphocyte-Predominant Hodgkin Lymphoma

Rachel Hanke
Carotid Atherosclerosis: Biomarkers to Identify Patients at Risk for Stroke

Andrew Hartshorn
Clinical Course and Treatment of Recent-Onset Atrial Fibrillation

Danny Mammo
The Colectomy Improvement Project: Do Evidence-Based Guidelines Improve Institutional Colectomy Outcomes?

Nichole McCaffrey
Limitations of Double Coverage for Gram-Negative Infections Based on Antibiotic Resistance

Neesurg Mehta
β-Blocker Premedication Does Not Increase the Frequency of Allergic Reactions from Coronary CT Angiography

CAPSTONE COMPETITIVE SCHOLARSHIP AWARD RECIPIENTS *(continued)*

Tori Nault
Associations of Bullying and Abuse with Pelvic Floor Symptoms and Sexual Health

Christienne Shams
The Anterolateral Ligament of the Knee: Incidence, Anatomy, Biomechanics, and Surgical Dissection

Amanda Stahl
Risk Stratification of Pulmonary Embolism in the Emergency Department: Room for Improvement

Raymond Yeow
Effects and Implications of the Readmissions Reduction Program on Beaumont Health System

Katherine Zanyk-Mclean
A Descriptive Analysis of Patients Suffering Cardiac Arrest Treated with Therapeutic Hypothermia

OUWB is grateful to the following supporters for funding the Capstone Competitive Scholarships: Ann V. Nicholson, The Ravitz Foundation and The Newman Family Foundation.

DEAN'S CHOICE CAPSTONE PRESENTATION (DIGITAL POSTER) AWARDS

1ST PLACE

Amanda Stahl

Risk Stratification of Pulmonary Embolism in the Emergency Department: Room for Improvement

2ND PLACE

Joseph Vercellone

Measuring the Effectiveness of Peer-Assisted Clinical Skills Training

OU WB School of MEDICINE

OAKLAND UNIVERSITY WILLIAM BEAUMONT

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