RESEARCH SYMPOSIUM

June 9th, 2016
7:00 – 9:30am

Laros Auditorium

St. Luke's University Health Network

Dental Residency
Emergency Medicine Residency
Family Medicine Residencies
General Surgery Residency
Internal Medicine Residency
Obstetrics & Gynecology Residency
Orthopedic Residency
Pharmacy Residency
Physical Therapy Residency
Podiatry Residency

Osteopathic Internship
Transitional Year Internship

Cardiology Fellowship
Geriatric Medicine Fellowship
Hospice/Palliative Care Medicine Fellowship
Podiatric Dermatology Fellowship
Sports Medicine Fellowship
Surgical Critical Care Fellowship
Urogynecology Fellowship

Sponsored by:
The Research Institute
Jill Stoltzfus, PhD, Director
Jill.Stoltzfus@sluhn.org

ORAL PRESENTATIONS

Note: Residents' and fellows' names are bolded.

1) Measurement of a Novel Biomarker, sPLA2-IIA as a Marker of an Inflammatory Response in Patients Meeting SIRS Criteria: a Pilot Study

   Elena Berg, DO; Rebecca Jeanmonod, MD; Janel Paukovitz, BS; Jonathan Trager, DO; Jennifer Axelband, DO

2) Month to Month Trauma Volume Variations Affecting Mortality: a Multi-center Study

   Keith Habeeb, DO; James Cipolla, MD; David Evans, MD; Charles Cook, MD; Alok Gupta, MD; Noelle Saillant, MD; William Hoff, MD; Peter Thomas, MD; Stanislaw Stawicki, MD, MBA

3) Manipulation of Breath Alcohol Tests: Can Specific Techniques Alter Breath Alcohol Content?

   Brian Kelly, DO; Jason Black, DO; Holly Stankewicz, DO

4) Computed Tomography Based Outcome Prediction Tool for Older Patients with Traumatic Brain Injury

   Ronnie Mubang, MD; Thomas Wodja, MD; William Hoff, MD; Brian Hoey, MD; Peter Thomas, MD; Stephen Falowski, MD; Stanislaw Stawicki, MD, MBA

5) The Comorbidity-Polypharmacy Score: an Alternative Measurement of Frailty for Medical-Surgical Patients

   Julia Tolentino, MD; Riley Harris, BA; Amanda Mazza, MBA; Dan Foltz, BA; Jill Stoltzfus, PhD; Peter Deringer, RN, MA; Donna Sabol, MSN; Stanislaw Stawicki, MD, MBA

6) A Novel Use of ER and PR Percentages to Assess Risk of Tumor Recurrence Compared to MammoPrint

   Brian Wernick, MD; Thomas Wodja, MD; **Elisabeth Paul, MD; Melissa Mao, MD;** Lee Riley, MD

7) Intracranial Injury in Low Risk Elderly Fall Patients: a Multi-Center Study

   Sean Zwiebel, DO; Marissa Cohen, MD; Rebecca Jeanmonod, MD; Jamie Roper, DO; Luis Vera; Donald Jeanmonod, MD; Shellie Asher, MD; Nirali Shah, MD; Josephine Winters, MD; Mark Reiter, MD; Eric Bruno, MD

ORAL PRESENTATION ABSTRACT

Measurement of a Novel Biomarker, sPLA2-IIA as a Marker of an Inflammatory Response in Patients Meeting SIRS Criteria: a Pilot Study

Elena Berg, DO; Rebecca Jeanmonod, MD; Janel Paukovitz, BS; Jonathan Trager, DO; Jennifer Axelband, DO

Introduction/Background

Early identification of bacterial infection or sepsis is critical, as early treatment improves outcomes. Unfortunately, there are limited diagnostic tests available that quickly and reliably identify sepsis. sPLA2-IIA levels have been shown to be elevated in animal models and preliminary human studies. We sought to identify threshold values of sPLA2-IIA that predict sepsis in an emergency department (ED) population.

Methodology and Statistical Approach

The study site for this pilot project was a community based tertiary care facility. The study population consisted of consenting adults who met two or more systemic inflammatory response syndrome (SIRS) criteria. Control subjects were non-septic adults undergoing blood draw for other indications. Septic patients were evaluated with blood cultures, lactate, and chemistries. An extra aliquot of blood was blind-coded and sent to an outside laboratory for quantitative analysis of sPLA2-IIA levels using an enzyme linked immunoassay (EIA). sPLA2-IIA levels were reported by patient study number to the clinical investigators who reviewed patients' medical records for laboratory, imaging, and microbiology results, as well as clinical course. Data were non-parametric in distribution and analyzed with descriptive statistics, chi square, and Mann-Whitney tests. The study was approved by the Institutional Review Board (IRB). This project was funded in part by the support from the Auxiliary of St. Luke's University Health Network (SLUHN).

Results

We enrolled 10 patients with severe sepsis, 15 with sepsis, and 18 controls. Compared to the controls, study patients were older (64.1 versus 48.4, $p = .003$). Study patients had a median sPLA2-IIA level of 115 ng/ml [interquartile range (IQR) 61.9-261] compared to controls (median 16ng/ml, IQR 9-23.8, $p < .0001$). sPLA2-IIA levels were not helpful in distinguishing sepsis from severe sepsis ($p = .60$). Using a cut-off value of 50ng/ml as a threshold value, sPLA2-IIA EIA had a sensitivity of 76% [95% confidence interval (CI) 54.5-89.8%] and a specificity of 94.4% (95% CI 70.6-99.7%). sPLA2-IIA displayed a weak positive correlation with lactate ($r = .22$).

Discussion and Conclusion

sPLA2-IIA measurement shows potential as a specific marker for sepsis and may be clinically useful to identify a high-risk subset of patients with infectious processes. Further study is warranted to identify predictive value of trends in sPLA2-IIA during disease course in septic patients and to clarify the impact of age on sPLA2-IIA.

ORAL PRESENTATION ABSTRACT

Month to Month Trauma Volume Variations Affecting Mortality: a Multi-Center Study

Keith Habeeb, DO; James Cipolla, MD; David Evans, MD; Charles Cook, MD; Alok Gupta, MD; Noelle Saillant, MD; William Hoff, MD; Peter Thomas, MD; Stanislaw Stawicki, MD, MBA

Introduction/Background

This study examined the relationship between monthly trauma volumes and patient mortality at three Level 1 Trauma Centers located in the Eastern United States. We hypothesized that significant differences in mortality patterns would be noted at the reporting centers across a spectrum of monthly trauma volume ranges, without pre-determined directionality.

Methodology and Statistical Approach

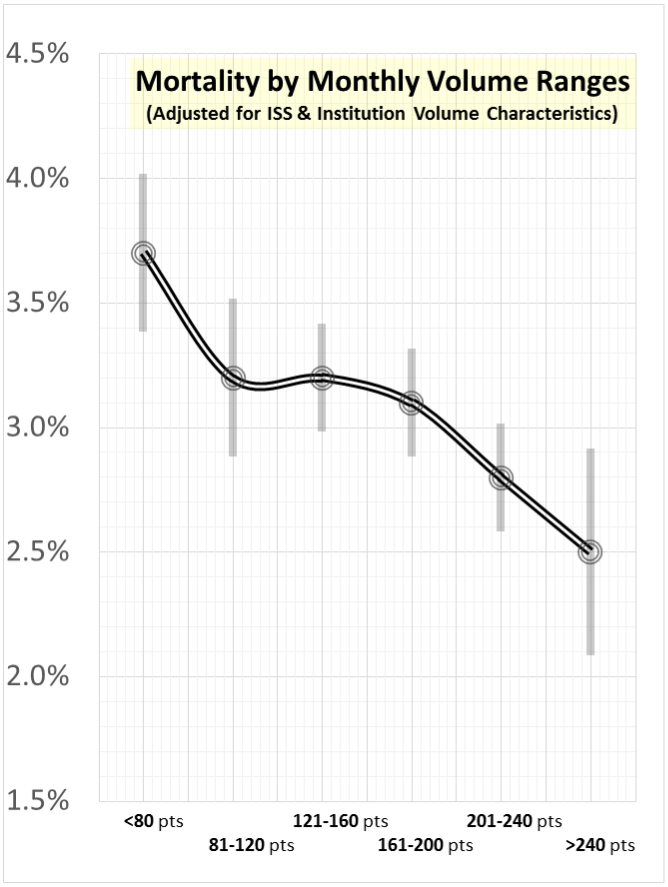
Monthly trauma volume data were collected from three level 1 trauma centers. Additional information included monthly mortality, mean monthly injury severity (ISS), and blunt versus penetrating trauma mechanism. The primary study outcome was average mortality. Additional outcomes included mortality and volume trends corrected for ISS and institutional volume characteristics analyzed using analysis of covariance (ANCOVA) with statistical significance set at $\alpha < .01$.

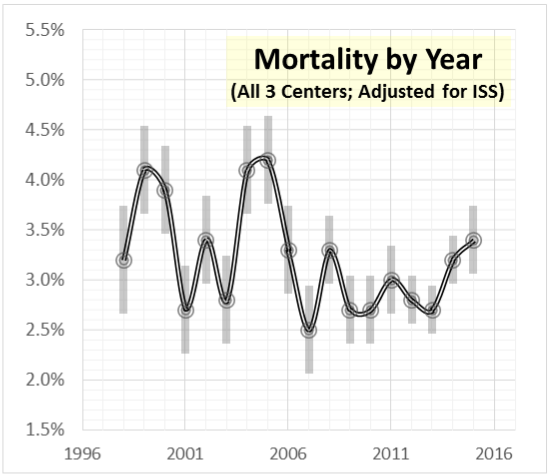
Results

When examining the primary end-point of monthly volume versus mortality, we found that for all three institutions, higher monthly volumes were associated with significantly lower mortality even after correcting for ISS and center-specific volume characteristics. Mean mortality was 3.7% for months with volumes <80, progressively decreasing to 2.5% for months with > 240 trauma contacts. Results of the ANCOVA for key study outcomes are shown in Figure 1.

Discussion and Conclusion

Our data showed that trauma mortality, corrected for ISS and center-specific volume variability, was lowest during months with > 240 contacts. Progressive increases in mortality were seen as monthly volumes decreased, with absolute mortality 1.2% higher for months with < 80 contacts. This translates to a 48% increase in relative mortality. These observations suggest that a system-wide opportunity might exist to further reduce trauma mortality in the United States. Further research is warranted in this important area, focusing specifically on ways to optimize trauma patient flow across growing regional trauma networks and within consolidated hospital systems. The effect of further increases or decreases in average monthly volumes remains to be elucidated.





	Center #1	Center #2	Center #3
Years	1998-2015	2012-2014	2008-2014
Months (n)	208	48	84
Avg Vol/M	153.1±53.5	148.34±23.6	199.6±31.7
Blunt (%)	95.1%	93.3%	90.3%
ISS (Mean)	8.91±1.4	10.3±0.86	7.38±0.70

Figure 1. [Left] Adjusted monthly mortality (shown as mean ± std error); [Top Right] Adjusted yearly mortality over the entire study period (1998-2015, mean ± std error); [Bottom Right] Descriptive characteristics for each contributing Level I Trauma Center.

ORAL PRESENTATION ABSTRACT

Manipulation of Breath Alcohol Tests: Can Specific Techniques Alter Breath Alcohol Content?

Brian Kelly, DO; Jason Black, DO; Holly Stankewicz, DO

Introduction/Background

Breath alcohol content (BrAC) is a commonly measured value to estimate serum alcohol levels. BrAC can be obtained by infrared spectrophotometry or through the use of electrochemical fuel cell technology. The most common form of measurement by police and medical personnel is through the use of a diode catheter that measures the amount of ethanol detected in the breath. The present study sought to test the accuracy of breath analysis through a range of manipulations.

Methodology and Statistical Approach

This was a quasi-experimental study involving consenting volunteers recruited by flyers placed in a single hospital. Subjects (N = 54) had a mean age of 28.8 years, were mostly Caucasian, and included 34 males and 27 females. Subjects were given identical alcoholic beverages and breath analyzed after each. Once subjects reached a 0.1 BrAC using an Alco Sensor IV, they were again breath analyzed after various time intervals and maneuvers. Subjects were breath analyzed while not providing full effort, using the side of their mouths, immediately after hyperventilating (10 breaths in 10 seconds), 5 and 10 min after hyperventilation, immediately after a sip of water, and 5 minutes after the sip of water. Paired sample t tests were used to compare means for the normally distributed values.

Results

There were two baselines used as controls to evaluate changes following each manipulation. The first baseline was a mean BrAC $\pm$ standard deviation of .104 $\pm$.008 for poor effort, side of mouth, and hyperventilating. The second baseline used for drinking water manipulations was a BrAC of .099 + .11. Poor effort (.099 $\pm$ .10, $p < .0001$); immediately after hyperventilating (.086 $\pm$ .011, $p < .0001$); 5 minutes after hyperventilating (.099 $\pm$ .009. $p < .0001$); and ten minutes after hyperventilating (.099 $\pm$ .011, $p < .0001$) were all found to be statistically significant in their ability to lower BrAC. In addition, both immediately after water consumption (.084 $\pm$ .011, $p < .0001$) and 5 minutes after drinking water (.096 $\pm$.13, $p < .0001$) significantly altered the BrAC.

Discussion and Conclusion

Our research showed that a range of manipulations can alter a breath analyzer by a significant amount, both clinically and statistically. In the emergency department as well as in a litigious or law enforcement environment, breath analyzer operators should be cognizant of these various methods that may lead to falsely lower BrAC readings. It would be prudent to employ other methods if there is a high index of suspicion of inaccurate readings.

ORAL PRESENTATION ABSTRACT

Computed Tomography Based Outcome Prediction Tool for Older Patients with Traumatic Brain Injury

Ronnie Mubang, MD; Thomas Wodja, MD; William Hoff, MD; Brian Hoey, MD; Peter Thomas, MD; Stephen Falowski, MD; Stanislaw Stawicki, MD

Introduction/Background

Advanced age has been traditionally associated with worse traumatic brain injury (TBI) outcomes. Although prompt neurosurgical intervention (NSI, craniotomy or craniectomy) may be life-saving in the older trauma patient, it does not guarantee survival and/or return to pre-injury functioning levels. The aim of this study was to determine whether a simple score, based entirely on the initial cranial CT (CCT) is predictive of morbidity, mortality, and other outcome measures in the older (age 45+) NSI patient subset. We hypothesized that increasing number of discrete CCT findings may independently predict the need for NSI and mortality in older patients with severe TBI.

Methodology and Statistical Approach

After Institutional Review Boar (IRB) approval, a retrospective study of patients 45 years and older was performed using registry data from level 1 trauma center between June 2003 and December 2013. Abstracted data included patient demographics, injury severity (ISS), AIS Head, brain injury characteristics on CCT, Glasgow Coma Scale (GCS), intensive care unit (ICU) and hospital length of stay (LOS), all-cause morbidity and mortality, FIM scores, and discharge disposition. A novel CCT scoring tool (CCTST, scored from 1 to 8+) was devised, with one point given for each of the following findings: subdural hematoma, epidural hematoma, subarachnoid blood, intraventricular blood, cerebral contusion/intraparenchymal blood, skull fracture, brain edema/herniation, midline shift, and external (skin/face) trauma. Descriptive statistics and univariate analyses were subsequently conducted with mortality as the primary endpoint. Secondary endpoints included all-cause morbidity, ICU length of stay, and post-discharge destination. Variables achieving statistical significance of $p < .20$ were subsequently included in a multivariate logistic regression model, with statistical significance set at $\alpha = .05$. Data were presented as either mean ± standard deviation or adjusted odds ratios (AORs) with 95% confidence intervals (CIs).

Results

A total of 620 patients were included in the analysis (310 patients who underwent NSI and 310 age- and ISS-matched non-NSI controls). Average patient age was 72.8±13.4 years (64.1% male, 99% blunt trauma, mean ISS 25.1, mean AIS Head 4.63, mean GCS 10.9). The CCTST was inversely proportional to initial GCS score and discharge functional outcomes (**Figure 1A & F**). Increasing CCTST was associated with greater mortality, morbidity, hospital and ICU LOS, and ventilator days (**Figure 1B-E**). On multivariate analysis, independent predictors of mortality included AIS Head (AOR 2.698, 95% CI 1.21-5.99), initial GCS (AOR 1.14, 95%CI 1.07-1.22), and the CCTST (AOR 1.31, 95% CI 1.09-1.58). Neither ISS nor the presence of pre-injury anticoagulation independently predicted mortality. The only independent predictor of the need for craniotomy was CCTST (AOR 1.225, 95% CI 1.06-1.42).

Discussion and Conclusion

This study demonstrated that the number of discrete findings on CCT significantly correlates with nearly every TBI outcome measure, including NSI and mortality. The CCTST is easy to calculate, and this preliminary investigation of its predictive utility in patients undergoing NSI warrants further validation, focusing on the potential for prognostic synergy between CCTST, GCS, and AIS Head.

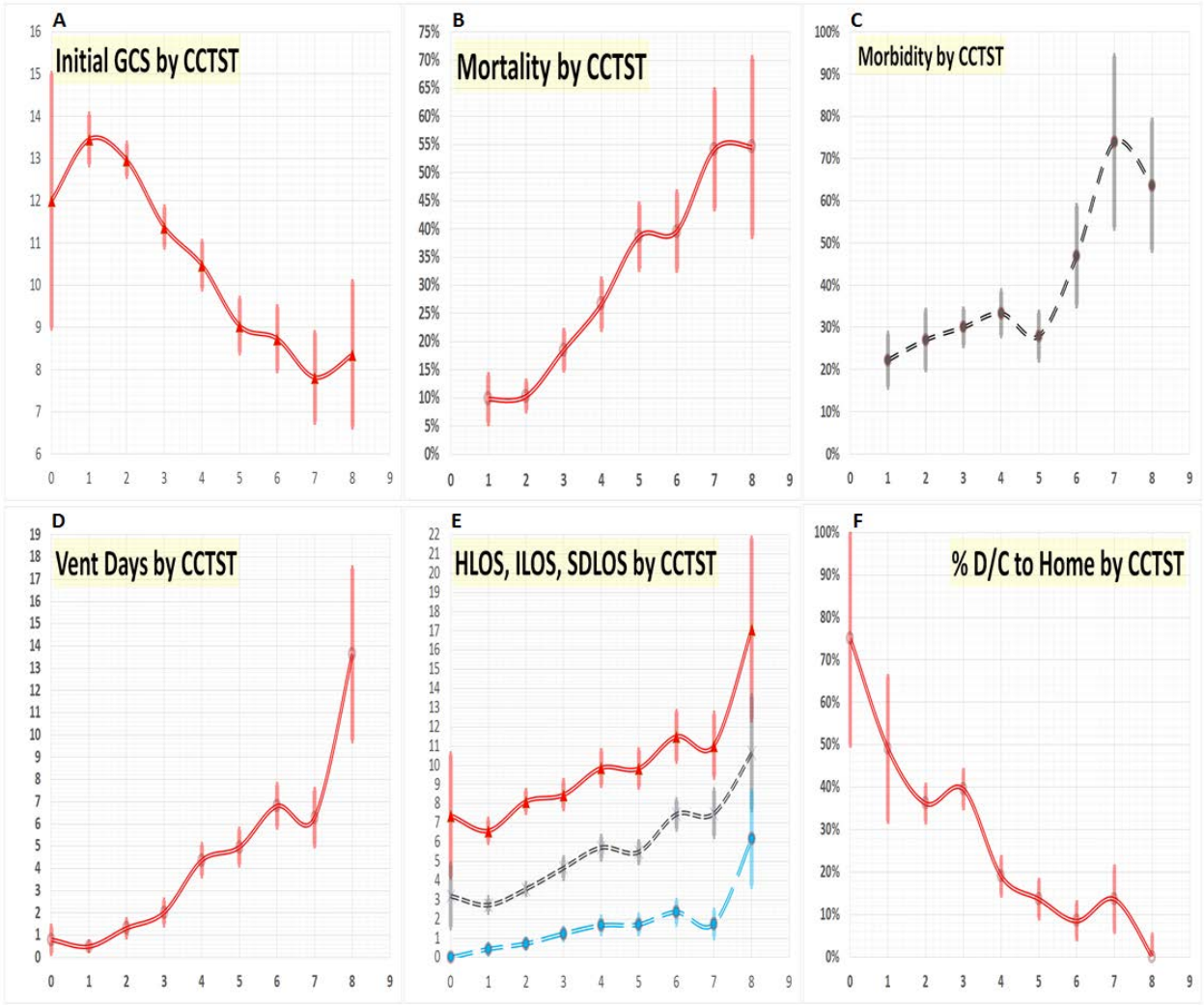


Figure 1: Cranial CT Scoring Tool versus [**A**] Glasgow Coma Scale (GCS); [**B**] Mortality; [**C**] Morbidity; [**D**] Ventilator days; [**E**] Hospital (HLOS), ICU (ILOS), and Step-Down (SDLOS) length of stay; and [**F**] %Discharge to Home.

ORAL PRESENTATION ABSTRACT

The Comorbidity-Polypharmacy Score: an Alternative Measurement of Frailty for Medical-Surgical Patients

Julia Tolentino, MD; Riley Harris, BA; Amanda Mazza, MBA; Dan Foltz, BA; Jill Stoltzfus, PhD; Peter Deringer, RN, MA; Donna Sabol, MSN; Stanislaw Stawicki, MD, MBA

Introduction/Background

Current patient frailty indices are limited by their complexity and lack of translatability across clinical settings. The comorbidity-polypharmacy score (CPS) is a simple sum of pre-admission medications and comorbid conditions. Previous studies have demonstrated that CPS correlated with morbidity, mortality, readmissions, and post-emergency department triage in various patient populations. However, earlier studies of CPS were limited due to small sample sizes and narrow age ranges (i.e., 45 years and older) across study populations. The aim of the current study was to determine the behavior of CPS across a large sample of medical-surgical patients of all age ranges. We hypothesized that CPS would be significantly associated with readmissions, mortality, and hospital length of stay.

Methodology and Statistical Approach

We conducted a retrospective review of patients admitted to our network's hospitals between July 1, 2014 and December 31, 2014. This study was deemed exempt by the Institutional Review Board. Variables collected for each patient included demographics (age, gender); polypharmacy data (number of pre-admission medications); comorbid conditions (all conditions listed as "pre-existing" on admission); hospital length of stay; need for ICU; post-discharge destination (home versus non-home discharge); and mortality. Descriptive and univariate analyses were conducted across sequential 3-point CPS ranges, with mortality and readmissions as primary end-points. Subsequent multivariate logistic regression was conducted for variables reaching a significance level of $p < .10$ in univariate analyses. Statistical significance set at $\alpha < .01$ due to the multiple comparisons.

Results

A total of 20,644 medical-surgical patients were included in our study. In univariate analysis, CPS was significantly associated with patient age, gender, length of stay, readmission, discharge destination, ICU requirement, and mortality (all, $p < .001$; Figure 1). Upon multivariate analyses, independent predictors of mortality included age [adjusted odds ratio (AOR) 1.03 per year]; CPS (aOR 1.05 per unit); and ICU requirement (aOR 21.9). Independent predictors of readmission included age (aOR 1.01 per year) and CPS (aOR 1.04 per unit). ICU requirement was not a significant predictor of readmission after correcting for index admission mortality.

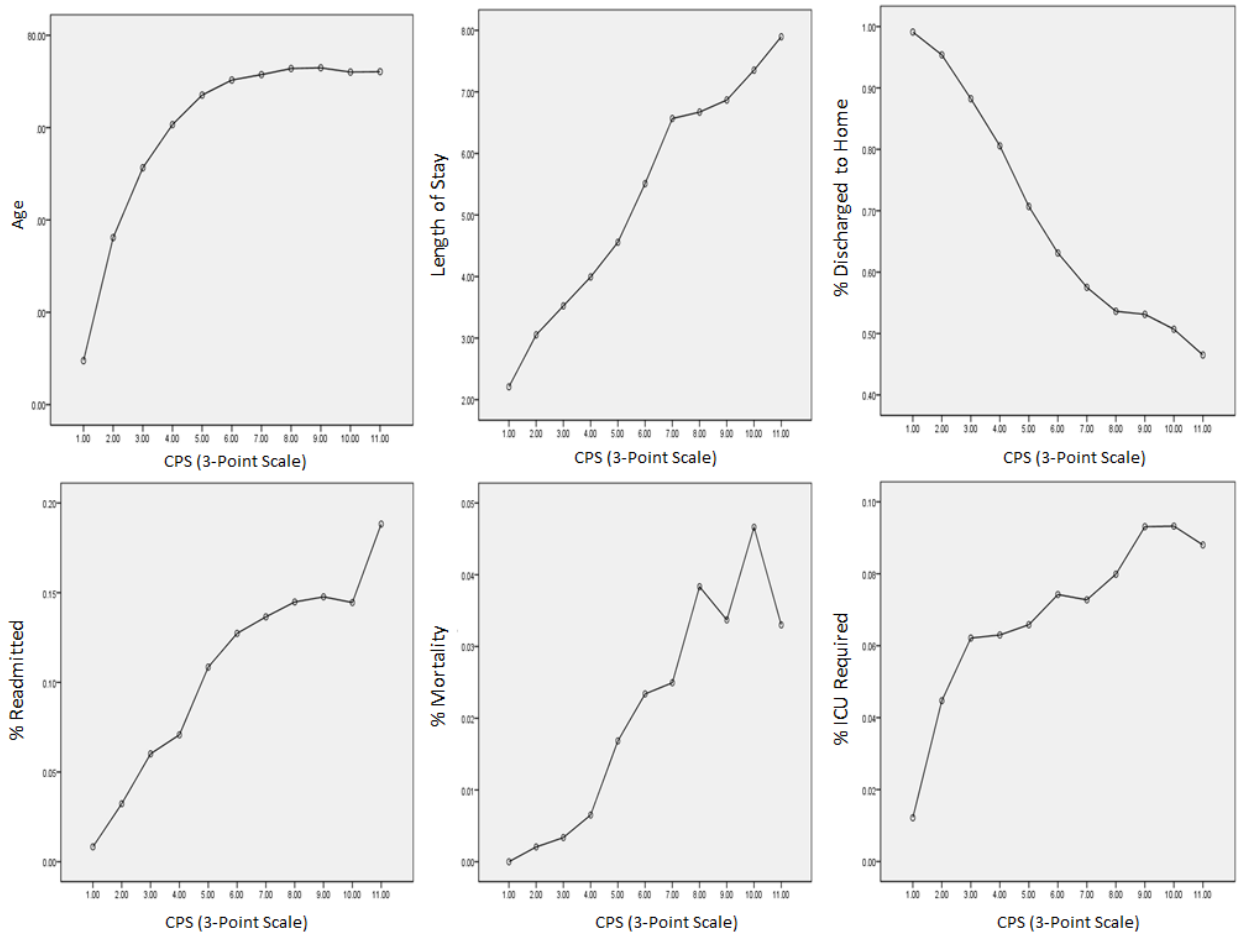
Discussion and Conclusion

In the acute setting, challenges in medical management of the aging patient are related to frailty. CPS is easily calculated as a sum of preexisting comorbidities and prehospital medications. Investigators had previously described the correlation between a CPS of ≥ 15 with poor hospital outcomes in older

trauma patients. The CPS score has also been shown to predict readmission in trauma patients, as well as inpatient morbidity and discharge to extended care facilities in burn patients ≥ 45 years of age.

This study included the largest patient population in which CPS has been investigated. Our study found CPS to be predictive of mortality and readmissions for medical-surgical patients across all age groups. Given the fact that CPS incorporates the "intensity" of management required to medically control all associated comorbidities, we believe this score is a strong candidate for measuring patient frailty, independent of chronological age. CPS may also have utility in identifying patients at high risk for in-hospital mortality and readmission, serving a role in triage and risk quantification and stratification.

Figure 1: CPS Versus Secondary Endpoints



ORAL PRESENTATION ABSTRACT

A Novel Use of ER and PR Percentages to Assess Risk of Tumor Recurrence Compared to MammoPrint

Brian Wernick, MD; Thomas Wodja, MD; Elisabeth Paul, MD; Melissa Mao, MD; Lee Riley, MD

Introduction/Background

Over the past decade, the treatment of breast cancer has changed immensely. Today, therapy is tailored not only to the presence or absence of estrogen receptor (ER), progesterone receptor (PR), and human epidermal growth factor receptor 2 (HER2), but also using the genetic risk profile of individual tumors. MammoPrint (MP) is an FDA-approved genetic test that uses a 70-gene microarray to estimate the risk of breast cancer recurrence (either low or high). However, this test is expensive and sometimes unnecessary. It has been shown that lower ER and PR percentages reflect a worse prognosis. With this in mind, we set out to determine if the additive ER-PR relationship reflects patients' risk of recurrence compared to their MP score. This sort of analysis has never been performed and may provide an opportunity to assess breast cancer risk of recurrence without the need for expensive genetic tests. We hypothesized that low-risk tumors based on the MP score would have a higher total amount of ER and PR compared to high-risk tumors.

Methodology and Statistical Approach

This was a retrospective, single-institution study analyzing all breast cancer patients who had a MP test performed and documented during their course of treatment between 2010 and 2015. Demographics and tumor data were collected, including age, sex, percentage of ER and PR, presence of HER2, stage, and tumor grade. The MP score was then compared to receptor status, grade, and stage of tumor. ER and PR totals were stratified into three different categories: 0-33% = 1, 34-66% = 2, and 67-100% = 3. A chi-square test was conducted to determine the association for ER, PR and the combined ER-PR group with MP score (low risk = 0, high risk = 1). Patients' ER and PR category was added together and plotted against their MP score, with percentages depicted on a bar graph.

Results

A total of 246 patients were included in this study, with 133 low-risk and 113 high-risk MP scores. All patients were female, and the average age was 58.7 years. The average ER percentage for low risk and high risk was 95.1% and 66.8%, respectively, and the average PR was 76.2% and 43.7% for low risk and high risk, respectively ($p < .05$). There were more grade I tumors in the low-risk category (46 versus 16), and more grade III tumors in the high-risk category (38 versus 14) ($p < .05$). There was also a significantly greater number of high-risk MP scores in category 1 (0-33%) with both ER (100%, $n = 31$) and PR groups (80%, $n = 75$) ($p < .005$). Categories 2 (34-66%) and 3 (67-100%) for both ER and PR were associated with lower-risk MP scores, as shown in **Figure 1A and 1B**. For the sum of ER and PR, 100% of category 2 ($n = 31$) and 3 ($n = 2$) were associated with high-risk tumors ($p < .005$), as demonstrated by **Figure 2.**

Discussion and Conclusion

This study identified novel trends in the ER and PR relationship, demonstrating that the greater the sum of ER and PR, the higher the likelihood of having a low-risk MP score. Furthermore, tumors containing less than 33% of each ER and PR had a high-risk MP score 100% of the time. Although the clinical significance of this information is still in its preliminary stages, we believe these new findings will help clinicians evaluate the risk of recurrence for a particular tumor without the need for an expensive genetic test.

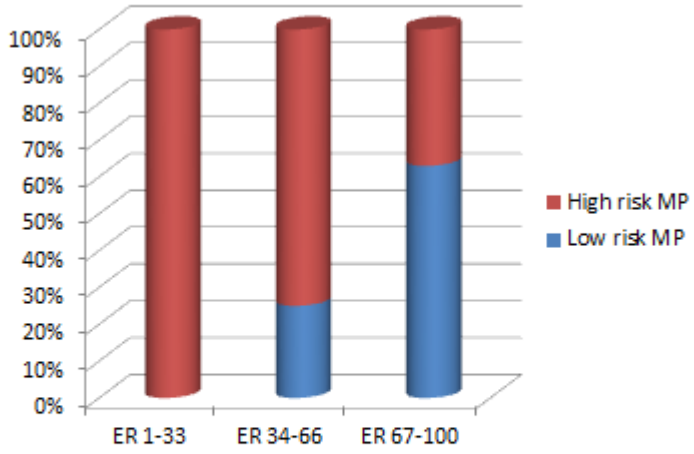


Figure 1A- Percentages of ER for high risk (red) and low risk (blue) MP. Note as the percentage of ER increases, the overall MP risk decreases

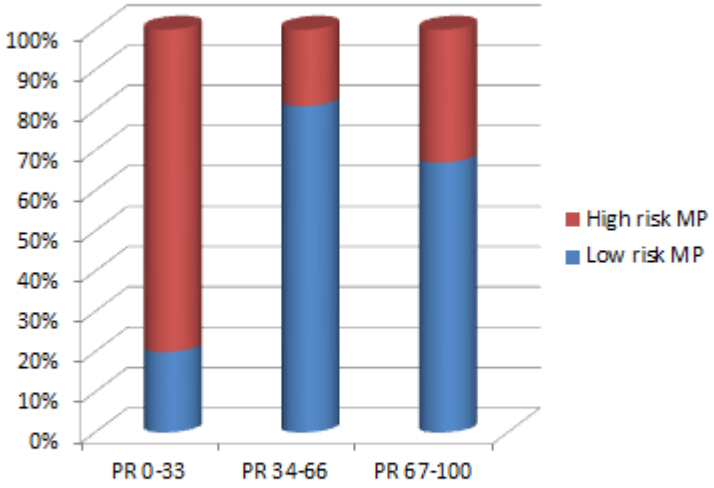


Figure 1B- Percentages of PR for high risk (red) and low risk (blue) MP.

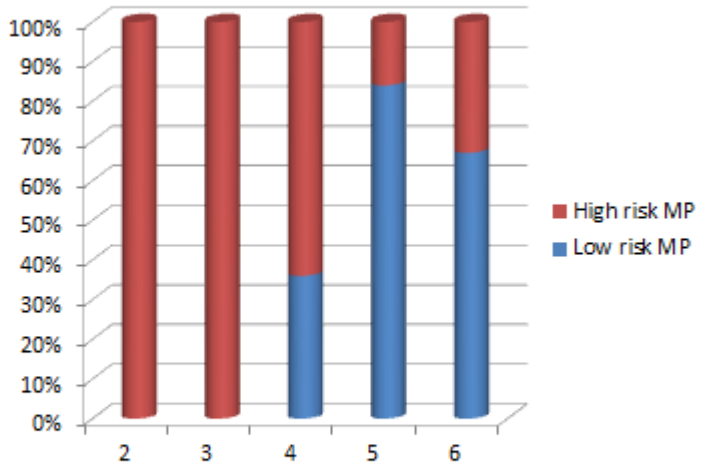


Figure 2- Total amount of ER and PR as represented by their category (1, 2, or 3) added together. All tumors with less than 33% of each ER and PR are high risk on MP.

ORAL PRESENTATION ABSTRACT

Intracranial Injury in Low Risk Elderly Fall Patients: a Multi-Center Study

Sean Zwiebel, DO; Marissa Cohen, MD; Rebecca Jeanmonod, MD; Jamie Roper, DO; Luis Vera, MD; Donald Jeanmonod, MD; Shellie Asher, MD; Nirali Shah, MD; Josephine Winters, MD; Mark Reiter, MD; Eric Bruno, MD

Introduction/Background

A prior study suggested that signs of head trauma and loss of consciousness may be able to determine intracranial injury (ICI) in low-risk elderly fall patients. We sought to assess the predictive nature of these factors.

Methodology and Statistical Approach

This was a prospective observational study of patients ≥ 65 years presenting with fall to two tertiary care teaching facilities and one tertiary community facility. Patients were eligible if they presented at baseline mental status. For each patient, treating physicians filled out a data form detailing mechanism of fall, history of head strike, presence of new headache, loss of consciousness (LOC), and signs of head trauma. Unknown parameters were conservatively analyzed (presuming them to be present). Radiographic imaging was obtained at the discretion of treating physicians. Patients were determined to have no ICI if they had a negative CT; if they were admitted and had no sequelae on discharge; or if they had no CT and were discharged, but had no sequelae in telephone follow-up at 4 weeks. Data were analyzed descriptively and with chi square tests.

Results

A total of 566 patients were enrolled [median age 81, interquartile range (IQR) 73-86]; 11 were lost to follow-up, and 5 others were excluded due to chart documentation indicating that the patient was not at baseline mental status. This left 550 patients for evaluation; 371 patients (67.5%) presented with mechanical falls, 50 (9.1%) were non-mechanical, and the remainder had an unclear mechanism.

A total of 450 patients (81.8%) underwent head CT, of which 37 demonstrated ICI (6.7%), with the majority (n=25) being subdural hematoma. One patient underwent craniotomy, and one was transferred to hospice due to injuries received. Two patients died of conditions not related to the trauma, while the remaining patients were managed conservatively. Of the patients with ICI, 33/37 had either signs of trauma to the head or history of LOC, for a sensitivity of 89.2% [95% confidence interval (CI) 73.7-96.4%]; a specificity of 39 (95% CI 34.8-43.4%); and a negative predictive value of 98% in detecting ICI. Presence of either of these items incurred an odds of injury of 5.3 (1.8-15.1) compared to patients without LOC or signs of head trauma ($p = .0006$). None of the 4 patients who had ICI without LOC or signs of trauma required intervention.

Discussion and Conclusion

The best predictors of ICI in elderly fall patients are physical findings of trauma to the head and history of LOC. These parameters do not provide adequate sensitivity to rule out all ICI in this population. The majority of ICI in elderly patients are treated conservatively.

POSTER PRESENTATIONS

Note: Residents' and fellows' names are bolded.

1) Impact of CHA_2DS_2VASC Score on Atrial Fibrillation Detection in Patients with Cryptogenic Stroke

Ajay Abichandani, MD; David Signarovitz, DO; Kevin Branch, MD; David Prutzman, DO; **Sahil Agrawal, MD;** Lindsay Sadowski, PA-C; Steve Stevens, MD; Darren Traub, DO; Jamshid Shirani, MD; Sudip Nanda, MD

2) Impact of Physician Tattoos on Patients' Perceptions of Care in the Emergency Department

Marissa Cohen, MD; Keith Habeeb, DO; Rebecca Jeanmonod, MD

3) The Use of N-Acetyl Cysteine in the Prevention of Hangover

Veronica Coppersmith, DO; Holly Stankewicz, DO

4) Natural Evolution of HPV Series Completion and Interdose Interval

Stephanie Guido, DO; Phelps Lambert, MD; Helaine Levine, MD

5) Evaluation of the Use of Three-Factor Prothrombin Complex Concentrate in the Treatment of Bleeding due to Target Specific Oral Anticoagulants

Yvonne Labram PharmD; Neha Civic, PharmD; Daniel Longyhore, PharmD

6) Is Placental Abruption Still a Clinical Diagnosis?

Melissa Chu Lam, MD; Angel Gonzalez Rios, MD; Jonathan Hunt, MD; James Anasti, MD; James Airoldi, MD; Jill Stoltzfus, PhD

7) The Effect of an Orthopedic Surgeon's Attire on Patient Confidence and Trust in a Suburban Setting

Vince Lands, MD; Ajith Malige, BS; Chinenye Nwachuku, MD; Kristofer Matullo, MD

8) The Impact of a Standardized Checklist on Transition of Care During Emergency Department Physician Change of Shift

Alyssa Milano, DO; Philip Salen, MD; Holly Stankewicz, DO

POSTER PRESENTATIONS

Note: Residents' and fellows' names are bolded.

9) Education on Contraception: How Much Do Patients Know?

Ingrid Paredes, MD; James Anasti, MD; Jill Stoltzfus, PhD

10) Accuracy of Self-Estimation of Blood Alcohol Concentration Compared to Objective Values

Jared Phelps, DO; Kelly Krieg, DO; Holly Stankewicz, DO

11) Utility of Coronary Artery Calcium Score Testing

Abdullah Quddus, MD; Francis Burt, MD; Jamshid Shirani, MD; Alex Smith, BS; **Michael McLane, MD; David Prutzman, MD**

12) Tissue Insufficient for Diagnosis on Endometrial Biopsy: What's the Next Step?

Angel Gonzalez Rios, MD; Melissa Chu Lam, MD; Kelsey Sullivan, BA; James Anasti, MD; Jill Stoltzfus, PhD

13) Impact of Brief Alcohol Educational Session on University Athletes' Knowledge of and Participation in Binge Drinking

David Romash, DO; Holly Stankewicz, DO

14) Improving Delirium Detection in Nursing Home Residents: a Quality Improvement Project

Michael Sidhom, MD, MSPH; Ana Castellanos, MD

15) Systematic Screening for Cardiovascular Disease in Young Sports Participants

Archana Sinha, MD; Kaitlen Nguyen; **Amitoj Singh, MD;** Audrey Fedor, RN; Kelly Mousely; **Sahil Agrawal, MD;** Maheep Vikram, MD; Steven Stevens, MD; Darren Traub, DO; Sudip Nanda, MD; Jamshid Shirani, MD

16) Osteomyelitic Rate of Positive Proximal Margins of Partial Ray Amputations

Melody Stouder, DPM

POSTER PRESENTATIONS

Note: Residents' and fellows' names are bolded.

17) Safety and Efficacy of Transvenous Extraction of Pacemaker and Cardioverter Defibrillator Leads

Huseng Vefali, MD, MHSA; Matthew Durkin, BS; Darren Traub, DO; Jamshid Shirani, MD; Sudip Nanda, MD

18) Do Provider-Specific Computer Tomography Usage Patterns Correlate with Patient Outcomes in Trauma?

Thomas Wodja, MD (post-doctoral researcher); John David Nuschke, BS; Ken Zhang, BS; Aliaskar Hasani, BS; Brian Hoey, MD; William Hoff, MD; Peter Thomas, MD; Stanislaw Stawicki, MD, MBA

19) Empowering Patients to take Ownership of their Diabetes Care: a Quality Improvement Project

Margaret Yoder, DO; Nguyet-Cam Lam, MD; **Caitlin Dillon, MD; Adam Kobialka, DO; Emelia Perez, MD**

POSTER PRESENTATION ABSTRACT

Impact of CHA_2DS_2VASC Score on Atrial Fibrillation Detection in Patients with Cryptogenic Stroke

Ajay Abichandani, MD; David Signarovitz, DO; Kevin Branch, MD; David Prutzman, DO; Sahil Agrawal, MD; Lindsay Sadowski, PA-C; Steve Stevens, MD; Darren Traub, DO; Jamshid Shirani, MD; Sudip Nanda, MD

Introduction/Background

Atrial fibrillation (AF) is a leading cause of ischemic stroke. The advent of insertable loop recorders has allowed detection of occult AF in patients with ischemic stroke. The CHA_2DS_2VASc scoring system, an indicator of progressive endothelial dysfunction, is shown to be superior to the $CHADS_2$ score in the assessment of thromboembolic risk. We hypothesized that systemic causes of endothelial dysfunction are more often responsible for ischemic stroke than occult AF.

Methodology and Statistical Approach

From October 2009 through September 2015, 202 loop recorders were implanted at our institution, of which 74 (37%) were inserted for detection of occult AF in patients with cryptogenic stroke (mean age 66 years, 51% women). Medtronic LINQ was implanted in 60 patients, and Medtronic REVEAL XT was implanted in the remaining 14 patients. Cryptogenic stroke was defined as stroke of undetermined etiology after extensive testing, including 12-lead electrocardiogram; ≥ 24-hours of electrocardiographic monitoring; transesophageal echocardiography; absence of thrombophilic state (in patients < 55 years of age); and magnetic resonance, computed tomographic, or invasive angiography of head and neck. The CHA_2DS_2VASc risk score was calculated, with trends examined using the Student's t-test for continuous variables and chi-square test for categorical variables.

Results

At a mean follow-up duration of 12 months, occult AF was detected in 15 patients (20%) with an average time to detection of 8 months. CHA_2DS_2VASc scores were 5.13 ± 1.84 and 4.97 ± 1.56 in patients with and without occult AF ($p > .05$). There were no statistically significant differences in congestive heart failure (20% versus 5.1%), hypertension (66.7% versus 67.8%), age greater than 65 years (33% versus 22%), age greater than 75 years (47% versus 29%), diabetes (13% versus 32%), or vascular disease (40% versus 59%) ($p > .05$ for all comparisons) among patients with and without occult AF.

Discussion and Conclusion

In our study, risk factors comprising the CHA_2DS_2VASc score (congestive heart failure, age, hypertension, diabetes, and vascular disease) were highly prevalent among patients with cryptogenic stroke regardless of the presence of occult AF. This finding has implications regarding optimal long-term management of cryptogenic stroke.

POSTER PRESENTATION ABSTRACT

Impact of Physician Tattoos on Patients' Perceptions of Care in the Emergency Department

Marissa Cohen, MD; Keith Habeeb, DO; Rebecca Jeanmonod, MD

Introduction/Background

Many health care institutions have dress code policies prohibiting physicians from working with exposed tattoos. Several non-clinical studies have demonstrated that patients believe medical providers with exposed tattoos are less competent, approachable, and professional than non-tattooed practitioners. We sought to determine if the presence of exposed tattoos had an impact on patients' perceptions of their Emergency Department physician.

Methodology and Statistical Approach

This prospective cohort study utilized a survey-based approach to investigate patients' perceptions of professionalism, caring, and approachability, among other Press-Ganey and related questions pertaining to the physician caring for them. The survey was reviewed by a committee of experts for face and content validity and included a 5-point Likert scale with both positively and negatively worded questions for internal validity. Only one physician participated in the study, and he served as his own control. On study days, he wore his scrubs with his ¾ length sleeve tattoos exposed. On control days, he wore his white coat over his scrubs, which completely covered his tattoos. English-speaking patients over the age of 18 were approached by nurses to complete the survey after completing all interactions with the physician. The nurse gave the physician's name to patients along with a brief physical description, but did not comment on the physician's attire or tattoos. Although surveys were anonymous, demographic information and triage acuity for each patient were collected. The study was approved by the Institutional Review Board. Data were entered into a standardized Excel spreadsheet by a research associate not otherwise involved in the study. A Mann Whitney rank sums test was used to analyze the data.

Results

A total of 99 patients were surveyed during the course of the study, with 52.5% of the surveys coming from patients on "control" days. Approximately one quarter of the surveyed population was above the age of 50. There were no statistical differences in patients' perceptions of physician professionalism, approachability, competency, or comfort ($p > .21$ for each category) when their physician had multiple exposed tattoos versus when their physician covered all body art with a white coat.

Discussion and Conclusion

Exposed body art does not appear to affect patients' perception of physician professionalism, competence, approachability, or comfort in the Emergency Department setting.

POSTER PRESENTATION ABSTRACT

The Use of N-Acetyl Cysteine in the Prevention of Hangover

Veronica Coppersmith, DO; Holly Stankewicz, DO

Introduction/Background

Hangovers due to alcohol intoxication are a nationwide problem leading to discomfort, decreased productivity, and occasionally emergency department visits for symptomatic care. This study sought to determine if taking a low dose (600-1200 mg, based on alcohol consumption) of N-Acetyl Cysteine was more effective at preventing hangover than placebo.

Methodology and Statistical Approach

This was a randomized, placebo-controlled, double-blinded trial involving 50 healthy non-alcoholic (based on self-report) volunteers over the age of 21. Participants were asked to consume beer to a blood alcohol content (BAC) of 0.1. After alcohol consumption, participants were randomly assigned to receive either N-Acetyl-L- Cysteine or placebo capsules. The following morning, participants completed the Hangover Symptom Score questionnaire to evaluate different hangover symptoms on a 10 cm visual analog scale. At their next encounter with the study team, participants were given the other treatment. Data were analyzed using separate Wilcoxon signed rank tests due to the non-normally distributed outcomes.

Results

There were no statistically significant differences in the general distribution of total hangover scores based on treatment (NAC = 10, placebo = 13, $p = .45$) or in specific hangover symptoms. However, there was a significant difference in total hangover scores based on gender favoring NAC use (female = -3.5, male = 2, $p = .04$). There were also gender-based significant differences for the specific symptoms of nausea ($p = .05$) and weakness ($p = .03$).

Discussion and Conclusion

Although no significant difference was found in the general hangover scale scores due to NAC versus placebo, this study revealed a gender difference, with females having improved hangover symptoms after NAC use. The study also demonstrated a significant difference in hangover symptoms at higher intake of alcohol. These findings must be replicated and should address the variables of increased alcohol intake with a larger sample.

POSTER PRESENTATION ABSTRACT

Natural Evolution of HPV Series Completion and Interdose Interval

Stephanie Guido, DO; Phelps Lambert, MD; Helaine Levine, MD

Introduction/Background

HPV is responsible for most cervical cancers and genital cancers, but is preventable through a three-dose series vaccination series, with interdose intervals of two and four months. Despite current recommendations, a Center for Disease Control study in 2014 revealed that only 34% of girls and 21% of boys completed the series in New Jersey. Furthermore, there are little published data on the effectiveness of intervention programs in improving both vaccine completion rates and interdose intervals in either gender.

Methodology and Statistical Approach

This retrospective cohort study explored HPV series completion rates and interdose intervals at a residency-based family medicine practice in consecutive 18 month periods: Period A (1/1/2013 to 6/31/2014) and Period B (7/1/2014 to 12/31/2015). Patients in both time periods received a paper or electronic alarm reminder for the next dose at the time of vaccination. Bill dates for the HPV vaccine for patients < 19 years of age were obtained by querying for the HPV CPT code. A registry of HPV dose dates was created by auditing charts of patients billed to collect all doses ever given. Interdose intervals were calculated to the nearest month. "On time" was defined as an interdose interval for dose 1-2 of less than 4 months and for dose 2-3 of less than 6 months. The chi square test was used to compare dosing rates between the time periods.

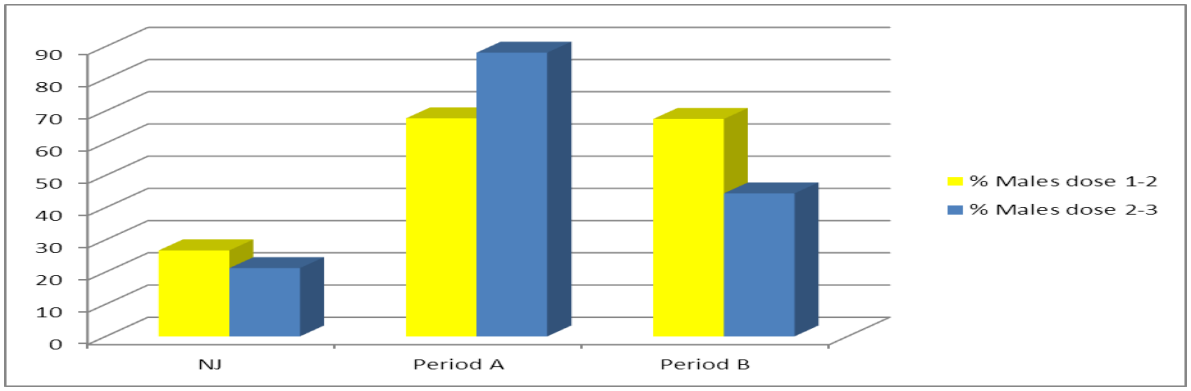
Results

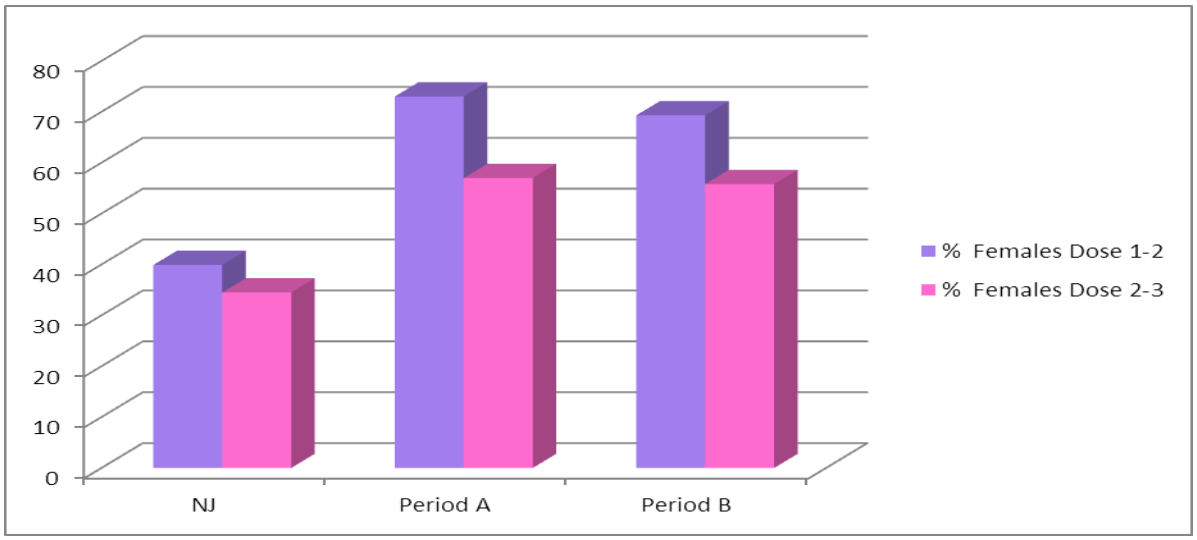
We found statistically significant and generally increasing HPV on-time completion rates in both of our study periods across both genders. Additionally, we found increasingly shorter intervals between doses amongst non-compliant patients. The average interval to receive doses 2 and 3 each decreased by 2 months.

X^2, p-value

Males	**Dose 2**	**Dose 3**
Period A	33.7, < .001	90.3, < .001
Period B	33.4, < .001	11.9, < .001
Females	**Dose 2**	**Dose 3**
Period A	22.3, < .001	10.2, < .005
Period B	17.4, < .001	9.16, < .005

Completion Rates





Discussion and Conclusion

The addition of an inexpensive and minimally time-consuming reminder to patients resulted in higher and sustainable HPV completion rates compared to those in New Jersey as a whole. To build upon our current success, we will create additional interventions that not only continue decreasing interdose intervals and increasing series completion rates, but also further decrease our missed opportunities in initiating this potentially life-saving vaccine.

.

Evaluation of the Use of Three-Factor Prothrombin Complex Concentrate in the Treatment of Bleeding due to Target Specific Oral Anticoagulants

Yvonne Labram PharmD; Neha Civic, PharmD; Daniel Longyhore, PharmD

Introduction/Background

Vitamin K antagonists (VKA) were the mainstay for chronic anticoagulation until the recent development of target-specific anticoagulants (TSOAC), which gained favor due to their specific mechanisms of action and lack of routine testing. Nevertheless, reversal of anticoagulation is better defined with VKA than with TSOAC. Four-factor prothrombin complex concentrate (PCC4) is recommended in the 2012 American College of Clinical Pharmacy (ACCP) guidelines for the reversal of VKA, but it is used clinically in the treatment of bleeding due to TSOAC. The objective of this study was to evaluate the use of PCC3 for the treatment of bleeding due to TSOAC.

Methodology and Statistical Approach

A retrospective chart review was performed on all patients admitted to St. Luke's University Health Network from January 1, 2013 to November 30, 2015 who received orders for PCC3. Patients were categorized into groups based on whether they received warfarin or one of the TSOAC prior to PCC3 administration. The primary endpoints were units of fresh frozen plasma (FFP) and packed red blood cells (PRBC) administered after PCC3 administration. The secondary endpoints were total units of FFP and PRBC received during treatment, percentage of patients re-dosed with PCC, and thromboembolic adverse events. Descriptive outcomes were reported for baseline characteristics, percentage of patients re-dosed and thromboembolic adverse events. Separate Mann Whitney rank sum tests were used for exploratory purposes only to assess the primary outcome and the total units of FFP and PRBC received.

Results

Baseline characteristics were similar between the two treatment groups. There were more units of FFP and PRBC administered after PCC3 administration in the TSOAC arm, but this was not statistically significant ($p = .11$) Total units of FFP administered throughout the bleeding treatment was significantly higher in the TSOAC arm ($p = .03$). Overall, three patients were re-dosed with PCC3, and no thromboembolic events were documented in the charts during the hospitalization.

Discussion and Conclusion

The results of this study suggest that PCC3 is an acceptable treatment agent to use in patients with life-threatening bleeds who were on TSOAC prior to admission. However, further studies are warranted in order to evaluate the effect of PCC3 on life-threatening bleeds due to the newer oral agents.

POSTER PRESENTATION ABSTRACT

Is Placental Abruption Still a Clinical Diagnosis?

Melissa Chu Lam, MD; Angel Gonzalez Rios, MD; Jonathan Hunt, MD; James Anasti, MD; James Airoldi, MD; Jill Stoltzfus, PhD

Introduction/Background

Placental Abruption (PA) complicates 1% of pregnancies and is a leading cause of perinatal morbidity and mortality. Patient presentation varies widely, making the diagnosis sometimes challenging. Although many tests are obtained in PA patients, their clinical relevance is uncertain. We sought to review the incidence of abnormal findings in common hematologic markers in patients diagnosed with PA.

Methodology and Statistical Approach

This is a retrospective chart review of patients who had PA confirmed by pathology, patients with clinical suspicion of abruption but no pathology supporting PA, and patients with clinical and pathology diagnosis of PA at our institution from 2010 to 2015. Available white blood count (WBC), hemoglobin (Hgb), red blood cell distribution width (RDW), coagulation studies, Kliehauer-betke (KB), platelets (PLT), and umbilical dopplers (UAD) were compared to normal references. We also analyzed the incidence of abnormal values in each group.

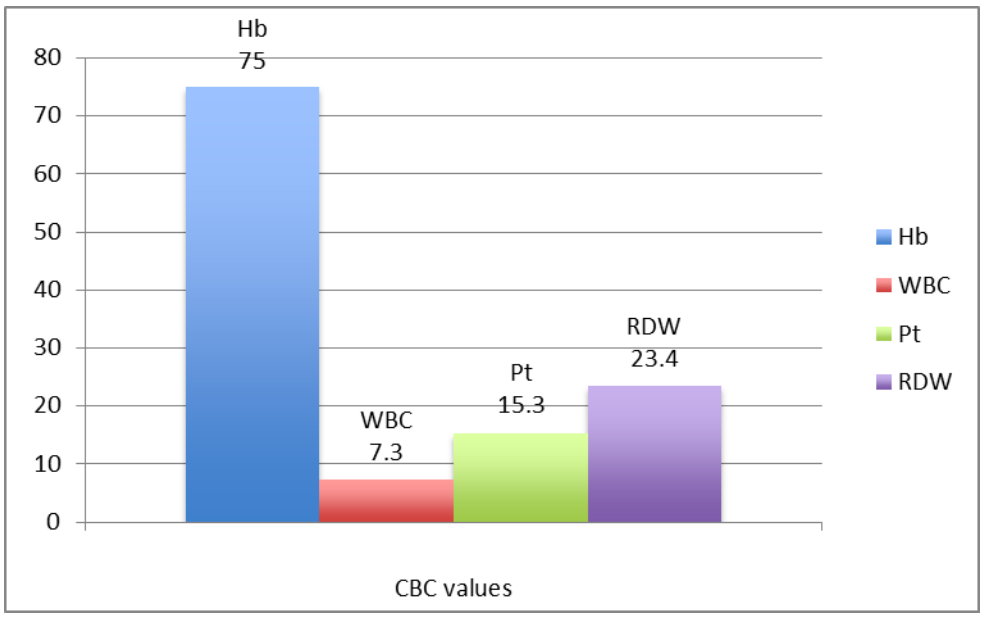
Results

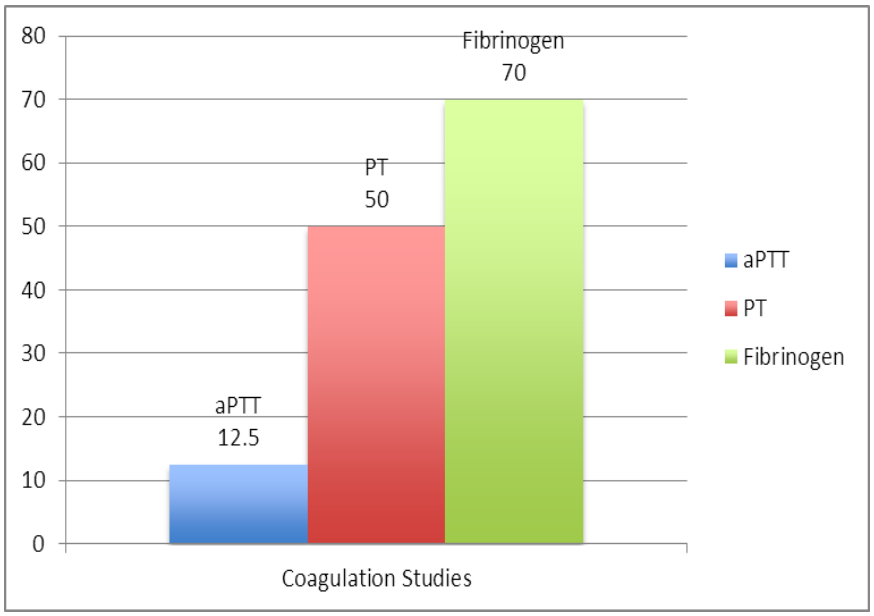
During the 5-year review period, the incidence of pathology-confirmed PA was 0.87% (167/19,100). Of these patients, 74.5% had Hgb less than 11.5 g/dL; 4.9% had WBC greater than 10.1K/uL; 10.8% had PLT less than 149 K/uL; and 45.1% had elevated RDW > 15.1%. From coagulation profiles obtained, 16.1% had a prolonged aPTT; 45.2% prolonged PT; and 82.1% fibrinogen less than 227 mg/dL. Of the KB tests performed, 1.4% were positive. UADs were abnormal in 9.6% of patients, with 65% clinically diagnosed prior to delivery.

Of patients with clinical suspicion, but no abruption, 74.4% had Hgb less than 11.5 g/dL; 6.4% had WBC greater than 10.1K/uL; and 11.5% had PLT less than 149 K/uL compared to 61.5%, 10.8%, and 27.7%, respectively, in the group of patients with both clinical suspicion and pathology diagnosis of abruption. Additionally, 6.4% of patients had a prolonged aPTT; 52.2% had prolonged PT; 66.7% had low fibrinogen; and 5.6% had +KB compared to 13%, 41.7%, 66.7%, and 16.7%, respectively, in the patients with only clinical suspicion.

Discussion and Conclusion

The above markers did not assist substantially in making a diagnosis of PA. While 35% of the PAs were missed using individual clinical acumen, it appears to be one of the most accurate tools at this time.


Hb
75
WBC
7.3
Pt
15.3
RDW
23.4
80
70
60
50
40
30
20
10
0
Hb
WBC
Pt
RDW
CBC values


aPTT
12.5
PT
50
Fibrinogen
70
80
70
60
50
40
30
20
10
0
aPTT
PT
Fibrinogen
Coagulation Studies

POSTER PRESENTATION ABSTRACT

The Effect of an Orthopedic Surgeon's Attire on Patient Confidence and Trust in a Suburban Setting

Vince Lands, MD; Ajith Malige, BS; Chinenye Nwachuku, MD; Kristofer Matullo, MD

Introduction/Background

Previous studies have demonstrated that patients are more likely to exhibit trust and confidence in physicians who dress in formal attire, with the white coat acting as a major source of patients' perceived trust and confidence. This study sought to explore potential associations between an orthopedic surgeon's attire and its influence on patients' perceptions of surgeon competence and trustworthiness in a suburban setting.

Methodology and Statistical Approach

Patients older than 18 years who presented for outpatient evaluation in a suburban setting were asked to participate in this survey-based study. After patients' demographic information was collected, they were shown images of male and female surgeons wearing different outfits (i.e., formal, business, casual, and scrubs) and asked to rate the following seven perceived characteristics of each surgeon using a Likert scale: confidence, perceived intelligence, technical prowess, willingness to discuss confidential information, trust, perceived safety, and empathy. Finally, patients were asked about their preferences regarding physician attire and physical attributes.

Results

A total of 85 surveys were fully completed. Participants were mostly female (65%), Caucasian (79%), and had completed higher education (52%). The age groups of 45-54 years (25%) and 55-64 years (26%) constituted the largest groups of participants. Patient confidence, perceived intelligence, and trust were higher for physicians pictured in a white coat or scrubs, compared to a lower approval of physicians wearing gender-specific professional or casual attire. When asked to directly compare physicians' attire, patients were most confident in male surgeons wearing a white coat and in female surgeons wearing either white coats or scrubs.

Discussion and Conclusion

Combining strong clinical skills with appropriate clinical attire (specifically, physicians wearing a white coat) appears to be an effective way to enhance patients' trust and confidence in their orthopedic surgeon.

POSTER PRESENTATION ABSTRACT

The Impact of a Standardized Checklist on Transition of Care During Emergency Department Physician Change of Shift

Alyssa Milano, DO; Philip Salen, MD; Holly Stankewicz, DO

Introduction/Background

Transition of patient care during physicians' change of shift introduces the potential for critical information to be missed or distorted, resulting in possible morbidity. Since 2009, the Joint Commission has encouraged improving transition of care as a national safety goal. Our study sought to determine if utilization of a sign-out checklist resulted in improved quality and standardization of patient care transitions among Emergency Medicine (EM) resident physicians.

Methodology and Statistical Approach

This prospective study assessed EM residents' transition of care during departmental group sign out. After Institutional Review Board (IRB) approval, residents of varying post-graduate years transferred their patients' care to the incoming physician team. For two months, residents gave their typical sign out. For the next two months, residents utilized a standardized sign-out checklist. Attending physicians assessed overall quality of transition of care using visual analog scores (VAS), and assessed whether specific issues were discussed (i.e., diagnosis, tasks to do, patient disposition, admitting team, code status, if patients were signed out multiple times, and the need for additional patient information from the attendings). Continuous data were reported as medians and ranges, with separate Wilcoxon signed rank tests conducted as appropriate, while categorical data were reported as frequencies and percentages.

Results

Assessment of transition of care was performed for 77 days (38 days of status quo, 39 days utilizing a checklist). There were 548 assessments in the pre-checklist cohort (PCL) and 697 in the post checklist cohort (CL). Attending VAS assessment of sign out for the CL was 8 (range 2.5 to 10) compared to 7.5 for the PCL (range .05 - .95) ($p < .0001$). Important aspects of transition of care improved with implementation of CL, including the to do list (PCL 578/686, 84.3%; CL 482/493, 97.8%; $p < .0001$); disposition (PCL 683/703, 97.2%; CL 518/521, 99.4%; $p = .004$); admitting service (PCL 392/584, 67.1%; CL 321/421, 76.2%; $p = .03$); and necessity of attending clarification (PCL 100/427, 23.4%; CL 39/345, 11.3%; $p < .0001$).

Discussion and Conclusion

A standardized checklist improved the quality of transition of care of resident sign out based on assessment by attending observers, as well as facilitated discussion of important transition of care issues.

Table: Impact of Checklist on Transition of Care

	Pre-checklist	Post-checklist	P value
Total N	548	697	
Attending Assessment of Sign out VAS	7.5 (range .5 to 9.5)	8.0 (range 2.5 to 10)	< .0001
+ Diagnosis	1 (714/727, 98.2%)	1 (522/527, 99.1%)	0.1
- Diagnosis	12/727, 1.7%	5/527, .9%	
+ "To do"	578/686, 84.3%	482/493, 97.8%	< .0001
- "To do"	60/686, 8.7%	8/493, 1.6%	
+ Disposition	683/703, 97.2%	518/521, 99.4%	.004
- Disposition	14/703, 2%	3/521, .6%	
+ Admit To	392/584, 67.1%	321/421, 76.2%	.03
- Admit To	83/584, 14.2%	35/421, 8.3%	
+ Code Status	45/505, 8.9%	52/357, 14.6%	.13
- Code Status	295/505, 58.4%	187/357, 52.4%	
+ Attending Add	100/427, 23.4%	39/345, 11.3%	< .0001
- Attending Add	327/427, 76.6%	306/345, 88.7%	

For all analyses, $p < .05$ denotes statistical significance, with no adjustment for multiple testing

POSTER PRESENTATION ABSTRACT

Education on Contraception: How Much Do Patients Know?

Ingrid Paredes, MD; James Anasti, MD; Jill Stoltzfus, PhD

Introduction/Background

The rate of unwanted and unplanned pregnancy remains high among young and Hispanic women. Nearly half of pregnancies in the United States are unintended. The consequences of such pregnancies may be serious, including abortions at later gestations that compromise the life of the mother, as well as raising children in inadequate environments. We believe lack of education among patients about the different contraceptive methods that are available is a contributing factor to the low rates of contraception use and, subsequently, the increase in short-interval pregnancies. Lack of education may also result in failure to use the appropriate contraception method according to individual needs. Therefore, we sought to determine the impact of a brief educational intervention on patients' knowledge about contraception.

Methodology and Statistical Approach

We developed a 15-minute contraceptive instructional video in both English and Spanish to be viewed by our day 2 postpartum patients (PPD2). The video explained the various forms of contraception, including usage, efficacy, side effects, and contraindications. Prior to the video, PPD2 patients were given a simple 7-question survey to determine their understanding of postpartum contraception. They were then instructed to watch the video and retake the survey within 2 hours of watching it.

Results

A total of 60 PPD2 patients viewed the video. The mean age was 22 ± 3 years and mean parity was 1 ± 0.5. Although not statistically significant, the pre- and post-survey results demonstrated trend toward increased knowledge about some methods. Of particular interest was the failure of the video to increase patients' understanding of what is required to insert an IUD as well as postpartum oral contraception use (OCP). The pre-video survey revealed that 13% thought one "needed to go to operating room for IUD insertion", which was largely unchanged after viewing the video. Before the video, 52% of patients thought OCPs were safe to use immediately after delivery, which dropped to 45% after the video.

Discussion and Conclusion

Information regarding intrauterine devices (IUD) and postpartum OCP use may require additional, if not separate, educational counseling to better inform patients about these contraceptive options.

POSTER PRESENTATION ABSTRACT

Accuracy of Self-Estimation of Blood Alcohol Concentration Compared to Objective Values

Jared Phelps, DO; Kelly Krieg, DO; Holly Stankewicz, DO

Introduction/Background

"Alcohol intoxication" is typically defined as a blood alcohol concentration (BAC) of 0.08g/dL. The most common method used by medical professionals and law enforcement to estimate BAC is breath alcohol content (BrAC). This study sought to evaluate the accuracy of an individual's self-estimated BrAC compared to actual BrAC as determined by the BrAC sensor used in an academic emergency department.

Methodology and Statistical Approach

This was a prospective study involving 55 individuals. Participants consumed one beer at a time and were asked to estimate their current BrAC 15 minutes after each beer. BrAC level was measured using an Alco Sensor IV device. Participants were not told their objective value. This process continued after every drink until participants reached a BrAC of 0.1. Once a BrAC of 0.1 was achieved, participants stopped drinking and estimated BrAC every 30 minutes, with objective BrAC values also recorded. This continued until a BrAC level of 0.08. To assess alcohol levels to 0.1, separate paired sample t-tests were conducted on the largely normally distributed BrAC levels.

Results

For the data increasing from 0.0 to 0.10, the difference between estimated and actual BrAC levels ($n = 354$) was statistically significant ($p < .001$), with overestimation (mean difference ± standard deviation) of 0.01 ± 0.02. For the data decreasing from 0.1 to 0.08, the difference between estimated and actual BrAC levels ($n = 233$) was statistically significant ($p < .0001$), with underestimation (mean difference ± standard deviation) of $-.01 \pm .04$. The actual BrAC mean ± standard deviation was 0.06 ± 0.04. The actual BAC mean ± standard deviation was 0.09 ± 02.

Discussion and Conclusion

This study found that participants overestimated their BrAC as their actual BrAC increased from 0.00 to 0.1. Conversely, the data showed that participants underestimated their BrAC as they decreased from 0.1 to 0.08. This study offers insight into the impairment of individuals as they consume alcohol and subsequently recover, which could play a role in education and prevention of medical and legal consequences of alcohol consumption.

POSTER PRESENTATION ABSTRACT

Utility of Coronary Artery Calcium Score Testing

Abdullah Quddus, MD; Francis Burt, MD; Jamshid Shirani, MD; Alex Smith, BS; Michael McLane, MD; David Prutzman, MD

Introduction/Background

Coronary artery calcium scoring (CACS) is gaining recognition as a risk stratifying tool in coronary atherosclerosis. We aimed to evaluate community based referral patterns for CACS and its potential immediate impact on statin therapy.

Methodology and Statistical Approach

We retrospectively reviewed records and images of consecutive patients who were referred for CACS from January 2014 to March 2015 at our facility. All patients referred for CACS were reviewed. Paired t tests were used to compare continuous variables.

Results

Thirty-five adults (mean age 58 years, 51% men, 94% white, 8% diabetic, 45% hypertensive, 31% smoker, 70% family history of heart disease, 69% overweight or obese) had CACS for cardiovascular risk estimation; 22 (62%) by cardiologists and 12 (37%) by primary care physicians. Overall, 25% of patients had chest pain and negative stress tests, while 75% were asymptomatic.

Distribution of ASCVD scores in 32 eligible patients were as follows: 46% were <5%; 43% were > 7.5%; 9% were between 5 - 7.5%. CACS distribution was as follows: 28% = 0; 31% = 1-100; 26% = 101-300; and 14 %were >300. CACS of 0 was present in 40%, 33%, and 21% of patients with ASCVD scores of <5%, 5%-7.5%, and >7.5%, respectively. Overall, ASCVD risk score was reclassified based on CACS in 13/ 32 patients (40%). This led to a change in management in 21/35 patients (60%), including initiation of statins in 17/29 patients (58%) who were not already on therapy; discontinuation of statins in 2/6 patients (33%) on prior therapy; and dose titration of statins in 2/6 patients (33%). CACS of 0 was present in 10 patients with an ASCVD score of 1-19 (6.2% ± 5.5); a MESA score of 0.3-5.3 (2.4% ± 1.4); a Framingham risk score of < 1-16 (7% ± 5.2); and a MESA arterial age < 1-5 (2.6% ± 1.5) ($p = .02$ for ASCVD versus MESA and $p = .02$ for Framingham versus MESA arterial age).

Discussion and Conclusion

In this small retrospective study, wide heterogeneity was noted in the cardiovascular risk factor profiles of patients referred for CACS. Despite these differences, CACS provided important incremental information that impacted immediate cholesterol-lowering medication use.

POSTER PRESENTATION ABSTRACT

Tissue Insufficient for Diagnosis on Endometrial Biopsy: What's the Next Step?

Angel Gonzalez Rios, MD; Melissa Chu Lam, MD; Kelsey Sullivan, BA; James Anasti, MD; Jill Stoltzfus, PhD

Introduction/Background

Endometrial biopsy (EMB) has been the gold standard for diagnosing causes of postmenopausal bleeding (PMB) for the last 30 years. Occasionally, the EMB does not contain sufficient tissue to make a definitive diagnosis, which often leads to additional procedures. In an effort to improve patient care, we evaluated PMB patients whose initial EMB did not contain sufficient tissue for diagnosis.

Methodology and Statistical Approach

We reviewed EMBs performed at our institution for PMB during a single year that were read as tissue insufficient for diagnosis (TIS). We collected demographic data, ultrasound outcomes, and final pathology findings from a subsequent procedure (D&C or hysterectomy) within 12 months of initial endometrial biopsy. We presented our results descriptively, given the exploratory nature of this study.

Results

There were 118 TIS results for 890 EMBs performed for PMB (13.2%). Mean age, BMI, endometrial stripe, and uterine sound were 61.2 ± 2 years, 31 ± 8.5 kg/m2, 7 ± 4 mm, and 7.6 ± 1.7 cm, respectively. Of the 74 patients for whom we had additional tissue, 45 were atrophic (61%), 22 had endometrial polyps (30%), 6 were proliferative (8%) and one had endometrial cancer (1.3%). PMB patients with the two most common diagnoses (atrophy or polyps) did not differ in age, BMI, endometrial thickness, or uterine length.

Discussion and Conclusion

Insufficient tissue on EMB in PMB patients rarely results in serious endometrial pathology. The ability to differentiate between the two most common pathologies using ultrasound and demographics is difficult. Thus, the inclusion of a sonohysteroscopy may be helpful in determining the need for additional procedures.

POSTER PRESENTATION ABSTRACT

Impact of Brief Alcohol Educational Session on University Athletes' Knowledge of and Participation in Binge Drinking

David Romash, DO; Holly Stankewicz, DO

Introduction/Background

Emergency medicine physicians are continuously treating medical conditions related to alcohol consumption and binge drinking. This behavior and its adverse health effects are especially prevalent in the college-aged patient population. Despite the need for interventions targeting college students, few studies have evaluated methods for modifying destructive drinking behavior in this population. We sought to evaluate the impact of a brief educational intervention on these behaviors.

Methodology and Statistical Approach

This was a before/after study involving 23 female college athletes who presented to St Luke's University Hospital in Bethlehem, PA. A 13-question pre-course survey was administered assessing participants' knowledge of the effects of alcohol on the body and their current alcohol consumption patterns. Seven survey questions addressed alcohol consumption knowledge, while 6 addressed alcohol consumption behavior.

Following the initial survey, a 45-minute presentation was given by two emergency medicine physicians. After 2 months, participants retook the survey. For questions testing alcohol consumption knowledge, data were arranged in contingency tables and analyzed using separate McNemar's tests to assess changes in the proportion of participants whose answer changed from pre- to post-intervention. For all analyses, $p < .05$ denoted statistical significance, with no adjustment for multiple testing. For questions relating to alcohol consumption behavior, reported behaviors were categorized descriptively as more or less healthy, and the proportion of participants whose behavior became "more healthy" was compared to the proportion whose behavior became "less healthy".

Results

Of the 7 knowledge questions, the only one demonstrating a statistically significant pre-to-post difference asked how many weeks of physical training would be negated by binge drinking behavior. Initially, 19/23 participants answered incorrectly, while 2 months after the educational session, 13/19 participants answered the question correctly ($p < .0001$).

For the behavior questions, the extent and direction of behavior changes were analyzed. For question #4, which asked, "How often do you drink alcohol?", the dominant response on the pre-intervention survey was "2-3 times a week" (70%). After the educational session, 5 participants reported a change in behavior, with 4 reporting a decline in their frequency of alcohol consumption, and 1 reporting an increase.

For question #5, which asked, "How many standard drinks containing alcohol do you have on a typical day while drinking?", the 2 dominant responses on the pre-intervention survey were "3 or 4" (30%) and "5 or 6" (44%). After the educational session, no participants who had earlier reported 3 or 4 drinks experienced a change in behavior, but half of participants who had earlier reported 5 or 6 drinks

experienced a change. Four of these participants indicated that their typical volume of alcohol consumption had declined, while 1 reported an increase.

For question #7, which asked how often “have you been unable to remember what happened the night before because of drinking?”, the most common pre-intervention responses were “never” (44%) and “less than monthly” (44%). Reported behavior remained stable among those who initially answered never, but changed markedly among those who initially answered less than monthly. Within this group, 2/10 participants reported a decreased frequency of memory impairment, while 2/10 reported an increased frequency.

For question #8, which asked, "How many times in the past month have you vomited because of alcohol?”, the most common pre-intervention response was “1-3 times” (60.9%). After the educational session, 4 participants reported a decline in their frequency of alcohol-related vomiting, and no participants reported an increase.

Discussion and Conclusion

Following a brief educational intervention, the nature of the changes in participants’ knowledge and reported behavior demonstrates the promise of targeted educational efforts. Participants’ knowledge of binge drinking and its affects was generally comparable before and two months after an educational session, except when that knowledge related to athletic training. Given that all participants were athletes, this finding demonstrates that information directly related to participants’ interests may have more impact on their understanding of binge drinking. Future research should include measures to verify the validity of reported behavior, as well as examine not only whether behavior changed, but how that change was linked to the intervention of interest.

POSTER PRESENTATION ABSTRACT

Improving Delirium Detection in Nursing Home Residents: a Quality Improvement Project

Michael Sidhom, MD, MSPH; Ana Castellanos, MD

Introduction/Background

Delirium is an unrecognized danger that is defined as an acute reversible and temporary state of cognitive disorientation due to multifactorial triggers. The ability to recognize those triggers and/or subsequent presentations of delirium are inconsistent amongst nursing and ancillary staff.

Many studies have demonstrated negative clinical outcomes and economic effects that delirium has on both the healthcare system and society as a whole. Despite this reality, interventions to identify, prevent, and treat delirium remain suboptimal; therefore, nursing home residents are three times more likely to present to an emergency department (ED) with delirium than community-dwelling elderly patients. We implemented a quality improvement project to address this important issue.

Methodology and Statistical Approach

Pre Intervention: In order to assess baseline knowledge, a self-administered survey with 10 questions addressing multiple aspects of delirium was administered to a convenience sample of clinical staff (LPNs, RNs and CNAs) across all shifts in a skilled nursing facility.

Intervention: Our quality improvement initiative consisted of 15 - 20 minute "in-service" training lectures to review and underscore the importance of delirium; identify triggers in order to recognize, typical and atypical presentations; and discuss basic interventions.

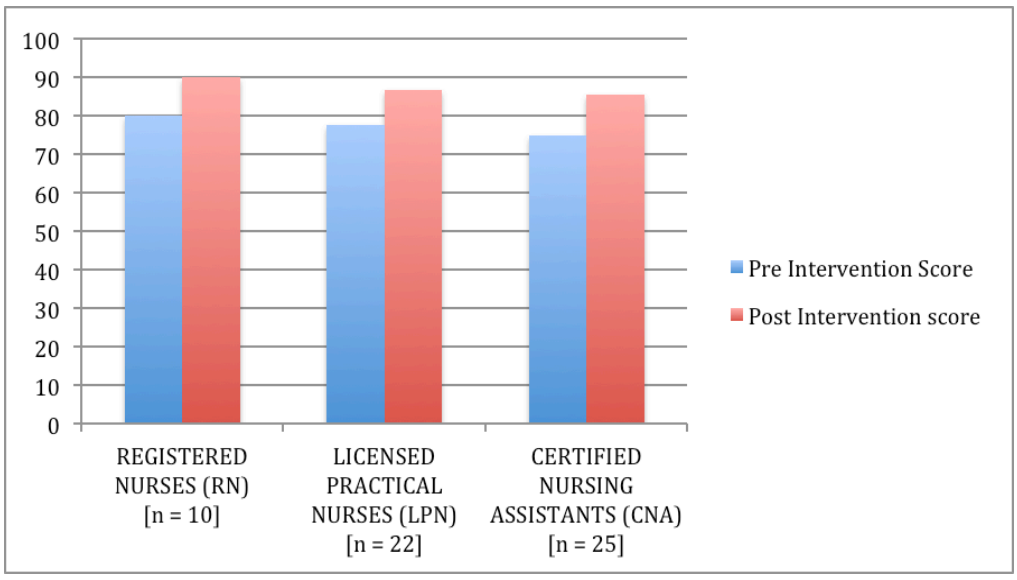
Post Intervention: We administered the 10-question survey to participants who attended the intervention.

We analyzed data descriptively from the pre- and post-intervention surveys. Metrics measured included position, shift, and pre/post-survey scores.

Results

Among the 57 nursing participants who completed the study, there was a 10% improvement in survey scores after the intervention. The greatest improvement in delirium recognition and evaluation occurred within the CNA staff.

HEALTHCARE PROVIDER TYPE		PRE INTERVENTION SCORE (AVG %)	POST INTERVENTION SCORE (AVG %)	OVERALL IMPROVEMENT
REGISTERED NURSES (RN)	[n = 10]	80	90	10%
LICENSED PRACTICAL NURSES (LPN)	[n = 22]	77.5	86.8	9.30%
CERTIFIED NURSING ASSISTANTS (CNA)	[n = 25]	74.8	85.6	10.80%
		TOTAL 77.4%	TOTAL 87.5%	10.10%



Discussion and Conclusion

Ideally, the best management for delirium is prevention. Hence, early recognition of both organic and non-organic causes of delirium, and subsequent presentations thereof, in high-risk nursing home residents may decrease adverse outcomes and unwanted complications associated with delirium. We hope to extend this quality improvement initiative to all healthcare providers in the skilled nursing facility in order to improve the delirium-related outcomes of their residents.

POSTER PRESENTATION ABSTRACT

Systematic Screening for Cardiovascular Disease in Young Sports Participants

Archana Sinha, MD; Kaitlen Nguyen; Amitoj Singh, MD; Audrey Fedor, RN; Kelly Mousely; Sahil Agrawal, MD; Maheep Vikram, MD; Steven Stevens, MD; Darren Traub, DO; Sudip Nanda, MD; Jamshid Shirani, MD

Introduction/Background

Sudden cardiac death (SCD) in a previously asymptomatic athlete is a rare but tragic event. The incidence in most studies ranges from 1:80,000 to 1:200,000. A comprehensive initial pre-participation physical evaluation (CIPPE) is mandated for junior, middle, and high schools by the Pennsylvania Interscholastic Athletic Association (PIAA) in order to reduce potential sports injuries and sudden cardiac death. Athletes with positive screening for cardiac disease [including findings on the 12-item American Heart Association (AHA) screening questionnaire] are referred for cardiac evaluation. We aimed to evaluate the yield of pre-participation cardiac screening in a group of athletes.

Methodology and Statistical Approach

We conducted a retrospective chart analysis of the students who had presented to SLUHN Cardiology Department between June of 2015 and February of 2016. The data were analyzed descriptively, with continuous variables expressed as mean and standard deviations.

Results

Among the 3,174 students from 13 schools undergoing CIPPE, 100 (3%) were referred for cardiac evaluation (51 male; 53 white; mean age = 14.8 ± 2.2 years; mean height = 166 ± 12 cm; mean weight = 62 ± 17 kg). Overall, 98 students were engaged in moderate to high intensity sports activities. Marfanoid phenotype was present in 6 students, and 6 were clinically overweight. A heart murmur was present in 58 students, and 1 had systemic hypertension.

To obtain additional information, the following tests were performed: 12-lead electrocardiogram (ECG) with rhythm strip (100 students); transthoracic echocardiogram (93 students); treadmill exercise test (13 students); tilt-table test (1 student); and cardiac magnetic resonance (CMR) imaging (2 students). ECGs showed minor abnormalities (likely normal variants) in 47 students [incomplete/ complete right bundle branch block (9 students); right axis deviation (2 students); early repolarization (7 students); and T wave inversion (5 students)], with no major abnormalities identified. Echocardiogram showed one student with bicuspid aortic valve and dilated aortic root and another student with hypertrophic cardiomyopathy (both confirmed by CMR).

Discussion and Conclusion

A systematic approach to screening in junior, middle, and high school athletes can lead to identification of serious and primarily unsuspected genetic cardiovascular conditions in a small minority of individuals. Appropriate screening of first degree relatives may broaden the overall impact of such programs.

POSTER PRESENTATION ABSTRACT

Osteomyelitic Rate of Positive Proximal Margins of Partial Ray Amputations

Melody Stouder, DPM

Introduction/Background

Submetatarsal wounds are a very common location for skin breakdown and subsequent bone infection. Standard of care for isolated metatarsal osteomyelitis is a partial ray amputation. Typically, the amputation is established proximally until non-infected bone is reached, and a "proximal margin" of bone is sent to pathology. If the proximal margin returns from pathology as positive, then proper treatment includes either a second revisional amputation or six weeks of IV antibiotics according to Infectious Diseases Society of America (IDSA) guidelines—both of which have their own set of risks.

Retrospective studies have shown that approximately 35-40% of patients who received partial ray amputation have residual bone infection remaining in their foot after surgery, as shown by pathology. This study sought to assess infection rates in a group of podiatric patients.

Methodology and Statistical Approach

This was a retrospective study of patient charts from December 2014 to October 2015 in order to determine the percentage of partial ray amputations with residual bone infection post-operatively at St. Luke's University Health Network. All patients included in the study presented with positive findings of osteomyelitis of a metatarsal, followed by a partial ray amputation, with a proximal bony margin sent to pathology.

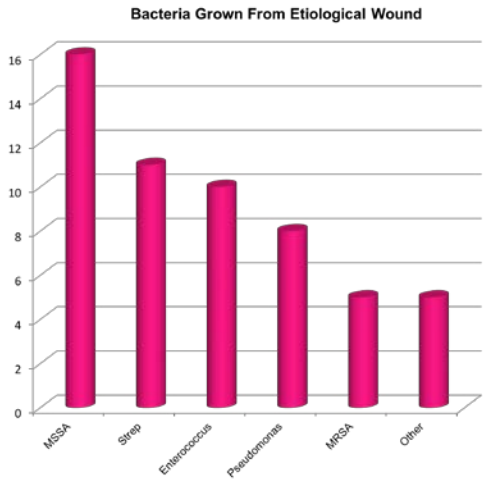
Recorded data included age, comorbidities, location of partial ray amputation, bacteria grown from initial wound, imaging obtained pre-operatively, and the pathologic result of the bony margin.

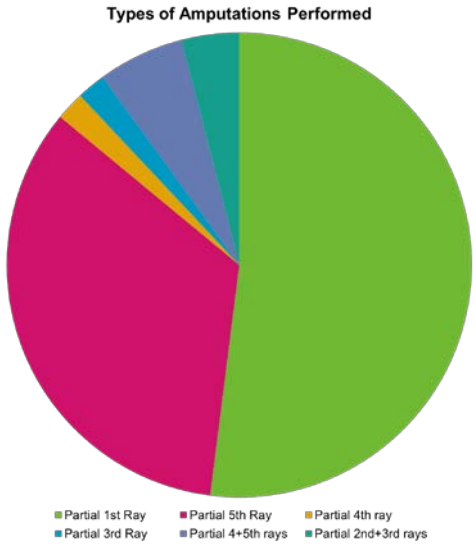
Results

Out of 50 charts reviewed, 15 patients (30%) had proximal metatarsal bony margins that were positive for osteomyelitis as confirmed by pathology. The types of pre-operative imaging, comorbidities, and bacteria were recorded for each patient. The most common location for ray amputations was the 1st ray (26% of patients), followed by the 5th ray (17% of patients).

Discussion and Conclusion

Of the 50 patients with a partial ray amputation, 15 had residual bone infection, meaning that 30% had a positive proximal margin. This rate is slightly lower than the average rate of 35-40% reported in recent literature. However, it is unacceptable for 30-40% of patients to have bone infection remaining in their foot after a partial ray amputation, as this puts patients at risk of increased complications and worsening co-morbidities. A standard protocol or surgical guideline should be established in order to effectively resect all infected bone, thereby decreasing the overall positive proximal margin rate. If patients were to receive an MRI pre-operatively (which measures the distance that infection has spread along the bone), surgical resection may be accurate and less subjective.


Bacteria Grown From Etiological Wound
16
14
12
10
8
6
4
2
0
MSSA
Strep
Enterococcus
Pseudomonas
MRSA
Other


Types of Amputations Performed
Partial 1st Ray
Partial 5th Ray
Partial 4th ray
Partial 3rd Ray
Partial 4+5th rays
Partial 2nd+3rd rays

POSTER PRESENTATION ABSTRACT

Safety and Efficacy of Transvenous Extraction of Pacemaker and Cardioverter Defibrillator Leads

Huseng Vefali, MD, MHSA; Matthew Durkin, BS; Darren Traub, DO; Jamshid Shirani, MD; Sudip Nanda, MD

Introduction/Background

Increasing implantable cardiac device use has led to a proportional increase in lead-related complications. Transvenous lead extraction (TLE) is commonly used to remove unwanted hardware. We sought to describe the safety and efficacy of TLE at a single center.

Methodology and Statistical Approach

This was a retrospective study assessing operative records for all scheduled permanent pacemakers and implantable cardioverter defibrillators from December 1st, 2012 to May 15th, 2015. All patients scheduled for an extraction procedure were included (i.e., elective, urgent, salvage). Operator and patient characteristics were collected, and each chart was reviewed for operative technique, procedural outcome, and complications. Variables of interest were summarized as percentages if categorical and as means with standard deviations or medians if continuous.

Results

A total of 78 patients (69% men; mean age 67 ± 14.5 years; mean BMI 30.1 ± 6.7 kg/m2) underwent TLE of pacemakers (31%) or defibrillators (69%). Leads were located in the right ventricle (RV 65%), right atrium (RA 26%), and left ventricle (LV 9%), and were in situ for 2306 ± 1543 days, 1634 ± 1674 days, and 1692 ± 1069 days, respectively. Indications for TLE included infection (40%), lead failure (38%), manufacturer recall (17%), and patient discomfort (5%).

Patients with infected systems (38% methicillin-sensitive staphylococcus aureus) were commonly male (68%), diabetic (51%), and had chronic kidney disease (74%). The TLE success rate was 97.4%. Manual traction was more often successful in RA and RV active fixation leads. Adhesion and scarring of the superior vena cava (SVC) coil or SVC/RA junction were most common triggers for laser use (21%). Minor and major complications occurred in 6 and 3 patients, respectively. The latter included an RA tear requiring surgical repair, a large pocket hematoma requiring evacuation, and a case of jugular vein thrombosis. One patient needed snaring to recover an RV lead tip. Only 2 patients needed to have their leads removed surgically, including the case with RA tear.

Discussion and Conclusion

TLE for infection is more likely in men with diabetes and chronic kidney disease. The TLE success rate was high (97%) and independent of TLE indication, patient age, or chronicity of the lead. Procedure time was unrelated to the chronicity of the implanted leads or the nature of fixation (active/passive) in all patient subsets.

POSTER PRESENTATION ABSTRACT

Do Provider-Specific Computer Tomography Usage Patterns Correlate with Patient Outcomes in Trauma?

Thomas Wodja, MD (post-doctoral researcher); John David Nuschke, BS; Ken Zhang, BS; Aliaskar Hasani, BS; Brian Hoey, MD; William Hoff, MD; Peter Thomas, MD; Stanislaw Stawicki, MD, MBA

Introduction/Background

Controversy continues regarding the practice of comprehensive computed tomography (CT), or "pan-scanning", for trauma patients. Opponents of this practice frequently point out that this approach exposes patients to undue radiation risk and intravenous contrast toxicity, with only infrequent identification of clinically significant occult injuries. Proponents of this practice emphasize that despite the above-mentioned factors, consequences associated with missing a serious injury are both unacceptable and preventable in the era of readily available high-definition CT scanners. The aim of this study was to define the relationship between trauma provider-specific CT scan utilization and mortality. We hypothesized that underutilization of CT imaging correlates with increased patient mortality.

Methodology and Statistical Approach

This was a retrospective review of the patient registry at our level I trauma center. After excluding patients who underwent emergency surgery or died in the trauma bay, we analyzed the following primary outcome variables: (a) mortality; (b) trauma provider experience; and (c) CT scan "tonnage" per provider. We also collected demographic and injury data [i.e., gender, age, injury severity score (ISS), revised trauma score (RTS), and mechanism]. Provider-specific mortality and CT utilization data were corrected for ISS and patient age. De-identified traumatologist-specific mortality was used to create a third-degree polynomial model of mortality that was subsequently superimposed on provider-specific CT "tonnage". We conducted analysis of covariance (ANCOVA), with statistical significance at $\alpha = .05$.

Results

Out of 32,026 records, we excluded 4,346 patients who underwent emergent operative intervention or died before advanced trauma imaging was performed. The resulting sample of 27,372 patients consisted of 60.3% males, with median age of 45 years, 95% penetrating mechanism of injury, median ISS of 5.00, median RTS of 7.84, and median length of hospitalization of 2 days. Seventy-nine ATLS-certified traumatologists were examined. For the entire sample, median mortality per traumatologist was 2.3%, with the mean number of CT scans at 2.2 per traumatologist. There were no significant differences in the number of CT scans or rates of mortality per provider when attendings (n = 12) were compared to fellows (n = 67). However, the number of CTs per provider increased with provider experience.

When the third-degree polynomial model of mortality across all trauma providers was superimposed on the average number of CTs per traumatologist (in descending order), it is apparent that estimated mortality decreases as the number of CTs per traumatologist increases above the 2.2 threshold value (**Figure 1**).

Discussion and Conclusion

This study found an association between patient mortality and the average number of CT scans performed by traumatologists at our trauma center. Although cause-and-effect determination is not possible given the retrospective nature of this investigation, the observed trend strongly suggests that a more detailed initial radiographic work-up may be associated with a mortality benefit to patients. This observation may be partly explained by greater utilization of CT imaging by more experienced traumatologists and the possible association between mortality and missed occult (but clinically significant) injuries. Further research in this important area is warranted, especially considering the existing controversies regarding risks and benefits of liberal CT imaging approaches in trauma.

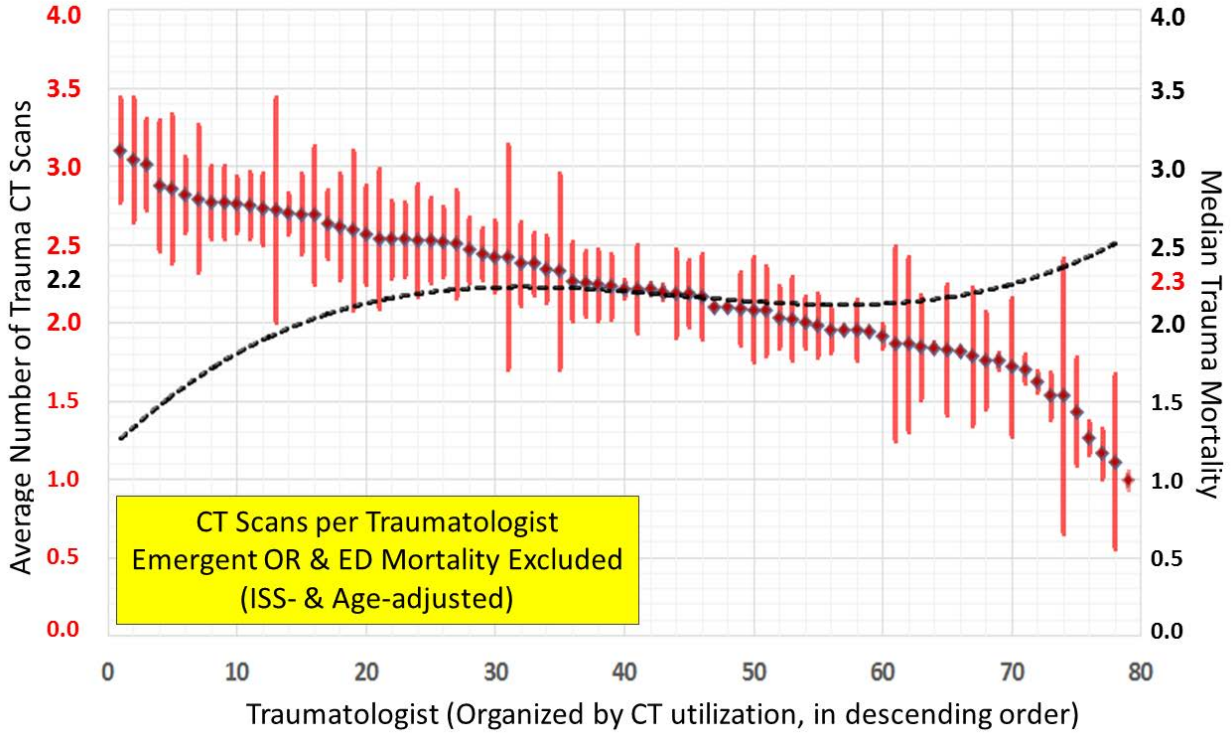


Figure 1. Average number of CT scans (shown as diamonds with error bars, units on left-sided y-axis) per trauma provider (shown on x-axis) superimposed on a third-degree polynomial model of median trauma mortality (shown as dashed line, units on right-sided y-axis). After adjusting for patient age and injury severity, the median number of CT scans per provider was 2.2, with median per-provider mortality being 2.3% (n = 27,372; patients who underwent emergency surgery or died in the ED were excluded from analysis).

POSTER PRESENTATION ABSTRACT

Empowering Patients to take Ownership of their Diabetes Care: a Quality Improvement Project

Margaret Yoder, DO; Nguyet-Cam Lam, MD; Caitlin Dillon, MD; Adam Kobialka, DO; Emelia Perez, MD

Introduction/Background

Diabetes is one of the most common diagnoses encountered in Family Medicine and causes significant patient morbidity and mortality. At St Luke's Family Medicine Residency (Pennsylvania), we sought to optimize our comprehensive care of diabetic patients using a quality improvement initiative. Our aim was to exceed the national peer benchmarks in quality of care metrics, including 84% for annual lipid panel, 64% for annual monofilament foot exam, 46% for annual dilated eye exam, 67% for annual microalbumin measurement, 52% for pneumonia vaccination, and 57% for annual flu vaccination.

Methodology and Statistical Approach

Using our Electronic Health Records, we analyzed data from 225 diabetic patients seen in our office from October 2014 to October 2015, and again in February 2016 after the three-month implementation period. Employing an integrated team approach involving the secretarial staff, nurses, residents, and attending physicians, we created diabetic packets to expand our provided care and to empower patients to take ownership of their health. In addition, to promote greater teamwork, we established a competition with awards for staff members who administered the most flu and pneumonia vaccinations.

Results

After the three month implementation period, we detected significant improvement in the following areas: annual lipid panel measurement (from 71% to 75%); annual eye exam (from 28% to 41%); annual foot exam (from 48% to 63%); pneumonia vaccination (from 39% to 60%); and flu vaccine (from 56% to 68%). We met our goal of exceeding national peer benchmarks for pneumonia and flu vaccinations, and nearly met our goal for eye and foot exams.

Discussion and Conclusion

By implementing a simple, low-cost, and effective intervention through an integrated team approach involving the secretarial staff, nurses, residents, attending physicians, and patients themselves, we were able to significantly improve the quality of care we provide to our diabetic patients. It will be important to reassess our outcomes in six months to determine if the diabetic packets are a sustainable and effective intervention.

ACKNOWLEDGEMENTS

On behalf of the Research Institute, Dr. Stoltzfus wishes to sincerely thank the following individuals for their support and assistance:

- Residency and fellowship program directors, attending physicians, and program coordinators
- Dr. Joel Rosenfeld, Chief Academic Officer, and Dr. James P. Orlando, Associate Chief Academic Officer
- Drs. Sanjiv Agarwala, Bill Burfeind, and Lisa Spacek, Research Symposium judges
- Dr. Stanislaw Stawicki, Chair of the Department of Research and Innovation
- Ms. Tracy Butryn, Director of Clinical Trials and Research
- Ms. Betsy Toole, Manager of Media Production Services