

*Department of Medicine
Temple University School of Medicine*



2015 Annual Fellows and Residents Research Symposium

*Sol Sherry Awards for
Excellence in Research*

Wednesday, June 10, 2015

*Medical Education and Research Building
Luo Commons*

The Fellows and Residents Research Forum was initiated over 25 years ago to provide the Fellows and the Residents in the Department of Medicine with an opportunity to present their research effort. The Forum is a reflection of the ongoing research activities in the Department, and a year-end summation of the projects carried out by the Fellows and Residents.

Dedication

Dr. Sol Sherry 1916-1993



Sol Sherry, M.D., joined Temple University School of Medicine as professor and chairman of the Department of Medicine in 1968. In 1970, Dr. Sherry founded and served as director of the University's Specialized Center for Thrombosis Research, the largest of its kind in the United States, which was later named in his honor. He served as dean of the School of Medicine from 1984-86. He was a recipient of an honorary doctor of science degree, the University's first Distinguished Professor and was honored with the establishment of the Sol Sherry Chair in Medicine.

For his contributions to medical research, teaching and patient care, Dr. Sherry was the recipient of other numerous awards and honors. He was Master of the American College of Physicians and The John Phillips Memorial Medalist of the American College of Physicians; a Fellow of the Royal College of Physicians (London), and recipient of the Robert P. Grant Medal of the International Society on Thrombosis and Hemostasis--a society which he founded in 1977. Dr. Sherry also received awards from the American Heart Association, the Philadelphia County Medical Society, the Texas Heart Institute and the Swedish Society of Cardiology.

Distinguished Scientist Award and Lecture – 2015

“Understanding Gastroparesis through Collaborative Translational Research”

Henry Parkman, M.D.
Professor of Medicine
Section of Gastroenterology
Temple University School of Medicine



Since joining the faculty of Temple University School of Medicine in 1990, Dr. Parkman has been actively involved in studying GI motility at both the basic science and clinical levels. His initial work, funded through NIH K08 Mentored Clinical Scientist Training Award, elucidated the mechanism of action of several gastrointestinal neurotransmitters and therapeutic agents on gastric contractility and worked with animal models to understand the pathophysiological dysfunction of gastroparesis.

Dr. Parkman's clinical focus has been treating patients with GI motility disorders, primarily gastroparesis. Through his research and clinical endeavors, he has developed a number of collaborations with colleagues in Gastroenterology, Nuclear Medicine, Surgery, Pathology, Physiology, and the School of Pharmacy.

Dr. Parkman was funded for ten years with an NIH K24 Midcareer Investigator Award in Patient-Oriented Research entitled "Novel Evaluation & Treatment of Gastric Dysmotility," which in addition to funding research in gastric motility, provided time for him to mentor young investigators in clinical research. Through this research, studies were performed on novel ways to assess gastric emptying. First, he worked on a breath test for gastric emptying. This would make it easier for patients to undergo assessment. A breath test is currently being considered by the FDA for clinical use. Second, he performed research on the wireless motility capsule that assesses gastric emptying by measuring the pH around the capsule with gastric emptying being the time from ingestion to empty from the acidic stomach to the alkaline duodenum. With the collaboration of nuclear medicine, subjects underwent combined radionuclide gastric emptying, antroduodenal manometry, and wireless motility assessment of gastric

emptying. Their studies showed that the wireless motility capsule empties from the stomach when it returns from its postprandial “fed” pattern to the “fasting” pattern and empties with the phase III portion of the migrating motor complex. His third area of interest in these studies dealt with electrogastrography, which measures gastric myoelectrical activity which is regulated by the interstitial cells of Cajal.

During Dr. Parkman’s presidency of the American Neurogastroenterological and Motility Society, he helped standardize the radionuclide gastric emptying study to help make it a more standardized test that can be done at different institutions in a uniform fashion. He remains active with their initiative to develop a patient reported outcome (PRO) for gastroparesis that meets the approval of the FDA. This would help ease study of treatments for gastroparesis which are greatly needed.

Dr. Parkman is currently a funded member of the NIH Gastroparesis Clinical Research Consortium, established by the NIDDK to enhance the understanding of gastroparesis. This research has better defined the syndromes of diabetic and idiopathic gastroparesis and the Consortium is now conducting clinical trials to help better treat patients with their refractory symptoms of nausea and vomiting. Their manuscript on the use of nortriptyline for nausea and abdominal pain in gastroparesis recently appeared in JAMA. They are currently studying the neurokinin receptor antagonist, aprepitant, as a treatment for the nausea and vomiting seen in gastroparesis.

Clinically at Temple, Dr. Parkman is in charge of the GI Motility Laboratory that assesses GI motility dysfunction in patients. Their clinical lab has developed expertise in a comprehensive array of GI motility tests for clinical evaluation of patients, including specialized tests of esophageal and gastric motility. They are a referral center for evaluation and treatment of GI motility disorders.

Through Dr. Parkman’s expertise in research and clinical care, he have written practice guidelines for the American Gastroenterological Association (AGA) and the American College of Gastroenterology (ACG) for evaluating patients with nausea and vomiting and treating patients with gastroparesis.

Acknowledgement of Funding

The Temple University School of Medicine Department of Medicine gratefully acknowledges and thanks the following corporate exhibitors for their generous support of our program this year:

Platinum Level:



Gold Level:



Fellows and Residents Research Symposium
Wednesday, June 10, 2015
Medical Education and Research Building

12:00 – 1:45 PM **Luncheon, Poster Viewing and Poster Discussions (Luo Commons)**

2:00 – 5:30 PM **Oral Presentations**
Fellows – Room 217
Residents – Room 219

5:45 PM **Distinguished Scientist Award and Lecture – 2015 (Room 217)**

“Understanding Gastroparesis through Collaborative Translational Research”
Henry Parkman, M.D.
Professor of Medicine
Director, GI Motility Laboratory
Section of Gastroenterology
Temple University School of Medicine

6:15 PM **Presentation of Awards to Fellows and Residents (Room 217)**

Reception (Luo Commons)

Poster Presentations – Fellows

Chair: Nathaniel Marchetti

*Judges: Marissa Blum, Wissam Chatila, David Essex,
Avrum Gillespie, Sharon Herring, Larry Kaplan*

Sean P. Duffy MD (Pulmonary)

*Effect of Medications on Rate of Chronic Obstructive
Lung Disease (COPD) Exacerbation in the MACRO
Placebo Arm and STATCOPE Cohort*

**Poster Board #1
Abstract #4**

Tatiana Gandrabura, MD (Endocrinology)

Diabetic Myonecrosis: Is Biopsy Needed for Diagnosis?

**Poster Board #2
Abstract #6**

Giuseppe Guglielmello, DO (Pulmonary)

*Effect of Current vs. Former Smoking on Rate of
Acute Exacerbations in COPD*

**Poster Board #3
Abstract #8**

John Kaczmar, MD (Hematology/Oncology)

Sarcoma, a Lynch Syndrome (LS)-associated Malignancy

**Poster Board #4
Abstract #10**

Swapnil Khare, MD (Endocrinology)

Insufficiency Fractures: It's Not What You Think!

**Poster Board #5
Abstract #12**

Cynthia Kim, MD (Pulmonary)

*Hiatal Hernia on Chest HRCT has no Correlation with
Exacerbation Rates in COPD Subjects*

**Poster Board #6
Abstract #13**

Himabindu Lanka, MD (Geriatrics)

*Physician's Perspective on Cancer Communication to
Geriatric Patients and their Families*

**Poster Board #7
Abstract #15**

Deena Midani, MD (Gastroenterology)

*Evaluation of Transit Patterns on High Resolution Impedance
Manometry: A Practical Approach*

**Poster Board #8
Abstract #17**

Alex Mirabadi, MD (Geriatrics)

*To Assess Healthcare Providers' Knowledge and Practice about
Sliding Scale Insulin Use in Long-term Diabetes Management for
Individuals Residing in the Nursing Home*

**Poster Board #9
Abstract #18**

Christopher Morrison, MD (Gastroenterology)

*Clostridium difficile Infection Remains an Independent Risk Factor
for Mortality and Colectomy in Hospitalized Patients with Ulcerative Colitis*

**Poster Board #10
Abstract #19**

Srikanth Mukkera, MD (Rheumatology)

*CTD-ILD: Outcomes and Factors during Acute Exacerbations
of Lung Disease*

**Poster Board #11
Abstract #20**

Erin R. Narewski, DO (Infectious Diseases)
*Short-Term Impact of Frequency of COPD Exacerbations
on Quality of Life*

**Poster Board #13
Abstract #21**

Erin R. Narewski, DO (Infectious Diseases)
*Short-Term Impact of Hospitalized vs Non-Hospitalized COPD
Exacerbations on General and Disease-Specific Quality of Life*

**Poster Board #14
Abstract #22**

Abhinav Sankineni, MD, MPH (Gastroenterology)
*Acute Gallstone Pancreatitis and Early Cholecystectomy during Index
Hospitalization*

**Poster Board #12
Abstract #24**

Pankaj Sharda MD (Endocrinology)
*Rare Presentation of Virilizing Adrenal Adenoma: Not All Large
Androgen Secreting Tumors are Malignant*

**Poster Board #15
Abstract #26**

S. Vasudevan, MD (Endocrinology)
Severe Primary Hyperparathyroidism with Cystic Parathyroid Gland

**Poster Board #16
Abstract #28**

Helen Yifter, MD (Endocrinology)
*Experiences and Challenges in Establishing a Collaborative Diabetes
Endocrinology & Fellowship Training Program in Ethiopia*

**Poster Board #17
Abstract #31**

Poster Presentations – Residents

Chair: Nathaniel Marchetti

*Judges: Susan Fisher, Won Han, Nathaniel Marchetti,
Anuradha Paranjape, Ajay Rao, Howard Rudnick*

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|---|--|
| Saraswathi Arasu, DO (General Internal Medicine)
<i>Improving Communication between Mental Health Providers
and Primary Care Physicians</i> | Poster Board #18
Abstract #32 |
| Daniel A. Baik, MD (Gastroenterology)
<i>The Natural History of Bleeding and Mortality from Gastric
Varices in an Urban Population</i> | Poster Board #19
Abstract #34 |
| David Baumgarten, MD (Pulmonary)
<i>A Classic Case of Miliary... Cryptococcus?</i> | Poster Board #20
Abstract #36 |
| Yevgeniy Brailovsky, DO (Cardiology)
<i>Baseline and Serial Examination of the RVOT Doppler Flow
Profile Predicts the Degree of Pulmonary Vascular Obstruction
Pre and Post Thrombolysis in Acute Submassive PE</i> | Poster Board #21
Abstract #38 |
| Christine M. DeStephan, MD (Cardiology)
<i>Acute Tricuspid Valve Regurgitation Caused by Severe Blunt Chest Trauma</i> | Poster Board #22
Abstract #39 |
| Jeydith Gutierrez-Perez, MD (Rheumatology)
<i>Analysis of Patient's Referrals from the Outpatient Internal
Medicine Clinic (MGP) to the TUH-ED during a 4 Month Period</i> | Poster Board #23
Abstract #42 |
| Carolyn Hogan, MD (Gastroenterology)
<i>Younger Male Achalasia Patients Do Not Require Larger Initial
Balloon Size for Effective Pneumatic Dilation</i> | Poster Board #24
Abstract #43 |
| Harish Jarrett, MBChB (Cardiology)
<i>Risk Factor Predominance in Atherosclerotic Cardiovascular
Disease Differs by Race: An Observational Study</i> | Poster Board #25
Abstract #44 |
| Evan C. Klein, MD (Nephrology)
<i>Central Venous Catheter Related Metastatic MRSA Infections
in Hemodialysis Patients</i> | Poster Board #26
Abstract #46 |
| Estefania Oliveros, MD (Cardiology)
<i>Gender Differences in Coronary Revascularization Rates in the
United States: Insight from National Inpatient Sample</i> | Poster Board #27
Abstract #50 |
| Shyam Patel, MD and Andrew Meillier, MD (Gastroenterology)
<i>Reading Level Analysis of Patient Education Materials Available
on the Internet for IBD</i> | Poster Board #31
Abstract #53 |

Andrew Peters, MD (Cardiology)

Case Report of Vasopressin Induced Hyponatremia in a Patient With Pulmonary Hypertension, Hypotension and Sepsis

Poster Board #28

Abstract #54

Andrew Peters, MD (Cardiology)

Right Ventricular Infarction Masquerading as an Anterior STEMI

Poster Board #29

Abstract #55

Andrew Peters, MD (Cardiology)

Complete Heart Block, Kidney Injury and Thrombocytopenia: Should You Implant a Pacemaker?

Poster Board #30

Abstract #56

Haley Pritchard, MD (General Internal Medicine)

Hepatitis C Screening and Prevalence in Temple Internal Medicine

Poster Board #32

Abstract #58

Dharmini Shah-Pandya, MD (General Internal Medicine)

Can I See My Consultant?

Poster Board#33

Abstract #61

Poster Presentations – Medical Students

Chair: Nathaniel Marchetti

*Judges: Susan Fisher, Won Han, Nathaniel Marchetti,
Anuradha Paranjape, Ajay Rao, Howard Rudnick*

Jason Heckert, BS (Gastroenterology)

*Gastric Neuromuscular Pathology and Therapeutic Outcome of
Gastric Electric Stimulation in Patients with Refractory Gastroparesis*

**Poster Board #34
Abstract #62**

Stephanie Ann Kubala, BA (General Internal Medicine)

*A Case Report of Prostatic Community Acquired Methicillin
Resistant Staphylococcus aureus Abscess*

**Poster Board #35
Abstract #63**

Victoria Wytiaz, BA/BS (Gastroenterology)

Foods Provoking and Alleviating Gastroparesis: Patient Experiences

**Poster Board #36
Abstract #64**

Oral Presentations – Fellows

Chair: A. Koneti Rao, M.D.

*Judges: Roberto Caricchio, Thomas Fekete, Crystal Gadegbeku,
Ron Schey, Kevin Williams*

2:00 PM	Erin R. Narewski, DO (Pulmonary) <i>Physiologic Differences in COPD Patients with Mild-Moderate Hypoxemia at Rest +/- Exertion vs. Those Normoxemic at Rest Who Desaturate Only with Exertion</i>	Abstract #23
2:15 PM	King Soon Goh, MB BCH BAO (Hematology/Oncology) (Rheumatology) <i>Incidence of Aromatase Inhibitor-Induced Arthralgia</i>	Abstract #7
2:30 PM	Ronald Andari, MD (Gastroenterology) (Cardiology) <i>Age is a Predictor of Recurrent Gastrointestinal Bleeding in Patients with Left Ventricular Assist Devices: Results from an Urban Tertiary Care Center</i>	Abstract #1
2:45 PM	Sean P. Duffy, MD (Cardiology) <i>Effect of Beta-Blockers on the Rate of Chronic Obstructive Lung Disease (COPD) Exacerbation in the MACRO Placebo Arm and STATCOPE Cohort</i>	Abstract #5
3:00 PM	Sara Keely Schultz, MD (Infectious Diseases) <i>Ceftaroline in the Treatment of Methicillin-resistant Staphylococcus aureus (MRSA) Bloodstream Infections</i>	Abstract #25
3:15 PM	Srilatha Kothandaraman, MD (Rheumatology) <i>Quality of Care Delivered by Fellow and Staff Physicians in a Multiethnic Minority Lupus Cohort</i>	Abstract #14
3:30 PM	Paul Chang, MD (Gastroenterology) <i>Detection of GERD with Esophageal Manometry with Impedance</i>	Abstract #2
3:45 PM	Alejandra C. Lastra, MD (Pulmonary) <i>Prevalence of Cardioprotective Agents Use in Smokers with and without Chronic Obstructive Pulmonary Disease (COPD) with High and Very High Coronary Artery Calcium Scores (CACs)</i>	Abstract #16
4:00 PM	Jerry Jacob, MD (Infectious Diseases) <i>Factors Associated with Empirical Therapy of Clostridium difficile Infection</i>	Abstract #9

4:15 PM	Natthapol Songdej, MD, MPH (Hematology/Oncology) <i>Regulation of Phosphatidylcholine Transfer Protein (PCTP) by Transcription Factor RUNX1</i>	Abstract #27
4:30 PM	Mark Weir, MD (Pulmonary) <i>Multiple Relative Contraindications do not Predict Outcomes in Lung Transplantation</i>	Abstract #30
4:45 PM	James Cosentino, DO (Pulmonary) <i>Can Bronchodilator Responsiveness and Degree of Emphysema Identify Patients with Asthma-COPD Overlap Syndrome (ACOS)</i>	Abstract #3
5:00 PM	Antarpreet Kaur, MD (Pulmonary) <i>HDL Levels as a Predictor of COPD Exacerbations</i>	Abstract #11
5:15 PM	Namrata Vijayvergia, MD (Hematology/Oncology) <i>Molecular Profiling of Neuroendocrine Tumors (NETs): The Fox Chase Cancer Center Experience</i>	Abstract #29

Oral Presentations – Residents

Chair: Henry Parkman, M.D.

*Judges: Riyaz Bashir, Michael Bromberg, Oleh Haluska,
Steve Kelsen, Rafik Samuel*

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|----------------|--|---------------------|
| 2:00 PM | Harish Jarrett, MBChB (Cardiology)
<i>Impact of Annual Institutional Volumes on Comparative Safety Outcomes of Catheter Directed Thrombolysis Versus Anticoagulation Therapy in the Treatment of Lower Extremity Proximal Deep Vein Thrombosis</i> | Abstract #45 |
| 2:15 PM | Saraswathi Arasu, DO (General Internal Medicine)
<i>Patient Related Factors (Patient Activation and Health Locus of Control) in Patients with Refractory Symptoms of Gastroparesis</i> | Abstract #33 |
| 2:30 PM | Jennifer Y. Sheng, MD (Hematology/Oncology)
<i>Quality of Life (QOL) in Patients with Pancreatic and Periapillary Adenocarcinoma (PPAC)</i> | Abstract #60 |
| 2:45 PM | Yevgeniy Brailovsky, DO (Cardiology)
<i>Induction Therapy Prior to Heart Transplantation Leads to Freedom from Antibody-Mediated Rejection without Increasing Infection</i> | Abstract #37 |
| 3:00 PM | Charles D. Nicolais, MD (General Internal Medicine)
<i>Use of Warfarin for Atrial Fibrillation Related Stroke Prevention in an Urban Primary Care Clinic</i> | Abstract #48 |
| 3:15 PM | Daniel A. Baik, MD (Gastroenterology)
<i>Abdominal Diameter Index is a Stronger Predictor of Barrett's Esophagus than BMI or Waist-to-Hip Ratio</i> | Abstract #35 |
| 3:30 PM | Lauren Freid, MD (Cardiology)
<i>Psychosocial Risk Assessment in Patients Receiving Ventricular Assist Devices Does not Correlate with Outcomes</i> | Abstract #40 |
| 3:45 PM | Jeydith Gutierrez-Perez, MD (General Internal Medicine) (Pulmonary)
<i>Prevalence and Characterization of Sleep Disorders in HIV Positive Adult Patients Attending to the Temple HIV Clinic</i> | Abstract #41 |
| 4:00 PM | Scott Norberg, DO (Hematology/Oncology)
<i>Loss of e-cadherin and Retinoblastoma Genes in a Case of Urothelial Carcinoma with Scrotal Metastasis</i> | Abstract #49 |

4:15 PM	Andrew Peters, MD (Cardiology) <i>Improving Medication Adherence in Hypertension Using Home Measured Blood Pressure and Telemedicine Reporting to Modify Patient and Physician Behavior</i>	Abstract #57
4:30 PM	William Shapiro, MD and Michael Lashner, DO (General Internal Medicine) <i>Medication Discontinuation in an Electronic Medical Record</i>	Abstract #59
4:45 PM	Estefania Oliveros, MD (Gastroenterology) (Cardiology) <i>Gastrointestinal Bleeding and Left Ventricular Assist Devices: Pre-operative Risk Factors and Outcome in a Minority Population</i>	Abstract #51
5:00 PM	Anand Patel, MD and Jeffrey Mufson, MD (Hematology/Oncology) <i>Multiple Myeloma Trends in Overall Survival</i>	Abstract #52
5:15 PM	Evan C. Klein, MD (Cardiology) <i>Recurrent In-Stent Thromboses, an Atypical Primary Presentation of Malignancy</i>	Abstract #47

Age is a Predictor of Recurrent Gastrointestinal Bleeding in Patients with Left Ventricular Assist Devices: Results From an Urban Tertiary Care Center

Andari Sawaya R, Iorio N, Oliveros E, Zhao H, Toyoda Y, Alvarez R, Hamad E, Haluszka O, Maranki J

Background: Continuous flow left ventricular assist devices (CF-LVADs) are a valuable therapeutic option in end-stage systolic heart failure. Gastrointestinal bleeding (GIB) is a common adverse event after device implantation. We seek to determine the risk factors for GIB, timing of bleeding events and the yield of therapeutic interventions among CF-LVAD recipients.

Methods: Between 2009 and 2014, 53 advanced heart failure patients underwent CF-LVAD implantation. Electronic medical records were reviewed to identify demographic characteristics, co-morbidities and GIB episodes. T-test, chi-square test, multivariate logistic regression analyses were conducted.

Results: African Americans represented the majority of patients (53%). Seventeen of the 53 patients (32%) had at least one episode of GIB. Age, race, gender, BMI, hypertension, diabetes, or chronic kidney disease, use of NSAIDs, and a prior history of GIB were not associated with increased risk of GIB. Eight patients (47%) had recurrent bleeding. Those patients that rebled were significantly older than those patients who did not (mean age = 68 ± 10.1 years vs. 48 ± 13.8 , OR=1.15, 95% CI=1.01-1.29, $p=0.03$). Peptic ulcers (18%) and angioectasias (18%) were the most commonly identified causes of bleeding. The overall therapeutic yield of endoscopic procedures was only 11%.

Conclusions: GIB is a frequent cause of morbidity for patients with CF-LVAD, particularly in patients with advanced age who are at increased risk for recurrent bleeding. The most common presentation of GIB in this patient population is obscure and overt. Although safe, the diagnostic yield of endoscopy is modest and therapeutic interventions are minimal.

Detection of GERD with Esophageal Manometry with Impedance

Chang P, Sankineni A, Shin G, Baik D, Malik Z, Parkman H

To investigate reflux patterns seen on esophageal manometry with impedance. Studies from Temple University Hospital Digestive Disease Center were examined from 2010-2012. The reflux pattern most often seen is a bolus clearance and a V-shaped bolus reflux pattern from the stomach back up into the esophagus. Control data was taken from normal patients without any upper GI symptoms undergoing esophageal manometry with impedance, along with patients without a reflux pattern on impedance. This group was further subdivided into those with a positive pH study for reflux and those with a negative study. Resting lower esophageal sphincter (LES) pressure, residual LES, presence and size of hiatal hernia, number of reflux episodes on impedance, and mean refluxate height were recorded and analyzed with independent samples T-test using SPSS 22. 17 patients had esophageal reflux on impedance. Average reflux height was 11 cm with $\sigma \pm 3.46$, average number of reflux episodes was $9 \sigma \pm 3.3$. 6 of these 17 patients also had a positive pH study while 11 did not. 28 patients did not have an esophageal reflux pattern on impedance; 19 had a positive ambulatory pH study and 9 had a negative pH study. There were trends for the refluxate group to have lower LES pressures compared to non-refluxate. Reflux can be detected on the esophageal manometry impedance studies. Patients with reflux pattern on esophageal manometry with impedance have lower resting LES pressures and residual LES pressures but this is not statistically significant, this may be due to the small sample size.

Can Bronchodilator Responsiveness and Degree of Emphysema Identify Patients with Asthma-COPD Overlap Syndrome (ACOS)

**Cosentino J, Zhao H, Hardin M, Hersh C, Crapo J, Kim V, Criner GJ
and the COPDGene Investigators**

Background: Despite the increasing recognition of ACOS as a clinical entity it remains poorly characterized due to a lack of agreement on its definition and diagnostic criteria. The aim of this study was to use spirometry and CT scans to help better define ACOS as well as classify subjects with ACOS based on GOLD letter grade.

Methods: We analyzed 10,300 subjects enrolled in the COPDGene Study. Subjects were non-Hispanic white or African-American current or former smokers aged 45–80 years with at least a 10 pack-year smoking history. Subjects were categorized as having either ACOS or COPD alone using spirometry, HRCT and a history of asthma or hay fever.

Results: Subjects with ACOS were younger (60.6 vs. 65.9 years old, $p < 0.0001$), more likely African American (26.8% vs. 14.4%, $p < 0.0001$), had a higher BMI (29.6 vs. 25.1, $p < 0.0001$) and more likely to be current smokers (50.9% vs. 20.7%, $p < 0.0001$). Majority of subjects with ACOS were categorized as GOLD letter grade B. Despite less severe spirometry and CT findings in subjects with ACOS, there was no significant difference between the two groups in severe or frequent exacerbations.

Conclusion: ACOS subjects represent a unique and high-risk cohort with distinct clinical features. Bronchodilator responsiveness and degree of emphysema on HRCT can be useful in identifying patients with ACOS, which is important given the high morbidity and unstable nature of the disease.

Effect of Medications on Rate of Chronic Obstructive Lung Disease (COPD) Exacerbation in the MACRO Placebo Arm and STATCOPE Cohort

Duffy S, Voelker H, Albert R, Connett J, Bailey W, Casaburi R, Cooper, Jr JA, Curtis J, Dransfield M, Han M, Make B, Marchetti N, Martinez F, Lazarus S, Niewoehner D, Scanlon P, Sciruba F, Scharf S, Washko G, Woodruff P, McEvoy C, Porsasz J, Aaron S, Sin D, and Criner GJ for the COPD Clinical Research Network and the Canadian Institutes of Health Research

Rationale: Studies have evaluated the effect of different inhaled therapies for the prevention of acute exacerbation of Chronic Obstructive Pulmonary Disease (AECOPD). Current guidelines recommend the sole use of long acting beta agonists (LABAs), long acting muscarinic antagonists (LAMAs) or inhaled corticosteroids (ICS) along with short acting beta agonists (SABA) or their combinations for stable, symptomatic COPD patients who have an FEV₁<60%. MACRO and STATCOPE offered the unique opportunity of comparing these various combinations in current medical practice in a COPD population at risk for exacerbation.

Purpose: To examine the effect of inhaled respiratory medications on the rate of AECOPD
Methods: We retrospectively analyzed 1267 patients in STATCOPE and the placebo arm of MACRO who had at least 180 days of follow up. Patients were grouped according to inhaler medications at the time of study enrollment. Primary endpoint was the percent of patients free of exacerbation at 180 days.

Results: The 8 treatment groups are as follows; SABA alone (8.1% of population), ICS (4.1%), LAMA (8%), LABA (1.7%), LAMA and LABA (4.7%), ICS and LABA (19.7%), ICS and LAMA (3.2%), ICS with LAMA and LABA (48.6%), and no treatment (2%). At 360 days, only 18% of COPD patients on a regimen of ICS with LAMA were free of exacerbation. Median time to first exacerbation was 90 days and this group had 2.16 acute exacerbations per person year. Of patients on other combined or single agent long acting inhaler therapies, between 32% and 46% were free of exacerbation at 360 days. No other group in the study had a median time to exacerbation less than 187 days. After multivariate analysis, the patients taking LAMA and ICS maintained a higher rate of exacerbation, but this result was not statistically significant ($p=0.10$).

Conclusion: No single therapy or combination of currently available inhaled therapies was superior in preventing acute exacerbation in a COPD population at risk.

Effect of Beta-Blockers on the Rate of Chronic Obstructive Lung Disease (COPD) Exacerbation in the MACRO Placebo Arm and STATCOPE Cohort

Duffy S, Marron R, Voelker H, Albert R, Connett J, Bailey W, Casaburi R, Cooper, Jr JA, Curtis J, Dransfield M, Han M, Make B, Marchetti N, Martinez F, Lazarus S, Niewoehner D, Scanlon P, Sciruba F, Scharf S, Washko G, Woodruff P, McEvoy C, Porsasz J, Aaron S, Sin D, and Criner GJ for the COPD Clinical Research Network and the Canadian Institutes of Health Research

Rationale: Traditionally, providers have been wary to treat COPD patients with beta-blockers due to concern for bronchospasm, but beta-blocker therapy has proved to be safe in COPD patients. Retrospective studies have shown that beta-blockers may reduce mortality and exacerbations in COPD. However, it has been postulated that these benefits may reflect symptomatic improvement from the cardiac effects of the medicine. MACRO and STATCOPE offered the unique opportunity of comparing effects of beta-blockers in COPD patients with and without cardiovascular risk, respectively.

Purpose: To determine the effect of beta blocker therapy on the rate of AECOPD

Methods: We retrospectively analyzed 1267 patients in STATCOPE and the placebo arm of MACRO who had at least 180 days of follow up. Patients were grouped by current medications including beta-blocker use at the time of study enrollment. Exacerbation rates were analyzed and compared amongst the groups. Patients were additionally analyzed based on whether cardiovascular disease was screened for in the cohort (e.g. STATCOPE) or not (e.g. MACRO). Primary endpoints were exacerbation rates per person year

Results: Overall 13.6% (173/1267) of patients were taking beta-blockers at enrollment. There were no statistically significant differences in exacerbation rates based on beta-blocker use. In the MACRO cohort, patients taking beta-blockers had an exacerbation rate of 1.65/person-yr. Patients who were not taking beta-blockers had a rate of 1.69/person-yr. In the STATCOPE cohort, patients taking beta-blockers had an exacerbation rate of 1.14/person-yr. Patients off beta-blockers had an exacerbation rate of 1.34/person-yr.

Conclusion: Overall, beta-blockers had no statistically significant effect on the rate of COPD exacerbation. Prospective study is warranted to determine if beta-blockers may have an effect in preventing exacerbations in COPD patients.

Diabetic Myonecrosis: Is Biopsy Needed for Diagnosis?

**Gandrabura T, Manoushagian S, Gutierrez-Perez J,
Berman D, Rubin D**

Background: Diabetic myonecrosis, also known as diabetic muscle infarction, is a rare condition that usually occurs in patients with long-standing and uncontrolled diabetes. The exact pathogenesis is unknown. Most-often it affects the thigh muscles. Diabetic myonecrosis can be difficult to diagnose. Although biopsy has been done in many cases for diagnosis, some authors have argued against biopsy because of potential complications and delayed recovery.

Clinical Case: We present the case of a 64-year-old male with type 1 diabetes mellitus who presented with severe left anterior thigh pain. On examination, the left thigh was edematous, warm, and tender, without erythema or subcutaneous emphysema. A CT scan of the left leg suggested a differential diagnosis of diabetic myonecrosis or infectious myositis. MRI showed enlargement and loss of the normal fibrillary architecture of the quadriceps with diffusely increased T2 signal, which favored diabetic myonecrosis. Subcutaneous air was absent on imaging. A muscle biopsy was surgically obtained to confirm the diagnosis. The pathology results were consistent with a combination of necrotizing fasciitis and myonecrosis. The patient's hospital course was complicated by an iatrogenic wound infection and bacteremia with Methicillin-resistant *Staphylococcus aureus*, which required multiple surgical debridements.

Conclusion: Most cases of diabetic myonecrosis can be diagnosed by the clinical presentation and imaging. MRI is 90% sensitive for the condition. Although biopsy remains the gold standard for diagnosis, it generally should be avoided as biopsy can lead to iatrogenic complications. Biopsy should be reserved for atypical presentations.

Incidence of Aromatase Inhibitor-Induced Arthralgia

Goh KS, Padmanabhan A, Tan I

Introduction: Estimated more than 200,000 women will be diagnosed with invasive breast cancer in United States. Hormone receptors are overexpressed in 80% of postmenopausal women with breast cancer. These women are candidates for adjuvant therapy with aromatase inhibitors (AI). However, up to 32.6% of women will discontinue, especially from AI-induced arthralgia of the hands and/ or wrists.

Objective: We want to find out the incidence of AI-induced arthralgia at TUH.

Methods: Prospective questionnaire study on baseline musculoskeletal symptoms and AI-induced arthralgia during AI therapy at 3- and 6-month follow up.

Results: At TUH, 27 patients enrolled in the questionnaire study and 15 patients completed the study. Eight patients with baseline hand and/or wrist pain were further excluded leaving 7 patients for final analysis. The incidence of any joint pain at baseline is 100% (15/15). AI-induced arthralgia is 43% (3/7), with 14% (1/7) at 3 months, 29% (2/7) at 6 months. The demographic of our patients is 72% (5/7) African Americans, 14% (1/7) Hispanic and 14% (1/7) Caucasian, out of which 2 African American and 1 Hispanic developed AI-induced arthralgia.

Discussion: Incidence of AI induced arthralgia at TUH is similar to other literature suggesting 35.6- 47%. This is a small pilot study. Non-specific musculoskeletal complaints were found in all study patients. Longer study period may reveal higher incidence of AI-induced arthralgia. More research is needed to improve the compliance and tolerability to AI therapy.

Conclusion: Incidence of AI-induced arthralgia is 43% in this small study of breast cancer patient at TUH.

Effect of Current vs. Former Smoking on Rate of Acute Exacerbations in COPD

Guglielmello G, Voelker H, Albert R, Connett J, Bailey W, Casaburi R, Cooper, Jr JA, Curtis J, Dransfield M, Han M, Make B, Marchetti N, Martinez F, Lazarus S, Niewoehner D, Reed R, Scanlon P, Sciruba F, Scharf S, Washko G, Woodruff P, McEvoy C, Aaron S, Sin D, and Criner GJ for the COPD Clinical Research Network and the Canadian Institutes of Health Research

Introduction: Smoking cessation is the only intervention that improves survival and reduces lung function decline. Both current smoking and exacerbations of COPD are associated with functional lung decline, increased mortality and decreased quality of life. Our study characterizes the role of active smoking on the development of acute exacerbations of COPD.

Methods: A retrospective analysis of prospectively collected data in the STATCOPE trial and placebo cohort of the MACRO trial was performed in 1,267 subjects with minimum follow up time of 180 days. Statistical analysis was performed using student's t-test and Chi-square test to compare patient demographics, baseline spirometry and symptom scores in current vs former smokers. Time to first exacerbation, rate of exacerbation, and severity of exacerbation were assessed while controlling for gender, age, FEV₁ % predicted, hospitalizations or steroids in the last year, and oxygen use. Values were expressed with associated confidence intervals and p-values.

Results: Former smokers were older (65 ± 8 vs. 59 ± 8 yrs.) and more likely to be Caucasian. The majority of patients were treated with triple inhaled therapy but it was more common in the former smoker group (52% vs. 39%). Former smokers had a lower FEV₁% predicted, worse quality of life scores and were more likely to have shorter time to first exacerbation. The severity of exacerbations was similar between the two groups.

Conclusions: Former smokers were older, Caucasian, had more severe airflow obstruction and worse disease specific quality of life scores. Former smokers had a shorter time to first exacerbation and higher rates of exacerbation. Current smokers had less severe airflow obstruction and lower COPD exacerbation rate.

Factors Associated with Empirical Therapy of *Clostridium difficile* Infection

Jacob J and Axelrod P

Introduction: Empirical antibiotic therapy for *Clostridium difficile* infection (CDI) is associated with adverse effects. We sought to describe physician prescribing behavior in regards to empirical CDI therapy, and hypothesized that delays in stool testing results may lead to increased use of empirical therapy.

Methods: A sample of patients was selected from the population of patients with stool specimens submitted for *C. difficile* testing over a 6 month period. Patients who received CDI therapy prior to result posting were defined as cases, and all other patients were defined as controls. A chart review was conducted to assess for factors driving physician prescribing behavior, including time to result posting.

Results: The mean time between order submission and result posting was 17.5 hrs with no significant differences between cases and controls. In univariate analysis, statistically significant factors associated with empirical therapy included leukocytosis (17.0 vs 10.7), bacteremia (7.4% vs 1.8%), higher Hines VA score (1.84 vs 1.05), diarrhea present on admission (RR 2.3), and ordering of abdominal imaging (RR 2.9). Among those with abdominal imaging done, empirical therapy was unrelated to the presence of radiologic findings associated with *C. difficile*. On multivariate regression, leukocytosis and ordering of abdominal imaging remained significant.

Conclusions: Use of empirical therapy for CDI was not associated with time to stool test results. The decision to use empirical therapy appears to be related to the presence of leukocytosis and the physician's decision to order abdominal imaging. The latter is true regardless of radiologic findings, suggesting a component of diagnostic uncertainty driving decision-making.

Sarcoma, a Lynch Syndrome (LS)-associated Malignancy

Kaczmar J, Everett JN, Ruth K, Stoffel EM, Stoll J, Kupfer SS, Hampel H, Stadler ZK, Gaddam P, Rybak CC, Slavin TP, Terdiman JP, Blanco A, Hall MJ

Background: Lynch syndrome (LS) is a well characterized hereditary cancer syndrome caused by mismatch repair deficiency of epithelial tumors. Uncertainty remains as to whether several less common cancers such as sarcomas may also be associated with LS. We sought to describe the incidence and characteristics of sarcomas within a sample of LS families assembled through multi-institutional collaboration.

Methods: Participating sites (n=7) queried their databases for molecularly proven and clinical LS families with sarcoma reported in a close relative (1st, 2nd, 3rd-deg). Information on the familial underlying MMR gene mutation (*MLH1*, *MSH2*, *MSH6*, *PMS2*, or *EPCAM*) was collected, as was age, sex, and tumor histology of all familial cancers from LS-sarcoma pedigrees. Vague sarcoma diagnoses (“bone”) were considered possible, while a documented category/histology (“rhabdosarcoma”) was considered likely.

Results: In total, from 958 LS families, 55 LS-sarcoma families (5.7%) contained 58 individuals with possible (n=16) or likely (n=42) sarcomas. Mean age of sarcoma diagnosis was 47.1 years (range 4-87 years), with a 1:1 male to female ratio. Nearly two-thirds (62%, 36/58) of sarcomas were in *MSH2+ / EPCAM+* families. Sarcoma histologies were diverse. Additional pedigree findings included: Muir-Torre variant LS in 14/38 (37%) evaluable families, 7 thyroid cancers (2 early-onset, 29 and 31 yrs), an adult retinoblastoma, and an MSI-H thymoma in a 55 year-old woman with 2 soft tissue sarcomas.

Conclusion: From a large sample of nearly 1000 LS families, our findings suggest sarcomas may be a rare manifestation of LS, especially *MSH2+* LS. More research of genotype-phenotype correlations in LS is needed.

HDL Levels as a Predictor of COPD Exacerbations

Kaur A, Voelker H, Albert R, Connett J, Bailey W, Casaburi R, Cooper, Jr JA, Curtis J, Dransfield M, Han M, Make B, Marchetti N, Martinez F, Lazarus S, Niewoehner D, Reed R, Scanlon P, Scirba F, Scharf S, Washko G, Woodruff P, McEvoy C, Aaron S, Sin D and Criner GJ for the COPD Clinical Research Network and the Canadian Institutes of Health Research

Rationale: COPD patients have a higher incidence of cardio-vascular disease (CVD) that contributes to their morbidity and mortality. In various CVD studies, high levels of high density lipoproteins (HDL) have been shown to be protective against atherogenesis and CVD, primarily by reversing cholesterol transport. Also in vitro data suggests that HDL may become pro-inflammatory under chronic inflammatory conditions. Although small studies have suggested that HDL levels are elevated in COPD, no study has examined the relationship between HDL levels and acute COPD exacerbations. Herein, we sought to characterize the value of HDL levels in predicting the frequency and severity of COPD exacerbations.

Methods: We included 390 COPD patients enrolled in STATCOPE who were followed for at least 12 months. We report lipid levels at baseline and 12 months follow-up. An exacerbation was defined as a respiratory event treated with antibiotics or steroids. Rates of exacerbations were defined as frequent (> 2 exacerbations/ person year) and infrequent (0-2/ person year).

Results: The frequent exacerbation group had 88 patients as opposed to 302 in infrequent exacerbation group. As expected, airflow obstruction was worse in the frequent compared to the infrequent exacerbation group (FEV₁ 42.00±17 vs. 33.43±15.77, % predicted, p<0.0001). Baseline cholesterol levels were higher in the frequent exacerbaters (192±36 vs. 202±31, p=0.019) as was baseline HDL levels (59.5±22.7 vs. 65.4±21.8, p=0.03). HDL levels were higher in patients with a greater degree of obstruction, but there were no differences in HDL levels by GOLD grading between the exacerbation groups. Additionally, HDL levels were significantly higher in patients who received systemic steroids in the prior 3 months. No significant differences were seen in changes in HDL levels with the rate or severity of COPD exacerbations.

Conclusion: HDL levels are higher in more frequent exacerbation and more obstructed COPD patients but did not predict the rate or severity of COPD exacerbations.

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Insufficiency Fractures: It's Not What You Think!

Khare S and Anolik J

Introduction: Fanconi syndrome (FS) is rarely seen with aminoglycosides. When present, it resolves on discontinuation of drug. We report an unusual case of aminoglycoside associated FS with bone manifestations which persisted months after discontinuation of drug.

Case Description: 53 year old male was evaluated for persistently high alkaline phosphatase (ALP). He recently had staphylococcal endocarditis requiring AVR and gentamicin and developed hypophosphatemia. His ALP was high and continued to rise to >300. Extensive work up in next few months revealed normal calcium, potassium, magnesium, AST, ALT, albumin, TSH, 25 and 1,25 hydroxy Vitamin D, GF23, PTH and testosterone. Work up for malignancy was negative. DEXA revealed osteoporosis. MRI showed insufficiency fractures. Urinary phosphate was high despite low serum phosphate. Aminoaciduria and glycosuria were absent. He was thereby diagnosed with selective FS. Aminoglycoside was suspected secondary to temporal association. He was placed on oral phosphate and Vitamin D supplements with gradual improvement in symptoms and biochemical markers.

Discussion: Hypophosphatemia can be rarely caused by FS. FS can be due to genetic or rarely acquired secondary to medications like aminoglycosides. When present it usually resolves in 4-6 days after cessation of offending drug. To our knowledge ours is the only patient with persistent hypophosphatemia months after cessation of aminoglycoside.

Conclusion: FS should be suspected in patients with hypophosphatemia and aminoglycoside exposure when usual suspects have been ruled out. Awareness of this disorder is important as these antibiotics are used in critically ill patients and recognition will help in their management and outcomes.

**Hiatal Hernia on Chest HRCT has No Correlation with Exacerbation Rates
in COPD Subjects**

**Kim C, Ouyang W, Dass C, Zhao H,
Criner GJ and the COPDGene Investigators**

Background: Gastroesophageal reflux disease (GERD) is associated with frequent COPD exacerbations. Hiatal hernia (HH) contributes to GERD pathogenesis and is identifiable on chest high-resolution computed tomography (HRCT). We hypothesize that the presence of HH on HRCT identifies those at increased risk for acute exacerbation of COPD.

Methods: We retrospectively reviewed a prospectively enrolled cohort of smokers with and without airflow obstruction. HH was identified visually on inspiratory HRCT. Subjects' demographic and clinical information were compared with secondary analysis performed using a propensity score generated matched cohort.

Results: There were 523 COPD subjects and 607 unobstructed smokers. COPD subjects had more HH than unobstructed smokers, (11.6% v 6.1%, $p < 0.001$). COPD subjects with hernias were older, female, overweight and GERD positive as compared to those without hernia. There was no difference in self-reported exacerbation rates or hospitalizations per year, but similar severity of obstruction, smoking rates and long-term oxygen use. Analysis with the matched cohort revealed no significant difference in exacerbation rates.

Conclusions: Presence of HH on inspiratory HRCT scan did not predict worse symptoms or exacerbation rate in COPD subjects. Those with HH were older, more obese, and predominantly female compared to those without HH.

**Quality of Care Delivered by Fellow and Staff Physicians in a
Multiethnic Minority Lupus Cohort**

Kothandaraman S, Zavistanos A, El Shamy O, Ramsey F, Caricchio R

Background: Health care resource utilization has placed substantial economic burden in lupus care. To date there are limited, if any studies done to assess the quality of care provided to lupus patients.

Objective: To compare the quality of care provided to multiethnic lupus patients by specialized vs. general clinics

Methods: Chart abstraction was performed by randomly selecting Systemic Lupus Erythematosus patients > 18 years old seen in our rheumatology outpatient clinics for quality indicators (QI) compiled based on the American College of Rheumatology and European League against Rheumatism guidelines defining quality lupus care. The Temple Lupus Clinic is “fellow- run” and mean performance rates on QI were analyzed according to physician status (fellow vs. staff) with chi-square analyses using SAS.

Results: Among the QI, performance of lupus serology and cardiovascular risk factor monitoring were significantly different among the fellows and staff [95% vs. 76 % ($p = 0.0066$); 36% vs. 7% ($p = 0.06$)] Drug toxicity monitoring and preventive care (flu shot, teratogenicity counseling) were 84% vs. 75% ($p=0.5$) and 41% vs. 33% ($p=1$) respectively. A non-parametric one-sample sign test of the thirteen QI was performed and showed higher overall performance by fellows compared to staff ($p = 0.0215$). Interestingly the Lupus clinic had a higher number of African-Americans [62.5 vs. 51.2 ($p=0.029$)]

Conclusions: Based on this pilot study, we conclude that a specialized lupus clinic has a greater advantage in providing quality lupus care. Nevertheless better cardiovascular and preventive care needs to be provided to our lupus patients.

Physician's Perspective on Cancer Communication to Geriatric Patients and their Families

Lanka H, Mirabadi A, Zirker W, Dorokhine I

Introduction: Physician communication with the patient is vital to deliver a proper diagnosis. In addition, it is important to appropriately answer questions to improve the quality of care especially with geriatric cancer patients. However, patients feel their questions are not being answered in a timely manner. Multiple international studies involving oncologists have identified communication barriers such as cultural differences, paternalistic views and family dynamics. Furthermore, cognitive impairment and hearing loss have been identified as barriers to communication in geriatric patients.

Project Aim: Assess health care providers' perspective of communication regarding diagnosis and treatment plan of cancer in geriatric population.

Methods: A ten-question survey was created and was emailed to health care providers' using Survey Monkey. Our data analysis consisted of distribution frequency and Chi-squared test/Fischer test. SAS® 9.3 (SAS Institute, 2014) was used to perform the data analysis.

Results: 69 health care providers' participated in the survey. 13 of the 69 (18.8%) did not see any geriatric patients with cancer on a monthly basis and were excluded from the study. Amongst the different communication parameters assessed, 85% of them said they had a particular approach to diagnosis. 76.9% of them included side effects of chemotherapy, risks and benefits of treatment and an option of no treatment in their initial treatment plan. Also, 67.3% of them included advance directives, hospice and prognosis in their initial plan. An adequate comparison between providers' was not possible due to the small sample size.

Discussion: In communicating cancer diagnosis and treatment plan, health care providers' feel that they adequately answer questions and address needs of their geriatric patients.

Prevalence of Cardioprotective Agents Use in Smokers With and Without Chronic Obstructive Pulmonary Disease (COPD) With High and Very High Coronary Artery Calcium Scores (CACs)

Lastra AC, Dass C, Liberator C, Baumgarten D, So JY, Simpson S, Zhao H, Kinney GL and Criner GJ for the COPDGene investigators

Rationale: Cardiovascular disease is underdiagnosed and undertreated in the COPD patient population. Coronary artery calcification scores (CACs) can be determined using ungated chest computerized tomography (CT) of what we perform about 20 million yearly in the United States. We studied the prevalence of cardioprotective medication use in smokers with and without airflow obstruction in relationship to CACs. COPD patients with high and very high CACs are likely underrecognized and undertreated as evidenced by a low prevalence of cardioprotective medication use.

Methods: We included smokers ≥ 40 years-old with and without COPD from the COPDGene cohort who had chest CT completed at Temple University Hospital. Main outcome was prevalence of antiplatelets, statins, angiotensin-converting enzyme inhibitors (ACEIs), angiotensin enzyme receptor blockers (ARBs), diuretics, beta-blockers (BBs) and calcium channel blockers (CCBs) by CACs. Ungated CT chests were reformatted to 3mm slices and CACs calculated using the Agatston method. Patients were categorized as: None if CACs=0; Low if CACs >0 and <400 ; High if ≥ 400 and <1000 and very high if ≥ 1000 . CACs differences were analyzed using t-test and demographics compared using t-test and chi-square.

Results: Among 100 randomly-selected patients (51 without obstruction and 49 with COPD) 23% had high and very high CACs. These patients were older, more likely to be female, former heavy smokers with significant airflow obstruction. Patients with very high CACs had significantly higher coronary artery disease (18.2%), hypertension (72.7%), stroke (18.2%) and hypercholesterolemia (54.5%) and walked significantly less (689ft vs. 1097ft in those with no CAC). 63.6% were on any medication, less than half were on antiplatelets (45.5%) and only 18.2% were on a statin. CACs were significantly higher in the COPD group (154.5 ± 388.6 vs. 516.7 ± 1030.2 , $p=0.02$), however no statistical difference for any of the medication classes was found across all CACs for COPD patients.

Conclusion: High and very high CACs were prevalent in smokers with and without COPD, less than half of these patients were on antiplatelets, statins or beta-blockers. CACs are higher in patients with COPD as compared to smokers without airflow obstruction however there was no difference in the use of cardioprotective medications across CACs in COPD patients. Future investigation needs to focus on the use of chest CT for CACs calculation to aid in the cardiovascular risk assessment and earlier diagnosis and treatment of cardiovascular disease in the general and especially in the COPD patient population.

**Evaluation of Transit Patterns on High Resolution Impedance Manometry:
A Practical Approach**

Midani D, Harrison MJ, Schey R, Parkman HP

Background: High resolution impedance manometry (HRIM) is frequently used in patients with dysphagia to evaluate for esophageal motility disorders. Current software offers display modes of impedance line tracings and color contour plot view (CCPV) of bolus transit. Analysis assesses only complete or incomplete clearance without further evaluation of bolus stasis. Several studies have analyzed impedance data using the line-tracing mode; however, a practical approach for bolus transit analysis using the CCPV is lacking.

Aims: Establish a practical approach for evaluating bolus transit patterns using CCPV of HRIM. Determine the relationship of transit patterns to manometric findings and patient symptoms.

Methods: HRIM studies were performed in 56 patients from September to October 2014 using ManoView ESO v3.0.1 software (Given Imaging). Transit patterns were analyzed for each individual swallow using the CCPV after setting the impedance range for visualization of the complete bolus front throughout the esophagus. The esophagus was divided into equal proximal, mid, and distal segments. Each segment per swallow was assigned a swallow stasis score (0=no stasis to 4=very severe) for the 30 second period after the swallow and confirmed by checking mean Z using the Smart Mouse feature. An overall stasis score (SS) was obtained by adding the stasis scores for each swallow (min=0 max= 12) and dividing by the number of swallows. SS were compared with manometric findings based on the Chicago Classification and patients' reported severity of dysphagia (0=none to 4=very severe).

Results: 56 patients underwent HRIM. 12 were excluded due to previous surgical interventions or significant pulmonary disease. The remaining 44 (34 female; average age: 51 years) were included.

The majority of patients (57%) had normal transit. Otherwise patterns observed included: mid esophageal stasis, mid and distal esophageal stasis, distal esophageal stasis and 3 studies with multiple patterns. Severe stasis patterns were seen in patients with achalasia or absent peristalsis (Mean SS: 6.2 and 8.0 respectively). All patients with distal esophageal stasis had hiatal hernias. Ten (83%) of twelve patients with abnormal lower esophageal sphincter (LES) relaxation (non-achalasia) were found to have normal transit patterns. 11 of 22 (50%) patients with normal manometry had evidence of stasis. The SS correlated with abnormal manometric findings ($R=0.34$ $p=0.02$), but not dysphagia severity ($R=0.060$, $p=0.70$).

Conclusions: A simple and practical method of assessing transit patterns and the severity of stasis using HRIM and visualized with CCPV is presented. Given the presence of stasis in the setting of both normal and abnormal manometric findings, these patterns offer additional information in the evaluation of swallowing function, which may impact patient therapy.

To Assess Healthcare Providers' Knowledge and Practice about Sliding Scale Insulin Use in Long-term Diabetes Management for Individuals Residing in the Nursing Homes

Mirabadi A, Zirker W, Dorokhine I, Lanka H

Background: SSI is a reactive way of treating hyperglycemia. Good evidence exists that SSI is neither effective in meeting the body's insulin needs nor is it efficient in the long-term care setting. Use of SSI leads to greater patient discomfort and increased nursing time because patients' blood glucose levels are usually monitored more frequently than may be necessary and more insulin injections may be given. Studies reported very prevalent use of SSI, although AMDA guidelines do not recommend prolonged use of SSI in LTC settings. The purpose of this study was to describe current health care providers' knowledge and practice.

Methods: An eleven-question survey was created and was emailed to long-term healthcare providers using surveymonkey. All data was presented as percentages based on number of responses to each question.

Results: 43 healthcare providers participated in the survey, 27 (66%) geriatrician, 5 (12%) internist, 4 (10%) family practitioner, 2 (5%) nurse practitioner. 42% were very comfortable, 32% comfortable, 5% uncomfortable and 20% very uncomfortable in long-term diabetes management. 72% responded rarely and 15% not at all for SSI use in the nursing home. 58% rarely and 35% not at all for SSI initiation; 55% rarely and 30% not at all to continue SSI; 49% always and 44% often reassessed SSI; 68% thought SSI was often and 24% always over-utilized in NH. 54% not at all and 38% rarely thought SSI improved outcome. 97% were agreed with AMDA's choosing wisely recommendation.

Conclusion: There is a discrepancy between prevalence and providers' knowledge and practice.

***Clostridium difficile* Infection Remains an Independent Risk Factor for Mortality and Colectomy in Hospitalized Patients with Ulcerative Colitis**

Morrison C, Ling C, Ehrlich AC, FriedenberG FK

Background: Severe flares of ulcerative colitis (UC) requiring hospitalization are frequently associated with *Clostridium difficile* infection (CDI). Previous studies suggest an increased risk of colectomy (OR=2.5) and mortality (OR=4.7) in hospitalized patients with IBD and concomitant CDI (Inflamm Bowel Dis 2011; 17 and Gut 2008; 57). Over the past 5 years the utilization of vancomycin for CDI and biologics for UC has increased substantially. This study aimed to re-assess the relationship between UC and CDI using more recent data to identify whether outcomes have improved.

Methods: We utilized the Nationwide Inpatient Sample, a database that collects discharge data from more than 7 million admissions annually from participating community hospitals. This data set represents 20 percent of the discharges from these hospitals. We identified patients hospitalized for the period 2007-2011. We restricted our analysis to patients aged 18 to 80, admitted under urgent or emergent conditions, with a diagnosis of ulcerative colitis with or without CDI, as indicated by ICD-9 coding. Rates of in-hospital mortality and colectomy were similarly ascertained. The study sample was weighted and analyzed using the Complex samples Module of SPSS 22.0.

Results: After weighting, 307,898 hospitalizations for UC were identified. Mean age was 51 ± 17.5 years; 53% female. There were 19,090 (6.2%) with concomitant CDI. The rate of colectomy in patients hospitalized with UC and CDI was 2.5%, compared with 0.6% in those without concomitant CDI (univariate odds ratio (OR) for colectomy 4.7, 95% CI=4.2-5.1). In multivariate logistic regression, when adjusting for age, race, and gender, the OR remained highly significant at 5.1 (95% CI=4.5-5.8, p<0.001). The mortality rate in patients hospitalized with UC and CDI was 10.3%, compared with 1.5% in those without CDI (univariate OR for death 7.4 (95% CI=7.0-7.8, p<0.001). In multivariate logistic regression, when correcting for age, race, and gender, the OR similarly remained highly significant at 7.1 (95% CI=6.7-7.6, p<0.001).

Conclusion: In this large, nationwide sample of patients hospitalized with ulcerative colitis, infection with CDI remains a highly significant independent risk factor for in-hospital mortality and colectomy. Our results are similar to previous reports indicating that there has been little change in outcomes despite advances in therapy for both diseases.

CTD-ILD: Outcomes and Factors during Acute Exacerbations of Lung Disease

Mukker S and Blum M

Introduction: Rheumatoid arthritis, scleroderma and other connective tissue diseases (CTD) are associated with interstitial lung disease (ILD). Elderly age, male sex, and CCP antibody are associated with increased risk for acute exacerbation of ILD. These risk factors are poorly characterized in US patient populations, prior studies are from Europe and Asia. Our objective was to describe outcomes of severe exacerbations of CTD-ILD in hospitalized patients and associated factors.

Methods: We performed a retrospective chart review of hospital admissions at a tertiary center from 1999 to 2012. Patients were identified by ICD-CM 9 code with a diagnosis of CTD and acute respiratory failure. We gathered data on demographics, CTD association, coexisting comorbid conditions, smoking status, presence of infection, pulmonary hypertension (PAH), right and left heart failure, and patient outcome after the exacerbation including death. We reviewed 115 charts.

Results: 40 patients met inclusion criteria. Of these, 31 were female and 9, male. RA (19), scleroderma (15) and Sjogren syndrome (3) were the most common CTDs. 50% of these patients had a smoking history and 25% were active smokers. 28/40 patients were treated with antibiotics and of these 28 patients, only 11 patients had positive cultures. 50% of patients had underlying pulmonary hypertension. 19 patients (50%) died during the acute exacerbation of their ILD.

Conclusion: CTD-ILD carries a high mortality rate during acute exacerbations. Smoking, female sex, lack of active infection and presence of PAH were associated with CTD-ILD exacerbations.

Short-Term Impact of Frequency of COPD Exacerbations on Quality of Life

Narewski ER, Voelker H, Nayeemuddin M, Aaron SD, Albert RK, Anthonisen NR, Casaburi R, Connett JE, Bailey WC, Cooper Jr, JA, Curtis JL, Dransfield MT, Han MK, Lazarus SC, Marchetti N, Make B, Martinez FJ, Niewoehner DE, Porsasz J, Reed R, Scharf SM, Sciruba FC, Sin DD, Washko GR, Woodruff PG, and Criner GJ for the COPD Clinical Research Network and the Canadian Institutes of Health Research

Rationale: Chronic Obstructive Pulmonary Disease (COPD) patients in the Simvastatin for the prevention of exacerbations in moderate-to-severe COPD (STATCOPE) and Azithromycin for prevention of exacerbations of COPD (MACRO) trials provide an excellent group in which to prospectively study the effect of Acute Exacerbations of COPD (AECOPD) over time on a population of patients with COPD. Based on previously published data, we hypothesized that those patients with frequent exacerbations (≥ 2 AECOPDs per patient year) would have a greater decline in quality of life (as measured by the St. George's Respiratory Questionnaire (SGRQ).)

Methods: 1,267 patients enrolled in either STATCOPE or MACRO who were followed for at least 180 days were analyzed. All patients had a diagnosis of COPD and signed consent for STATCOPE or MACRO. Patients who were randomized to Azithromycin in the MACRO trial were excluded. Patients were divided into two groups: Infrequent exacerbators (with < 2 exacerbations per patient year), and frequent exacerbators (with ≥ 2 exacerbations per year.) Demographics, medication use, and smoking history were measured at baseline. BMI, Spirometry, and SGRQ were measured over time. These factors were then compared between the groups.

Results: Of the patients studied, 909 (71.7%) were in the infrequent exacerbators group. 358 (28.3%) were in the frequent exacerbators group. Frequent exacerbators were more likely to be female ex-smokers and were on more respiratory medications than patients who did not have frequent exacerbations. Frequent exacerbators were more likely to have used oxygen, steroids, or antibiotics in the 12 months preceding study entry. At baseline, they also had more obstruction noted on spirometry and more severe symptoms as measured by the SGRQ. Over at least 180 days of follow-up, symptoms worsened more severely in frequent exacerbators. Change in BMI and spirometry over time were not significantly different between groups.

Conclusions: Patients with frequent exacerbations of COPD are more often female, are less likely to be current smokers, are on more COPD medications and prescribed O₂, and have more severe obstruction and worse respiratory symptoms and disease specific quality of life at baseline. These patients have a greater increase in SGRQ symptom and total scores over time when compared to patients without frequent exacerbations.

Short-Term Impact of Hospitalized vs Non-Hospitalized COPD Exacerbations on General and Disease-Specific Quality of Life

Narewski ER, Voelker H, Nayeemuddin M, Aaron SD, Albert RK, Anthonisen NR, Casaburi R, Connett JE, Bailey WC, Cooper, Jr JA, Curtis JL, Dransfield MT, Han MK, Lazarus SC, Marchetti N, Make B, Martinez FJ, Niewoehner DE, Porsasz J, Reed R, Scharf SM, Sciurba FC, Sin DD, Washko GR, Woodruff PG, and Criner GJ for the COPD Clinical Research Network and the Canadian Institutes of Health Research

Rationale: Chronic Obstructive Pulmonary Disease (COPD) patients in the Simvastatin for the prevention of exacerbations in moderate-to-severe COPD (STATCOPE) and Azithromycin for prevention of exacerbations of COPD (MACRO) trials provide an excellent group in which to study the effect of Acute Exacerbations of COPD (AECOPD) over time on a population of patients with COPD. We hypothesized that patients with hospitalized exacerbations would have a greater decline in quality of life (as measured by the St. George's Respiratory Questionnaire (SGRQ) and functional status (as measured by the Short Form-36 (SF-36)) as compared to those with non-hospitalized acute exacerbations.

Methods: 874 patients enrolled in either STATCOPE or MACRO who were followed for at least 180 days and who had at least one exacerbation were analyzed. All patients had a diagnosis of COPD and signed consent for STATCOPE or MACRO. MACRO patients who were randomized to azithromycin were excluded. Patients were grouped into those with AECOPD who had at least one hospitalized exacerbation and those with AECOPD who did not have a hospitalized exacerbation. Demographic information, spirometry, and symptom scores were noted at baseline. Changes in functional and disease specific quality of life scores were then assessed.

Results: Of the patients studied, 317 (36.3%) were in the hospitalized exacerbation group. This group was similar to patients in non-hospitalized exacerbation group, except that admitted patients were more likely to be male and were followed for a longer period. African American patients were more likely to have inpatient exacerbations, as were patients using more oxygen, respiratory medications, steroids, and antibiotics. Patients with hospitalized exacerbations had worse obstruction, more symptoms, and more impaired functional status and disease specific quality of life at baseline. There was also a trend towards lower BMI in this group. Both groups were followed for an average of over 500 days. On follow-up exam of functional status using the SF-36, there was a trend towards a more rapid decline in functional status and an improvement in SGRQ in the hospitalized compared to non-hospitalized exacerbation groups.

Conclusions: Patients with hospitalized compared to non-hospitalized COPD exacerbations are more likely to be male, African American, and have more severe obstruction, more medication and oxygen use, worse symptoms and more impaired functional status at baseline. Hospitalized patients tend to have a worsening of functional symptom scores but conversely an improvement in disease specific quality of life scores following hospitalization when compared to patients with outpatient exacerbations.

Physiologic Differences in COPD Patients with Mild-Moderate Hypoxemia at Rest +/- Exertion vs. Those Normoxemic at Rest Who Desaturate Only with Exertion

Narewski ER, Furuya Y, Dass C, Rittinger M, Diaz P, Ali M, and Criner GJ for the Long-Term Oxygen Treatment Trial (LOTT) Research Group

Rationale: COPD patients enrolling in the NHLBI Long-term Oxygen Treatment Trial (LOTT) have either mild-moderate hypoxemia at rest +/- with exertion or normoxemia at rest and desaturate only with exertion. We hypothesized that patients with mild-moderate hypoxemia at rest +/- exertion would have different echocardiographic and computed tomography findings compared to those normoxemic at rest who desaturate only with exertion.

Methods: 110 patients from two LOTT sites were included in the analysis. All patients had a diagnosis of COPD, signed informed consent for LOTT, and had either resting oxygen saturation between 89-93% at rest or resting oxygen saturation \geq 94% at rest and between 80-90% for at least 10 seconds during 6 minute walk (6MW) test. Data collected as part of the LOTT trial and additional data present in the medical records at their enrolling institution including lung volumes, diffusion capacity (DLCO), and echocardiographic and Computed Tomography (CT) findings, were gathered for the analysis.

Results: Of the 110 patients studied 55 (50%) had mild-moderate hypoxemia at rest +/- with exertion. 55 patients (50%) had hypoxemia present on exertion only. Our exploratory analysis of the data did not support our main hypothesis that the three echocardiographic parameters and two CT parameters would discriminate patients with differering levels of hypoxia ($P > 0.05$ for each.) We did observe greater emphysema in the hypoxia at rest +/- exertion group compared to the hypoxemia on exertion only group ($P = 0.075$), but this relationship was not statistically significant. We explored 28 variables in relation to the type of hypoxemia and found, without adjustments for multiple comparisons, that only one variable, current smoking, was significantly different between groups ($P = 0.036$).

Conclusions: Patients with hypoxemia at rest were more likely to be current smokers and trended towards higher BMI when compared to patients with hypoxemia only on exertion. Patients with hypoxemia only on exertion trended towards more severe obstruction and more emphysema compared to those with hypoxemia at rest +/- exertion. The patterns of oxygen desaturation at rest and with exertion may be useful in identifying important clinical phenotypes of COPD.

**Acute Gallstone Pancreatitis and Early Cholecystectomy
during Index Hospitalization**

Sankineni A, Freidenberg F, Sharzehi K

Background: Cholecystectomy at index hospitalization for acute gallstone pancreatitis is recommended to prevent morbidity, mortality and costs related to recurrent pancreatitis. The aim of this study was to characterize patients with acute gallstone pancreatitis undergoing cholecystectomy and endoscopic retrograde cholangiopancreatography (ERCP) during index hospitalization in the US.

Methods: Discharge data was aggregated from the Healthcare cost and Utilization Project Nationwide Inpatient Sample (NIS) database for the years 2007-2011. ICD-9 codes were used to identify adult patients (>18 yo) discharged with a clinical diagnosis of acute pancreatitis and cholelithiasis. We excluded patients with a diagnosis of alcohol abuse.

Results: Of 2,160,013 weighted patients with acute pancreatitis, 526,016 (24.4%) had gallstone-related pancreatitis (females: 61.5%; Age: 56.8 ± 20.4 , 55.1% Whites, 15.2% Hispanics, 8.7% African American (AA)). The rate of cholecystectomy was 54.5%. The cholecystectomy rate was highest among Hispanics (61%) and lowest in AA (49.4%). Cholecystectomy group had significantly more females (57.1% vs. 50.2%; $p<.0001$) and younger patients (54.06 ± 20.1 vs. 60.16 ± 20.2 ; $p.0001$) when compared to non-cholecystectomy group.

142282 (27%) of the patients with a diagnosis of acute gallstone pancreatitis underwent ERCP. ERCP vs. non-ERCP patients had a similar cholecystectomy rate (55.9% vs. 53.9%). Patients undergoing ERCP with sphincterotomy had higher cholecystectomy rate (56.5% vs. 49.2%, $p<.0001$) while those who underwent biliary stent placement had lower cholecystectomy rate (46.8% vs. 58.7%; $p<.0001$). 209160 (39.8%) of the patients with acute gallstone pancreatitis had a concomitant diagnosis of choledocholithiasis. In this subgroup, 55% of the patients underwent ERCP and the ERCP group had significantly higher cholecystectomy rate (53.2% vs. 43.4%; $p<.0001$). Binary logistic regression was performed to identify independent variables associated with cholecystectomy. Results are shown in table.

Conclusion: Cholecystectomy rates at index hospitalization continue to be low among patients with acute gallstone pancreatitis. Factors related to low cholecystectomy rates include male gender, older age, African American race, and ERCP with placement of biliary stent. ERCP with sphincterotomy is associated with higher cholecystectomy rate.

Ceftaroline in the Treatment of Methicillin-resistant *Staphylococcus aureus* (MRSA) Bloodstream Infections

Schultz SK, Li SK and Gallagher JC

Background: Methicillin-resistant *Staphylococcus aureus* (MRSA) bloodstream infections (BSIs) are complicated and have limited treatment options. Ceftaroline, a novel cephalosporin with anti-MRSA activity, has limited published data for MRSA BSIs, thus we sought to describe our experience with this indication.

Methods: This was a retrospective case series of patients who received ceftaroline for treatment of MRSA BSI at Temple University Hospital. Patients were identified by pharmacy records and included if they received at least 24 hours of therapy with ceftaroline and had a blood culture positive for MRSA. The primary outcome was clinical success, defined as a composite of 30-day survival and clearance of MRSA from blood cultures on antimicrobial therapy. The secondary outcome was microbiological cure defined as clearance of MRSA from blood cultures on ceftaroline.

Results: 34 patients who received greater than 24 hours of ceftaroline administration were identified. 19 patients were excluded for indications other than MRSA BSI. The median duration of bacteremia was 8 days (range 1-45 days). Patients had a median of 10 days of MRSA-active drugs (range 1-74 days) prior to initiation of ceftaroline with a median of 1 (range 1-3) antibiotic administered prior to ceftaroline. Of 15 patients included, 12 (80%) achieved clinical success. All 15 patients achieved microbiological cure. When switched to ceftaroline, patients had a median of 0 days (range 0-4) of bacteremia. All patients had clearance of their BSI within 96 hours.

Conclusion: Ceftaroline was an effective therapy for MRSA BSIs in our treatment-experienced population.

Rare Presentation of Virilizing Adrenal Adenoma: Not All Large Androgen Secreting Tumors are Malignant

Sharda P and Anolik J

Introduction: Adrenocortical carcinomas (ACC) account for <5% of adrenal tumors and its prevalence depends on tumor size, accounting for 25% of lesions ≥ 6 cm. About 65% ACC's present with virilization and hypercortisolism features. Virilizing adrenal adenomas (VAA) are very rare with only 34 cases described in literature.

Case Presentation: A 39 year-old woman presented with increased body hair, worsening acne, deepening voice and menstrual irregularities for 10 months. Coarse terminal hair on face, chest, abdomen was confirmed. Laboratory diagnostics revealed elevated DHEA-S 602 ug/dL, total-testosterone 562ng/dl, free-testosterone 55.1pg/ml, 17-hydroxyprogesterone 287 ng/dl and androstenedione 2077 ng/dl. 24-hour urine cortisol = 45.3 mcg/24hr and ACTH = < 5 pg/ml.

MRI abdomen showed 7cm left adrenal mass with non-benign characteristics. Patient underwent robotic left total adrenalectomy and was discharged on maintenance steroids given suppressed ACTH pre-operatively. Surprisingly, final pathology showed 98g, 8.9cm adrenal cortical neoplasm consistent with adrenal cortical adenoma.

On follow-up, labs showed androstenedione 38 ng/dl, DHEA-S <15 ug/dl, total-testosterone <20ng/dl and cortisol 1.9 ug/dl.

Discussion: VAA's estimated incidence 1 per 1.7 million, average 4 cm in diameter and present commonly in middle-aged women. There is usually marked hirsutism and duration of symptoms range between months to years. It is difficult to differentiate adenoma from carcinoma on the basis of clinical and laboratory information. Post-operatively, generally hirsutism decreases, menstrual cycle normalizes and elevated androgen levels return to normal.

Conclusions: Not all large virilizing adrenal tumors are malignant but must be approached as if they are. Careful follow-up is recommended in patients with VAA.

Studies on the Molecular Basis of Platelet Function: Regulation of Phosphatidylcholine Transfer Protein (*PCTP*) by Transcription Factor *RUNX1*

Songdej N, Mao G, Rao AK

Platelets are vital in both hemostasis and thrombosis but the molecular-genetic basis of platelet function disorders is unknown in most patients. Our laboratory has shown that the hematopoietic transcription factor *RUNX1* regulates numerous genes important in platelet function, including *MYL9*, *PF4*, *PRCKQ*, and *ALOX12*. We also demonstrated through platelet mRNA profiling of a patient with heterozygous *RUNX1* mutation that the phosphatidylcholine transfer protein (*PCTP*) gene is significantly downregulated (fold change ratio 0.09). *PCTP* is important because it regulates arachidonic acid release, the substrate for formation of thromboxane A₂ and other important mediators. Differential platelet *PCTP* expression has recently been associated with racial differences in platelet activation, which is linked to atherosclerotic heart disease (Nature 2013;19:1609). Little is known regarding the mechanisms by which platelet *PCTP* is regulated. We pursued the hypothesis that *PCTP* is regulated at the transcriptional level by *RUNX1*. We demonstrate that *PCTP* is expressed at the RNA and protein level in megakaryocytic cells (PMA-treated human erythroid leukemia (HEL) cells) and platelets. With *RUNX1* overexpression in megakaryocytic cells, *PCTP* protein expression is increased. Conversely, *RUNX1* knockdown results in reduced *PCTP* expression. This suggests regulation of *PCTP* by *RUNX1*. We now expect to demonstrate *PCTP* is a direct target of *RUNX1*. The *PCTP* promoter region has 7 consensus *RUNX1* binding sites (up to 1000 bp) and studies using ChIP and EMSA are in progress. These studies will provide insights into regulation of *PCTP* and may be relevant to both bleeding and arterial thrombotic disorders where platelets play a role.

**Severe Primary Hyperparathyroidism with
Cystic Parathyroid Gland**

Vasudevan S and Vaz C

Case description: 34 y/o F presented with 1 mo h/o of headache, polyuria and polydipsia. She had a palpable R thyroid nodule. Ca 13.3 mg/dl, albumin 3.9 g/dl, corr Ca 13.4, P 1.2 mg/dl, Alkp 127 U/L, Cr 0.69. PTH 314 pg/ml, 25 OH vit D 21 ng/ml. She was treated with IVF, IV furosemide and IV pamidronate for hypercalcemia from primary hyperparathyroidism (PHPT). US neck showed R mid thyroid cystic nodule 2.1x1.6x1.6 cm and mixed echogenic nodule in R inf thyroid 2.1 x 1.7 x 1.9 cm, with several hypoechoic areas suggesting cystic changes. Sestamibi scan showed focus of increased activity in R inferior thyroid. She underwent FNA and PTH from needle washout was 900 and 3 pg/ml for inferior and mid nodules respectively. She underwent R hemi-thyroidectomy with parathyroid gland removal avoiding cyst rupture. Pathology showed nodular goiter and hyperplastic parathyroid without atypical features. PTH postop day 1 was 13.

Discussion: Parathyroid adenoma normally appears as well defined, homogenous, hypoechoic, oval lesion on US typically posterior to thyroid. Cystic parathyroid lesions (CPL) are very rare and only 300 cases are reported. In the largest published series of patients undergoing parathyroidectomy for PHPT, CPL was found in 3%. CPL are functional or non-functional parathyroid cysts and can be differentiated by PTH from FNA. Functional parathyroid cysts are often due to cystic degeneration of an adenoma and rarely hyperplasia, as was in our case. Care should be taken not to rupture CPL's during surgery to facilitate complete resection and avoid parathyromatosis.

Molecular Profiling of Neuroendocrine Tumors (NETs): The Fox Chase Cancer Center Experience

Vijayvergia N, Boland P, Gustafson KS, Cooper H, Sheriff F, Cohen SJ, Astsaturov I, Engstrom PF

Background: The rarity of NETs can limit clinical trial accrual to develop new therapies. Given fewer approved treatments, a better understanding of underlying biology is critical to development of and assignment of patients (pts) to clinical trials.

Methods: Patients with NETs at FCCC were enrolled onto a prospective IRB approved protocol that utilized an NGS platform to detect somatic mutations (SM) in 50 cancer-related genes on archived tissue. Genes tested include *ABL1, AKT1, ALK, APC, ATM, BRAF, CDH1, CDKN2A, CSF1R, CTNNB1, EGFR, ERBB2, ERBB4, EZH2, FBXW7, FGFR1, FGFR2, FGFR3, FLT3, GNA11, GNAQ, GNAS, HNF1A, HRAS, IDH1, IDH2, JAK2, JAK3, KDR, KIT, KRAS, MET, MLH1, MPL, NOTCH1, NPM1, NRAS, PDGFRA, PIK3CA, PTEN, PTPN11, RB1, RET, SMAD4, SMARCB1, SMO, SRC, STK11, TP53* and *VHL*.

Results: Forty-eight patients (median age 59, males 46%) were enrolled from 10/2013-10/2014. Gene profiling results are available on 44 and Ki-67 on 42 patients. 9 (20%), 11 (25%) and 24 (55%) patients had high-grade neuroendocrine carcinoma (HG), pancreatic NETs (PNET) and carcinoid, respectively. Eighteen (41%) pts were found to have SMs and 26 (59%) did not, with 5 (11%) pts' tumors having >1 SMs (3 HG and 2 PNETs). Incidence of SM was 25% (6/24) in carcinoids, 38% (4/11) in PNETs and 88% (8/9) in the HG NETs. Among HG carcinomas, TP53 (30%), BRAF (18%), KRAS (12%) and PIK3CA (12%) mutations were seen frequently.

Conclusion: SMs are seen in a minority of carcinoids but are common in HG tumors. Apart from TP53, KRAS, BRAF and PIK3CA mutations are also seen frequently in HG carcinomas and PNETs. These findings generate basis for targeted therapies for NETs. Analysis of clinical outcomes based on treatment received is ongoing to assess their prognostic/therapeutic implications.

Multiple Relative Contraindications Do Not Predict Outcomes in Lung Transplantation

Weir M, Cordova F, Zhao H, Dominguez E, Patel N, Shiose A, Toyoda Y, Criner GJ

Introduction: The ISHLT 2014 consensus statement provides guidance on patient selection and relative contraindications to lung transplantation. Individual relative contraindications to lung transplant have been shown to have negative effects on outcomes.

Aim: Ascertain the affect of multiple relative contraindications on lung transplant outcomes.

Methods: We performed a retrospective review of the lung transplant patients at Temple University Hospital 2010 – 2014. We assessed the presence of relative contraindications to lung transplant, grouping the patients into 0, 1, 2 & ≥ 3 relative contraindications. The primary outcome to be assessed was survival, secondary outcomes; ventilator dependent respiratory failure, length of stay and hospital days at 1 year.

Results: During the period 2010-14 there were 113 lung transplants. We found no difference in outcomes when comparing 0, 1, 2 & ≥ 3 relative contraindications to transplantation in terms of survival ($p=0.57$), ventilator days post –operatively ($p=0.43$), length of hospital stay ($p=0.8$) and days out of hospital in the 1st year ($p=0.4$). The groups were markedly different with a progressive increase in age and LAS as the number of contraindications increased.

Conclusions: In our study multiple relative contraindications did not have an additive effect in predicting adverse outcomes in lung transplantation. The results have to be interpreted with caution due to the small number of patients and the inherent selection bias of the cohort. However, it suggests relative contraindications should be taken into account but should not preclude transplantation. More research is needed to help identify patients unlikely to benefit from transplantation.

Experiences and Challenges in Establishing a Collaborative Endocrinology & Diabetes Fellowship Training Program in Ethiopia

Siraj ES, Reja A, Kebede T, Yifter H, Ahmed A

Background: Chronic medical conditions such as diabetes are on the rise in Africa posing a challenge to the health care system. Coupled with the rapid economic growth, these factors are creating a demand for specialist physicians.

Experiences & Challenges: Addis Ababa University (AAU) started an Endocrine Fellowship training program in 2012 in collaboration with external supporters from North America (NA) and Europe, with an annual intake of 2 fellows.

Since the start, about 7 external supporters made 8 trips to teach the fellows. One of the fellows spent weeks at a US Endocrine Fellowship program and the 2nd fellow did the same at a Canadian program. Despite some shortcomings of the program, the fellows have turned out to be capable and knowledgeable and are on their way to become independent Endocrinologists.

Some of the challenges observed include:

- There are only 3 Endocrinologists on site who carry lots of other duties limiting their available time to train the fellows.
- Obtaining funds to arrange for the fellows to travel to NA and Europe was not easy.
- The sustainability of the program over the long term will need a lot of work.

Conclusion: Collaborative programs can be a good way to jumpstart a specialist training program in a resource poor country but long term sustainability will need incorporation of those efforts into the existing plans of the country in line with the country's emerging priorities as well as ongoing expansion of medical services and medical education.

**Improving Communication between Mental Health Providers and
Primary Care Physicians**

Arasu S, Salieb L and Desai J

Many patients in Philadelphia suffer from mental illness. However, mental health disorders are rarely addressed during a primary care visit due to lack of information regarding their psychiatric providers and diagnoses.

AIMS: 1) Identify psychiatric diagnoses in clinic patients 2) Obtain information regarding the name of their psychiatrist, diagnosis and medication list.

Methods: This was a retrospective review of clinic patients. A mental health information release form was created to obtain information from the psychiatrist. The medical release form was given to each patient during a clinic visit for 5 consecutive weeks and each patient was asked to fill out the form and return it to the medical provider. Each primary physician faxed collected forms to the psychiatric office. The following 3 weeks were dedicated to identifying patients for whom information was obtained.

Results: Our clinic group sees approximately 400 patients and we identified 25 patients (6.3%) who have been given a psychiatric diagnosis. Of the 25 patients (19 F and 6 M), information was obtained from 6 patients (24%) about their diagnosis and medications. The average age of the patient with a psychiatric illness was 49.12 years, SD 12.7.

Discussion: When a patient sees a psychiatrist in the outside community, they are given a diagnosis and medications. However, documentation is rarely transferred to the primary medical provider. Our study suggests that despite implementing a model to obtain psychiatric information, this is still a difficult task. We see a large number of patients, but only 6.3% of patients could be identified as having a psychiatric diagnosis and only 23.5% of those patients had documentation sent by their psychiatric provider.

Patient Related Factors (Patient Activation and Health Locus of Control) in Patients with Refractory Symptoms of Gastroparesis

Arasu S, Homko CJ, Parkman HP

Treatment of gastroparesis (GP) often requires long-term adherence to dietary modifications and medications.

AIMS: 1) Compare health locus of control (HLOC) and patient activation in patients with diabetic (DG) and idiopathic (IG) gastroparesis; 2) Compare HLOC and patient activation measure in patients with delayed gastric emptying to patients with similar symptoms but normal gastric emptying.

Methods: This prospective study evaluated patients from June 2014 to October 2014 referred for refractory symptoms of gastroparesis. Patients completed the Patient Assessment of Upper GI Symptoms, Multidimensional Health Locus of Control, and Patient Activation Measure questionnaires. MHLOC measures three localizations of health control: “internality,” “chance externality,” and “powerful others externality.”

Results: 40 patients with refractory gastroparesis symptoms were evaluated. Of the 31 patients with delayed GES, 8 were diabetic and 19 idiopathic. Patient activation scores were similar between normal GES vs delayed GES (61.1 ± 14.9 [SD] vs 57.9 ± 12.1) and DG vs IG (58.6 ± 12.7 vs 58.4 ± 12). These activation scores translate to patient’s beginning to take action to self-manage their own disease (Level 3). When evaluating localization of health control, “powerful others externality” was higher in patients with delayed GES compared to normal emptying (3.4 ± 0.9 vs 2.9 ± 0.7 ; $p=0.16$) and DG compared to IG (3.9 ± 0.9 vs 3.2 ± 0.9 ; $p=0.11$).

Discussion: Our study suggests that patients with delayed gastric emptying tend to have higher scores for “powerful others externality” compared to patients with normal gastric emptying. Within the subset of GP, patients with DG had higher scores for “powerful others externality”. These results suggest a reliance of patients with gastroparesis, especially diabetic patients, on “powerful others” (including physicians), rather than themselves.

**The Natural History of Bleeding and Mortality from
Gastric Varices in an Urban Population**

Baik D, Langworthy J, Barry J, Chang P, Al-Osaimi AMS

Background: Gastric varices (GV) are a significant cause of upper gastrointestinal bleeding in patients with portal hypertension. Although the incidence of bleeding from GV is lower, they are associated with more severe bleeding and a higher mortality. We aimed to investigate the natural history of GV in an urban population.

Methods: We conducted a retrospective chart review of patients presenting to our institution from 2011-2013. The study population included any patients who had confirmed GV during endoscopy. We then located their initial endoscopy in which GV were first discovered and recorded their natural progression to date. We noted initial labs at presentation, time to bleed, source of bleeds, and other demographic characteristics.

Results: Sixty patients met the study criteria. GOV-2 was the most common gastric varix (48%), with GOV-1 (32%) and IGV-1 (22%) following. Thirty-five percent of these patients developed bleeding from GV, and another 10% bled from both GV and EV simultaneously. Of the different types of GV, patients with GOV-2 were most likely to have a GV bleed at 45%, while 32% and 23% of patients with GOV-1 and IGV-1 had GV bleeding, respectively. Overall mortality was 30% in these patients. In a multivariate regression analysis, diabetes ($p=0.04$) and MELD score ($p=0.001$) were independent predictors of mortality.

Conclusions: The presence of gastric varices continues to convey a high mortality and bleeding risk. Our data suggests that fundal varices (GOV-2 and IGV-1) are the most frequently encountered, accounting for 70% of all GV. GOV-2 was also the most likely to bleed. Due to the high mortality and bleeding risk of GV, these patients deserve close monitoring and follow-up.

Abdominal Diameter Index is a Stronger Predictor of Barrett's Esophagus than BMI or Waist-to-Hip Ratio

Baik D, Schlaffer K, FriedenberG FK, Smith MS, Ehrlich AC

Background: Abdominal obesity is associated with gastroesophageal reflux disease (GERD) and, subsequently, Barrett's esophagus (BE). Body mass index (BMI), waist circumference, and waist-to-hip ratio (WHR) have all been reported to be associated with BE. Abdominal diameter index (ADI, sagittal abdominal diameter divided by thigh circumference) was previously shown to be a more powerful predictor of incident cardiovascular disease. Our aim was to examine if increased ADI was associated with the prevalence of BE and compare this measurement to others.

Methods: We conducted a case-control study of patients presenting to the Temple from 2013-2014. Our study population was Caucasian men with a known history of BE. We recruited control patients who did not have evidence of BE. Subjects all completed a questionnaire about demographics, smoking status, and medication use and underwent a series of body measurements.

Results: A total of 31 BE patients and 42 control patients were recruited. By design, all were Caucasian men. The BE cohort were older (mean age 62.5 vs. 53.2, $p=0.009$) and had a higher rate of hiatal hernia (74.2% vs. 19.0%, $p<0.001$) and proton pump inhibitor use (90.3% vs. 69.0%, $p=0.03$). In univariate analysis, ADI in the upper half of values ($ADI>0.60$) conferred an increased risk of BE (OR=3.8, 95% CI=1.42-10.10). When controlling for confounders and BMI, upper half of ADI remained a significant independent risk factor for BE (OR=3.0, 95% CI=1.07-8.55). Of note, the predictive value of ADI was analyzed using a receiver-operator curve (ROC) and was a more powerful predictor of BE than WHR and BMI (AUROC=0.724 vs. 0.599 vs. 0.518, respectively).

Conclusion: Abdominal diameter index appears to be a more powerful predictor of the presence of BE than BMI and WHR. This may represent that ADI is more highly associated with central obesity.

A Classic Case of Miliary... Cryptococcus?

Baumgarten D, Gutierrez C, Moyer DV, Criner GJ

Introduction: Cryptococcal infections are among the most common opportunistic infections found in patients with AIDS. The most common manifestation of cryptococcal disease is meningoencephalitis but pulmonary and disseminated disease are not uncommon. Pulmonary Cryptococcus has varied radiographic appearances including diffuse bilateral interstitial infiltrates, isolated lobar infiltrates and cavitary lesions. Very few cases have been reported of a miliary appearance on imaging.

Case Description: A 55 year-old male with HIV/AIDS and CD4 count <20 presented with one day of shortness of breath and cough. The patient was lethargic, unable to provide detailed history. Exam was only notable for reduced respiratory effort. Initial imaging demonstrated a diffuse, miliary, nodular pattern prompting empiric treatment for miliary tuberculosis. Due to the patient's lethargy and immunocompromise, a serum cryptococcal antigen was ordered and returned positive. Subsequently, CSF, bronchoalveolar lavage fluid and blood cultures all grew Cryptococcus Neoformans. AFB cultures of sputum, BAL fluid, blood and CSF all failed to grow M. tuberculosis. A transbronchial biopsy was also performed showing fungal elements but no evidence of tuberculosis infection. Due to persistently positive cultures, the patient required treatment with flucytosine and liposomal amphotericin prior to clinical improvement.

Discussion: A miliary, nodular pattern on lung imaging is classically associated with Mycobacterium Tuberculosis. However, this patient's workup presents strong evidence that Cryptococcus was indeed the causative organism for his presentation. This case demonstrates the importance of a broad differential diagnosis and avoiding presumptive diagnoses, especially in immunocompromised patients.

Induction Therapy Prior to Heart Transplantation Leads to Freedom from Antibody-Mediated Rejection without Increasing Infection

Brailovsky Y, Oliveros E, Rakita V, Lakhter V, Zhao H, Schwartz D, Shiose A, Toyoda Y, Alvarez R, Bove A, Hamad E

Introduction: Induction therapy in heart transplant patients remains a controversial topic in the contemporary approach to immunosuppressive therapy.

Methods: We retrospectively analyzed 53 consecutive patients who underwent heart transplantation at our institution between January 2008 and August 2014. Patients were classified as either having received induction therapy with Basiliximab (Campath) or Alemtuzumab (Simulect) versus no induction. Patients undergoing simultaneous heart and lung transplantation were excluded. The rates of antibody-mediated rejection (AMR), acute cellular rejection (ACR), serious infection and overall survival were compared between the three groups. ACR was defined as 2R and above. We used Pearson's Chi square analysis to compare categorical variables and an independent samples T-test for continuous variables. Kaplan Meier curves were constructed for time to first antibody mediated rejection.

Results: Sixteen patients (30%) received no induction, 6 patients (11%) received Campath and 31 patients (58%) received Simulect. There were no significant differences in the baseline demographic characteristics of the patient population. The six year mortality rate was similar between the induction group and the non-induction group, with 6/37 patients (16.2%) and 4/16 patients (25%), respectively ($p = 0.45$). Induction with Campath was associated with less cases of AMR per patient as compared to Simulect and no induction (0 vs 0.2 vs 1.07 cases per patient, respectively, $p=0.019$) Figure 1. There were no differences in the number of ACR (1.1 versus 0.87 events per patient, $p = 0.48$). The rate of serious infection was also similar in two groups at 1 year (1.3 vs 1.5 cases per patient, $p=0.64$).

Conclusions: Induction therapy prior to heart transplantation leads to freedom from antibody-mediated rejection without increasing rate of serious infection. Furthermore, induction with Campath offered the greatest protection from AMR. Overall survival did not differ significantly between groups.

Baseline and Serial Examination of the RVOT Doppler Flow Profile Predicts the Degree of Pulmonary Vascular Obstruction Pre and Post Thrombolysis in Acute Submassive PE

Brailovsky Y, Raza F, Lakhter V, Oliveros E, Simpson S, Dass C, Aggarwal V, Bashir R, Forfia P

Background: Analysis of the right ventricular (RV) outflow tract Doppler flow profile (RVOT_{Doppler}) has been shown to provide important insight into the relationship between RV function and pulmonary arterial load. We hypothesized that baseline and serial examination of the RVOT_{Doppler} profile would serve as an index of the degree of pulmonary arterial obstruction pre and post thrombolysis in acute submassive PE.

Methods: We retrospectively examined the echocardiographic-Doppler data of 13 consecutive patients with acute Submassive PE undergoing ultrasound assisted (EKOS) catheter directed thrombolysis (CDT). Echo-Doppler data was collected pre-CDT and within 24 hours of completion of CDT. CT obstruction score was calculated using Mastora index pre-CDT and within 72 hours post CDT.

Results: The mean obstruction score pre CDT was 84.3±23. In keeping with moderate to severe pulmonary vascular obstruction, the baseline RVOT_{Doppler} profile showed evidence of markedly increased afterload, with RVOT_{Doppler} 'notching' in 12 of 13 subjects and an acceleration time of 69.4±11.5 ms. The RVOT velocity time integral (surrogate of RV stroke volume) was reduced at 9.8±2.3 cm, consistent with at least moderate RV dysfunction. In response to CDT, the CT obstruction score decreased by 44% (46.7 ±15.5); p<0.01). RVOT_{Doppler} notching resolved in 8 of the 13 subjects and the acceleration time increased to 94.4±13.7 ms (p=0.005). The RVOT_{Doppler} VTI improved to 12.5±3.5 cm (p=0.007). There were two patients who did not have improvement in CT obstruction score or RV:LV ratio. Respectively the VTI, Acceleration time and RVOT Notching did not improve significantly either.

Conclusion: In patients with acute submassive PE, RVOT_{Doppler} profile analysis provided insight into the degree of pulmonary vascular obstruction pre CDT. Following CDT, changes in the RVOT_{Doppler} profile indicative of improved RV afterload and function served as a powerful index of improved pulmonary vascular obstruction by CT angiography.

Acute Tricuspid Valve Regurgitation Caused by Severe Blunt Chest Trauma

DeStephan CM, Al Maluli H and Alvarez R

19 year old man struck a vehicle while riding a motorcycle and sustained severe injuries: bilateral posterior rib fractures, femoral fracture, right wrist dislocation, right thumb fracture, traumatic pneumatocele and a grade 2 liver laceration. He had no medical history and no medications. Vital signs: Pulse 110 BP 123/80, respiratory rate 27, O₂ sat 100% on room air. Patient was in neck collar, slightly tachypneic, in no acute distress, with decreased breath sounds right lower lobe, tenderness to palpation left chest wall over cardiac area. Cardiac exam revealed tachycardia, regular, positive RV heave, grade 3/6 holosystolic murmur heard best at the left sternal border that increased with inspiration and did not radiate to axilla or carotids. JVP noted at 9 cm and venous wave at 12 cm. Abdominal exam revealed no masses or tenderness, unable to assess pulsatile liver due to pain. Laboratory studies revealed CTNI 2.7 to 6.32 (peak) to 3.52. Cardiology were consulted pre-operatively by Orthopedic Surgery for new murmur and elevated CTNI. Bedside echocardiography revealed normal LV global movement, hyperdynamic without RV dilation. Patient went to the OR for emergent tricuspid valve repair or replacement. Intra-operative atriotomy revealed a large piece of avulsed papillary muscle with attached RV free wall tangled with the chordae tendineae. Due to significant damage to RV wall, valve replaced with 33 mm bioprosthetic valve. Surgery proceeded without complication and patient doing well at follow-up visit.

Discussion: Traumatic tricuspid insufficiency resulting most often from blunt cardiac trauma has many and various clinical presentations and most often results in valve replacement. Interestingly, in this case the patient presented very early after trauma and intervention was swiftly accomplished, however the majority of reported cases have presented years, even decades after presumed trauma.

**Psychosocial Risk Assessment in Patients Receiving Ventricular Assist Devices
Does not Correlate with Outcomes**

**Freid L, Oliveros E, Schwartz D, Toyoda Y, Shiose A,
Bove A, Alvarez R, Hamad E**

Background: Criteria to optimize patient selection and improve outcomes are published in patients receiving ventricular assist device (VAD). There are no specific psychosocial guidelines to help identify the appropriate VAD patient to maximize outcomes; therefore, we seek to determine how socioeconomic and psychosocial factors impact this population.

Methods: Retrospective electronic chart review of 78 patients who received VAD Support from 2009 to 2015. Demographic characteristics, insurance type, income, education, psychosocial risks and marital status were identified. The rates of mortality, VAD related infection, and readmissions were compared. Pearson's Chi square, T-test, and Kaplan-Meier curves were done. Patients were risk-assessed by a social-work team prior to surgery and were given low, intermediate or high-risk scores.

Results: The population consisted of 56(70%) males. The population consisted of 32(40%) white and 35(43.8%) black. Ten (12.5%) had less than high school education, 24(30%) high school equivalent education and 14 (17.5%) higher education. The insurance type was as follows 4 (5%) uninsured, 32 (40%) Medicare, 6 (7.5%) Medicaid and 30(37.5%) private insurance. Among the population, 50% had diabetes, 61 (76.3%) hypertension, 43 (53.8%) renal disease and 46 (57.5%) known coronary artery disease. All the socioeconomic factors examined and the psychosocial risk score showed no overall effect over survival, infection or re-admission rate.

Conclusion: Income, Education, Psychosocial Risk and insurance type had no effect on outcomes in patients with VADs. The appropriate level of social support, education, cognition and other psychosocial aspects that effect outcomes and survival in this patient population needs to be better defined.

**Prevalence and Characterization of Sleep Disorders in HIV Positive Adult Patients
Attending to the Temple HIV Clinic**

Gutierrez J, Kotagal T, Tedaldi E, Jaffe F

Sleep disorders are more prevalent in the HIV patients than in the general population (30-100% vs 20%-30%). Nevertheless, data regarding the characteristics of the sleep disorders in the HIV population as well as other contributing factors and co-morbid conditions is scattered. Sleep disturbances in HIV have been associated with worse disease progression; lower CD4 counts and psychiatric disorders. The goal of this descriptive study was to evaluate the prevalence and characteristics of self reported sleep disorders in our HIV patient population via a battery of validated questionnaires to assess prevalence of insomnia and characteristics, sleep hygiene, probability of obstructive sleep apnea (OSA) and depression.

The preliminary data from the surveys (n=67) is presented here. 64% of the participants were females and 36% males. More than 55% of the patients reported sleep disturbances. 59.7% of the patients were diagnosed with Insomnia disorder based on the Insomnia symptoms questionnaire criteria. Poor sleep hygiene (given by consumption of ≥ 2 caffeinated or alcoholic beverages/day, use of nicotine or drugs, and sleeping with TV/lights on) was observed in the majority of respondents. STOPBANG scores showed that 58% of the patients had moderate to high probability of moderate/severe OSA. 40% of the patients had elevated scores on the PHQ-9 questionnaire suggesting moderate to severe depression. Sleep disorders in HIV population are complex and multifactorial. Adequate evaluation of the type of sleep disorder and co-morbid conditions is necessary to implement effective treatments.

Analysis of Patient's Referrals from the Outpatient Internal Medicine Clinic (MGP) to the TUH-ED during a 4 Month Period

Gutierrez J, Bhuta R, Lane A, Sheng J, Yoon J, Tu J, Manoushagian S, Vangala C, Kim I, DeStephan C, Blum M

Transitions of care are extremely important. Since the relocation of the Medicine Group Practice (MGP) transportation of patients to the emergency department (ED) has been affected. The goal of this project was to study the transfer process and outcomes for patients between the MGP-TUH ED. During a 4 month period, 32 patient referrals were recorded (~8 referrals/month) and subsequent data were extracted from each patient's ED encounter file. Direct communication via telephone between MGP and ED physicians was documented in 29 of the referrals (90.63%). Of the patients referred: 25 (78.13%) were transferred via T3 (Temple transportation), 5 walked to the ED (15.63%) and 2 (6.25%) used other transportation methods (private or 911). The average time for transport arrival was 27 minutes, and the average MGP - to-TUHED transfer time was 52 minutes.

65.62% of the patients referred were admitted to the hospital 25% were discharged home and 9.3% left the ED before being evaluated. The average MGP-to ED physician evaluation was 1.8 hours. Among the patients admitted, the average time between MGP evaluation and admission was 5.5 hours. Most of the patients referred were admitted and diagnoses were concordant between the ED and MGP physicians. Only one of the patients that walked to the ED was admitted. Additional analysis to determine the safety and cost/effectiveness of direct admissions from the clinic of high risk patients versus referral to the ED are necessary.

Younger Male Achalasia Patients Do Not Require Larger Initial Balloon Size for Effective Pneumatic Dilation

Balinski AP, Hogan CT, Midani D, Parkman HP, FriedenberG FK, Fisher RS, Richter J, Smith MS

Background: Pneumatic balloon dilation (PD) is an achalasia treatment. Most initial PD are performed with 30mm balloons, but some guidelines suggest men under age 45 should start with 35mm. Initial PD treatment efficacy with respect to age and balloon size in male achalasia patients was evaluated.

Methods: All PD at Temple from July 2007 through October 2014 were reviewed. Male patients with no earlier PD or surgical myotomy were included in the analysis. Prior botulinum toxin injection (BTI) or balloon dilation up to 20mm was permitted. Patients with a PD complication were excluded. Repeat treatment included any subsequent PD, BTI or surgery.

Results: 233 PD were performed on 191 patients (87 men). Sixty-four 30mm and eleven 35mm PD cases met inclusion criteria. In men under 45, 14/21 and 7/21 had 30mm and 35mm PD respectively. Four 30mm and one 35mm needed repeat intervention whereas ten 30mm and six 35mm did not. 50/54 older men had 30mm PD initially and 12 required repeat intervention. None of the older 35mm men needed additional treatment. The difference in need for retreatment based on balloon size was not statistically significant in this cohort ($p=0.267$) or in young males ($p=0.469$).

Conclusions: 77% of males with PD did not require further treatment. While younger males with 30mm PD required more subsequent interventions than those with 35mm, the difference was not statistically significant. The success rate of younger (71%) and older (76%) 30mm PD males was similar. Therefore, starting with 30mm PD in young males is reasonable.

**Risk Factor Predominance in Atherosclerotic Cardiovascular Disease
Differs by Race: An Observational Study**

Jarrett H, Oliveros E, Sirna S, Bove A

Synopsis: The incidence and prevalence of atherosclerotic cardiovascular disease (ASCVD) in the United States varies according to race. A range of hypotheses for this variance has been proposed from genetic causality to socio-economic disparities. ASCVD related risk factor predominance stratified according to race is poorly described in the literature with commonly used tools such as the ASCVD risk calculator dividing race into only two categories (White or other and African American). We hypothesized that ASCVD related risk factors vary according to race.

Methods: Outpatient electronic medical records were studied from 2009 to 2013. We identified 360 statin naive patients who had an index fasting lipid panel followed by therapy initiation. Cardio-metabolic risk factors among the three predominant races were compared using analysis of variance. The Charlson co-morbidity index (CCI) was used to calculate the likelihood of 10-year survival for the three groups.

Results: African Americans (AA), Latin/Hispanic Americans (LHA) and Caucasians (CA) were included (AA: 58.8%, LHA: 23.1%, CA: 15.7%). There was a high prevalence of obesity (51.1%), tobacco use (68.4%), hypertension (90.7%), metabolic syndrome (29.2%) and diabetes (41.8%). ASCVD was present in 66.4% of our cohort, and AA represented 61.6% of this group. AA patients had significantly higher HDL but also had significant prevalence of hypertension and obesity. Ten-year survival in this cohort based on CCI was 30.2%. By contrast LHA patients had significantly low HDL, high TG and the highest prevalence of metabolic syndrome as well as diabetes. Ten-year survival in this cohort based on CCI was 29.6%. CA patients had the highest index fasting LDL, and the highest ten-year survival based on CCI (45.3%). No significant race effect was noted with LDL goal attainment following statin therapy ($p = 0.53$).

Conclusions: We observed that ASCVD risk factor predominance varies by race.

Impact of Annual Institutional Volumes on Comparative Safety Outcomes of Catheter Directed Thrombolysis Versus Anticoagulation Therapy in the Treatment of Lower Extremity Proximal Deep Vein Thrombosis

Jarrett H, Zack C, Lakhter V, Oliveros E, Brailovsky Y, Lashner M, Aggarwal V, Wheatley G, Bove A, Bashir R

Background: Catheter directed thrombolysis (CDT) has been shown to be associated with higher bleeding rates, however the impact of institutional volumes on safety outcomes of CDT versus anticoagulation (AC) alone is not known.

Methods: The Nationwide Inpatient Sample database was used to identify all patients admitted with a principal discharge diagnosis of proximal or caval DVT from 2005 -10. Patients were divided according to treatment with CDT or AC. Institutions were divided into low (LV; ≤ 5 annual procedures) and high (HV; > 5 annual procedures) CDT volume centers. Propensity matched comparison was performed between CDT versus AC alone using 44 co-variates including the Elixhauser co-morbidity index.

Results: Amongst a total of 90,405 patients, CDT was performed in 3,649 patients (4.1%). At low volume centers CDT was associated with a significant increase in intracranial hemorrhage rates (1.2% vs. 0.1%; $p = 0.0005$) and trend towards increased in-hospital mortality as compared to AC (1.6% vs. 0.9%; $p = 0.069$). Conversely, at high volume centers there was no difference in in-hospital mortality (0.6% vs. 0.7%; $p = 0.654$) or intracranial hemorrhage rates (0.5% vs. 0.2; $p = 0.205$) between CDT and anticoagulation. Rates of blood transfusion (LV: 11.8% vs. 8.3%; $p = 0.0002$, HV: 9.8% vs. 6.6%; $p = 0.002$), pulmonary embolism (LV: 16.1% vs. 10.5%; $p = 0.0001$, HV: 20.4% vs. 13.4%; $p = 0.0001$), and vena cava filter placement (LV: 32.9% vs. 17%; $p = 0.0001$, HV: 37.7% vs. 19.7%; $p = 0.0001$), length of stay (LV: 7.5 vs. 5.3; $p = 0.001$, HV: 6.85 vs. 5.07; $p = 0.001$) and hospital charges (LV: 81,460 vs. 27,809; $p = 0.001$, HV: 89,693 vs. 33,464; $p = 0.001$) were higher with CDT regardless of institutional volume.

Conclusion: In this observational study we found a significant inverse relationship of institutional CDT volumes to intracranial hemorrhage rates. The bleeding complications and resource utilization remains significantly higher with CDT regardless of institutional volume.

**Central Venous Catheter Related Metastatic MRSA Infections
in Hemodialysis Patients**

Klein EC, Close AP, Santora TA, Johnstone DB

Infection is the second leading cause of mortality in hemodialysis patients, an issue compounded by prolonged central venous catheter (CVC) access. Here we present a 45 year-old male with diabetic nephropathy who initiated hemodialysis via a tunneled CVC. Months later, after his fistula was first accessed, he presented with fever and rigors. Initial management included line removal and antibiotic therapy. MRSA bacteremia persisted despite lack of fever, improving pain, and resolving leukocytosis. Transesophageal echocardiogram was unremarkable, but subsequent whole body CT demonstrated an unusually asymptomatic and severe case of metastatic MRSA with pericardial effusion, bilateral pleural effusions, and abscesses in the prostate, left axilla, left antecubital fossa, left gluteus medius, left iliacus, right forearm, and right paravertebral musculature. Management required drainage by numerous surgical subspecialties, serial femoral dialysis catheters, and over 100 days of antibiotics.

Hemodialysis patients often require CVC placement. Unfortunately, CVC bacteremia rates are 2.2-5.5 per 1000 catheter days. Management includes 48-72 hours of antibiotics followed by Seldinger exchange, or CVC removal with replacement after bacteremia has cleared. When this fails, the Infectious Disease Society of America recommends transesophageal echocardiography and, if negative, evaluation for septic thrombophlebitis. Bacteremia can be particularly subtle in dialysis patients due to changes in inflammatory response. Our patient had no fever, decreasing leukocytosis and resolving pain, however had an extreme burden of disease. We therefore suggest that whole body imaging is sometimes warranted for metastatic infection, and that collaboration from infectious disease and surgical colleagues can prolong life in such instances

Recurrent In-Stent Thromboses, an Atypical Primary Presentation of Malignancy

Klein EC and Crabbe D

Percutaneous coronary intervention with stent deployment has revolutionized the care of acute coronary syndromes (ACS). However, coronary stents can lose their patency due to either in-stent restenosis (ISR), in-stent thrombosis (IST) or more rarely, recurrent in-stent thrombosis (RIST) which limits the efficacy of this therapy. While IST is rare due to modern advances in therapeutics, factors such as stent type, medication non-compliance, specifics of coronary anatomy and certain medical comorbidities are known to be related to IST. Unfortunately risk factors for recurrent early in-stent thrombosis (eRIST) are less well known. One risk factor for both early IST and eRIST that has recently been proposed is active malignancy.

We report the case of Mr. AL, a 58 year old African American male with HIV and CKD who presented with 5 episodes of early recurrent in-stent thrombosis over the span of less than 5-months despite reasonable evidence for medication compliance. He was subsequently found to have a moderately differentiated invasive adenocarcinoma and unfortunately passed away 2-months later.

Including patient AL there have now been several case reports of early RIST in patients with undiagnosed malignancy. It is thought that the pro-thrombotic state in patients with active oncologic malignancy (Trousseau's phenomenon) produces a significantly increased risk for venous, arterial, and potentially coronary thrombosis.

With malignancy, as with ACS, a delay in diagnosis can be catastrophic. While more data is needed on the topic, for now we suggest that physicians consider aggressive screening for malignancy in patients with IST or RIST.

**Use of Warfarin for Atrial Fibrillation Related Stroke Prevention
in an Urban Primary Care Clinic**

**Nicolais C, Brailovsky Y, Patel A, Hady J, Klein E, Weiss A,
Fallis R, Freid L, Marron R, Chisty A**

Introduction: Warfarin remains the oral anticoagulant of choice for the prevention of stroke in patients with a diagnosis of atrial fibrillation (A-fib). Initiation and management of anticoagulation is challenging in underserved populations with low health literacy. The goal of this study was to explore rates of warfarin use for A-fib and time spent in therapeutic range in a busy, inner-city primary care office.

Method: A query was performed of the outpatient electronic medical record to identify all patients who carried a diagnosis of A-fib (ICD-9: 427.31) or had received warfarin (V58.61) in our practice between January 2014 and January 2015. We excluded all patients who did not have an active diagnosis of A-fib. We recorded patient clinical characteristics, CHADS-2 scores and HASBLED scores as well as INR values for those on warfarin therapy and calculated their respective time in therapeutic range.

Results: A total of 214 patients were identified in the EMR query, of those 145 met the inclusion criteria for analysis. A total of 74 patients were treated with warfarin. Average overall CHADS2-VASc for all patients was 4.2 and average HASBLED score for all patients was 2.9, with no clinically significant difference between anticoagulated and not anticoagulated group. The average number of INRs was 17 ± 13 per patient per year. The average amount of time spent in the patients therapeutic range was $44\% \pm 26$, and no correlation was found between more frequent INR checks and increased time in therapeutic range.

Conclusion: Appropriate anticoagulation for A-fib remains challenging in the resident clinic. Despite high CHADS2-VASc scores only 50% of patients received appropriate anticoagulation. The average time spent in therapeutic range is significantly lower than has been seen in prospective studies. Future studies are needed to elucidate the cause of this discrepancy and to explore future interventions.

**Loss of e-cadherin and Retinoblastoma Genes in a Case of
Urothelial Carcinoma with Scrotal Metastasis**

Norberg S, Bilusic M, Oros M, Eun D, Manucha V

Cutaneous metastases from urologic cancers are very uncommon, usually represent widespread metastatic disease and are associated with a very poor prognosis. They may occur in 1% of patients with urologic malignancies, most commonly from kidney, followed by bladder and prostate tumors. In this report, we describe a case of urothelial carcinoma with metastases to the scrotum treated with platinum based chemotherapy with a durable complete response lasting more than 14 months. Molecular profiling revealed deleterious mutations in e-cadherin and retinoblastoma genes, suggesting their possible role in the pathogenesis of cutaneous metastases. Further studies are needed to validate this observation.

Gender Differences in Coronary Revascularization Rates in the United States: Insight from National Inpatient Sample

Oliveros E, Lakhter V, Zack CJ, Brailovsky Y, Jarrett H, Lashner M, Aggarwal V, O'Murchu B, O'Neill B, Cohen H, Bove A, Bashir R

Background: Previous studies have shown disparity in revascularization rates among men and women undergoing coronary angiography. Whether this disparity persists in contemporary practice remains unclear.

Methods: The Nationwide Inpatient Sample database was used to identify all patients who underwent diagnostic coronary angiography in the United States between January 2009 and December 2011. We assessed revascularization rates by sex and used propensity score matching to compare contemporary outcomes amongst men and women.

Results: Amongst 794,897 patients who underwent coronary angiography the overall revascularization rate was lower in women 42.7% than men 56.8% ($p < 0.01$). Women were less likely than men to undergo percutaneous (43.1% vs. 33.6%, $p < 0.01$) as well as surgical revascularization (11.1% vs. 6.8%, $p < 0.01$). A propensity matched comparative outcomes analysis is shown in Table 1.

Conclusion: In this nationwide observation study, we found that coronary revascularization rates continue to be significantly lower in women than men. The women also continue to have higher adverse events associated with diagnostic angiography.

Table 1. Propensity Matched Gender-Based Outcomes in Patient Undergoing Coronary Angiography

	Male (%) N= 272,996	Female (%) N=272,996	P Value
In Hospital Mortality	1.8	2	<0.001
Coronary dissection	0.5	0.7	<0.001
Hematoma	1.4	2.2	<0.001
Vascular complication	0.3	0.7	<0.001
Hemorrhage	0.8	0.9	0.15
Procedure Cardiac Complication	2.6	2.3	<0.001
Renal Failure	0.3	0.2	<0.001
Procedure Vascular Complication	0.5	0.4	<0.001
Intracranial Hemorrhage or stroke	0.2	0.3	<0.001

Gastrointestinal Bleeding and Left Ventricular Assist Devices: Pre-operative Risk Factors and Outcome in a Minority Population

Oliveros-Soles E, Iorio N, Andari Sawaya R, Zhao H, Toyoda Y, Maranki J, Haluszka O, Hamad E, Alvarez RJ

Background: Continuous flow left ventricular assist devices (CF-LVADs) have become a valuable therapeutic option to a growing population with end-stage systolic heart failure. Gastrointestinal bleeding (GIB) is among the most common adverse events after device implantation. The risk factors for GIB, timing of bleeding events and outcomes among minority populations remain unclear.

Methods: Between September 2009 and June 2014, 51 consecutive advanced heart failure patients underwent CF-LVAD implantation at a single tertiary care center. Electronic medical records were reviewed to determine demographic characteristics, co-morbidities and GIB episodes. Univariate and multivariate regression analyses were conducted to identify pre-operative risk factors.

Results: Seventeen of the 51 patients (33.3%) had at least one episode of GIB. Recurrent GIB was present in 13.7% of the population. African Americans represented the majority (n=29, 56.9%) followed by white (n=13, 25.5%). There was no statistical difference among races and incidence of GIB ($p=0.873$). Body mass index was significantly lower in the GIB group (30.04 ± 8.5 vs 31.16 ± 5.07 , $p=0.032$). Patients with peripheral artery disease (30% vs 70%, $p=0.051$) had less episodes of GIB. There were no deaths attributed to GIB.

Conclusions: GIB is a frequent cause of morbidity for patients with CF-LVAD support although it does not impact survival. Race does not influence the rate of GIB, whereas peripheral artery disease and body mass index may be protective. Larger epidemiological studies will be required to confirm such associations and better stratify bleeding risk.

Multiple Myeloma Trends in Overall Survival

Patel A, Fung H, Ulicny J

In America alone, Multiple Myeloma carries a lifetime risk of 0.67%, causes over 11,000 deaths, and is diagnosed over 24,000 times annually.

A retrospective chart review yielded 236 patients with multiple myeloma treated with autologous bone marrow transplant since 1990 at Jeanes Hospital (Philadelphia, PA). Correlating with the FDA-approval dates of important medications, we compared three groups; the 43 patients who received autologous bone marrow transplant between 1990 and 2001, the 77 patients transplanted between 2002 and 2006, and those 116 transplanted between 2007 and 2012.

Overall survival from the time of transplant was virtually unchanged between these three eras. Although the mean difference did not reach statistical significance, the two more recent eras demonstrated a better median survival of 6 years, compared to 4.5 years in the first cohort. The most recent era had a higher percentage (~25%) of transplant patients of age above 50 compared to the earlier two eras (~5% and ~14%). Rehospitalization rates between the three eras were similar.

Overall survival and rehospitalization rates in patients undergoing treatment for multiple myeloma remain essentially unchanged spanning the last 25 years despite a changing patient population containing a larger percentage of elderly patients, a larger percentage of African Americans, and a higher incidence of obesity. This suggests myeloma patients undergoing treatment today are sicker than patients from the previous 3 decades. Overall survival of myeloma patients is unchanged despite a seemingly worse pre-treatment state of health, coinciding with the addition of several new chemotherapeutics to the oncologist's arsenal.

**Reading Level Analysis of Patient Education Materials
Available on the Internet for IBD**

Patel S, Meillier A, Ehrlich AC, FriedenberG FK

Background and Aims: The growing availability of the Internet is resulting in a greater number of individuals with inflammatory bowel disease (IBD) researching their disease online. Our aim was to determine the reading level of the most common websites that provide information for IBD patients.

Methods: We performed an initial Google search using the terms “Crohn’s Disease”, “Ulcerative Colitis” and “Inflammatory Bowel Disease”. We combined the results of all searches and identified 15 sites for Crohn’s disease (CD) and 15 sites for ulcerative colitis (UC) that contained peer-reviewed educational materials directed at patients. We also identified 5 sources for CD and 5 sources for UC that are not classified as patient education materials, such as blogs. All of the sources were analyzed using Oleander Readability Studio to assign a reading grade level.

Results: The average reading level for sources that were classified as patient education materials for CD was 12.8 ± 1.5 ; for UC, the average was even higher at 14.2 ± 1.9 . High-grade levels were assigned because the text contained a high number of 3+ syllable words and a high number of difficult sentences. The average reading level for materials not classified as patient education materials for CD was 7.56 ± 1.39 ; for UC, the average was 8.33 ± 1.67 .

Conclusions: Readability analysis demonstrates that commonly searched websites providing information for patients concerning IBD do so at a literacy rate higher than the target audience. Many sites, including the NIDDK, should consider a review and edit of their online materials.

Case Report of Vasopressin Induced Hyponatremia in a Patient with Pulmonary Hypertension, Hypotension and Sepsis

Peters A, Brailovsky Y, Lakhter V, Forfia P

Introduction: Vasopressin induced hyponatremia is a rare occurrence that can pose a diagnostic dilemma. Vasopressin is commonly used in the setting of septic shock as the endogenous stores of vasopressin are depleted. On the contrary, patients with heart failure exhibit elevated levels of endogenous vasopressin, which contributes to water retention and hyponatremia.

Clinical Vignette: A 55 year-old woman with chronic thromboembolic pulmonary hypertension and right heart failure 13 days after pulmonary thromboendarterectomy was transferred to the ICU for hypoxic respiratory failure and septic shock. Examination revealed an elevated jugular venous pressure and a right ventricular heave. Labs were notable for a leukocytosis and a mixed venous oxygen saturation of 51% (hemoglobin 10gm/dL). A transthoracic echocardiogram demonstrated a normal left ventricle with markedly reduced right ventricular systolic function. The patient was intubated and started on broad-spectrum antibiotics. She was treated with sildenafil and inhaled nitric oxide from a PH standpoint, and norepinephrine and vasopressin were added to support a falling MAP and SVR. In the next 72 hours, her serum sodium decreased from 141 meq/L to 126 meq/L. Without any other explanation vasopressin was thought to be the cause and was discontinued. After stopping vasopressin her urine output increased to 250 cc/hr for the next 15 hours. Her serum sodium corrected to 136 meq/L over 24 hours.

Discussion: This case illustrates that early recognition of vasopressin-induced hyponatremia is important. Special attention should be paid to patients with heart failure as they are at a higher risk of developing hyponatremia.

Right Ventricular Infarction Masquerading as an Anterior STEMI

Peters A, Lakhter V, Bashir R

Introduction: Right ventricular (RV) infarction can rarely present with both anterior and inferior ST-segment elevations on ECG.

Case Report: A 60-year-old female with diabetes mellitus type II and hypertension presented to the emergency department 30 minutes after acute onset diaphoresis and shortness of breath. The electrocardiogram (ECG) showed ST-segment elevations in the inferior leads, with reciprocal ST depressions in leads I and AVL. In addition, the anterior leads V3 and V4 had marked ST-segment elevations. The patient was immediately treated with aspirin, clopidogrel and heparin. She was also given a bolus of intravenous morphine and nitroglycerine. A few minutes after she became hypotensive with a BP of 72/54 mmHg. The patient was hydrated and taken to the cardiac catheterization laboratory. The coronary angiogram showed a critical stenosis of the right coronary artery (RCA) proximal to the take off of the right ventricle marginal branch. A drug-eluting stent was placed in the RCA with excellent angiographic results. A post-catheterization echocardiogram showed a left ventricular inferior wall hypokinesis and depressed right ventricular systolic function. The remainder of her hospital course was unremarkable.

Conclusion: This case highlights the importance of early recognition of RV infarction in patients with inferior and anterior ST-segment elevations as the management of RV infarction differs from LV infarction. Importantly, agents that decrease pre-load by vasodilatation including opioids and nitroglycerine should be avoided due to the risk of hypotension.

**Complete Heart Block, Kidney Injury and Thrombocytopenia:
Should You Implant a Pacemaker?**

Al Maluli H, Peters A, Nayeemuddin M, Mirza A, Arkles J, Modi D, Bashir R

Background: Thrombotic Thrombocytopenic Purpura (TTP) is a rare and mostly fatal disease that presents with the classic pentad of anemia, thrombocytopenia, neurologic symptoms, renal disease, and fever. TTP can also involve the cardiac system through microthrombi to small coronary vessels.

Case: An 80-year-old woman was admitted with syncope and altered mental status. Initial examination revealed a pulse rate of 20 and a blood pressure of 80/56 mmHg. She had bradycardia with a 3/6 systolic murmur at the left lower sternal boarder, and non-edematous extremities. ECG demonstrated complete heart block. Labs were as follows: creatinine 3.18 mg/DL, Hgb 10 gm/DL, platelets 128,000/mcl. A echocardiogram revealed a normal ejection fraction. The patient was given atropine and transcutaneous pacing was initiated. During the hospital course the patient had a decline in renal function, waxing and waning mental status, and worsening thrombocytopenia. Her platelets fell below 50,000 at which point the diagnosis of TTP was entertained. Additional laboratory analysis showed a haptoglobin of <6 mg/dl and elevated LDH at 1603 U/L and a fibrinogen of 386 mg/DL. A peripheral blood smear revealed 3+ schistocytes. The patient was started on plasmapheresis with improvement in her renal function, blood counts and mental status. After 5 sessions she was noted to have 1:1 AV conduction.

Conclusion: This case highlights an atypical presentation of TTP. Considering TTP in the differential diagnosis in a patient with cardiac abnormalities, renal dysfunction, altered mental status, and microangiopathic anemia is important to reduce mortality.

Improving Medication Adherence in Hypertension Using Home Measured Blood Pressure and Telemedicine Reporting to Modify Patient and Physician Behavior

Peters A, Rakita V, Homko C, Kothapalli P, Bove A

Background: Management of hypertension is integral in both primary and secondary prevention of cardiovascular disease (CVD). We hypothesize that enrollment in a community-based program focused on blood pressure reporting via telemedicine will result in increased medication prescribing and adherence.

Methods: This study was a secondary analysis of a telemedicine trial of 241 patients with uncontrolled hypertension (BP \geq 150/90 mmHg). Patients from two urban medical centers were randomized to usual care (control group-C, N=122) or usual care with Telemedicine (T, N=120). The T group was provided a sphygmomanometer and training on BP reporting. Subjects reported their BP twice weekly for 6 months. Patients also completed questionnaires to assess medication adherence, health knowledge, and physician lifestyle counseling practices.

Results: The average age of patients was 59 \pm 13 years and the proportion of African Americans was 80%. There was a statistically significant change in the number of antihypertensive medications prescribed to diabetic and non-diabetics in the T group (2.3 \pm 1.1 to 2.4 \pm 1 (p=0.043); 2.1 \pm 1.2 to 2.3 \pm 1.2 (p=0.024) respectively), but not in the control group. Medication adherence was not influenced by patient knowledge nor did physician counseling on lifestyle changes, reviewing medications, and number of encounters have any effect. Multivariate analysis showed that race, age, sex, education level, and income had no correlation to adherence.

Conclusion: Participation in telemedicine increased the number of antihypertensives patients were prescribed hence encouraging better blood pressure management. Patient specific factors and physician counseling did not influence medication taking behavior. New multidisciplinary strategies must be developed to increase medication adherence.

Hepatitis C Screening and Prevalence in Temple Internal Medicine

Pritchard H, Liberator C, Jean W, Ward M, Dominguez-Castillo E, Morad M, Raza Y, Bellardo D, Shapiro E, Lee EL, Simoncini GM

Hepatitis C is the most common blood-borne disease in the U. S. and is a substantial burden on our healthcare system. It is the second leading cause of cirrhosis, the leading indication for liver transplant and is responsible for 15,000 deaths per year in the United States. As a result, more aggressive screening recommendations have been proposed in the baby-boomer generation. We evaluated the HCV screening effort at Temple University Hospital primary care practices.

We performed a retrospective analysis on patients seen at the Temple Medicine Group and Jones Hall practices from Jan 2011 to October 2014. Patients were included if they were born between 1945 and 1965 and had an HCV antibody assay performed. HCV RNA levels were also obtained to determine disease chronicity. Finally, individual EPIC chart records were reviewed to determine the reason for screening.

Our analysis yielded 1022 unique patients of which 212 had a positive HCV antibody. Over 90% of patients had a HCV RNA viral load ordered but only 76% were resulted in EPIC. A detectable HCV RNA viral load was present in 132 patients. The majority of patients were screened due to age (343), STI (233) or HIV history (210).

A significant group of patients screened were found to have chronic Hepatitis C (12.9%). These results emphasize the importance of developing a comprehensive and multidisciplinary HCV screening program, which we can use to link our population to curative care.

Medication Discontinuation in an Electronic Medical Record

Shapiro W, Lashner M, Norberg S, Shah A, Shah K, Leung J

Background: The Epic electronic medical record software system allows physicians to easily electronically send prescriptions and refills for medicines at pharmacies with compatible software. However there is no corresponding method for discontinuing a medication. We investigated the practices and beliefs of physicians in the department of internal medicine regarding this issue.

Methods: We surveyed residents, fellows and attending physicians in the internal medicine department regarding their current practices involving medication discontinuation. We have also contacted EPIC and many local pharmacies to gather more information on the topic.

Results: 83 physicians responded to our survey. 76% were aware that when a medication is discontinued in epic, it is removed from the patient's medical record and that epic does not send any message to the pharmacy. 88% have seen a patient taking a medication that has been discontinued and 39% of respondents have seen an adverse outcome from a patient taking an already discontinued medication.

None of the pharmacies in North Philadelphia that we called were capable of receiving automated medication discontinuation messages.

Conclusion: Medication discontinuation is an important part of medication reconciliation and patient care the process of which could be simplified with a coordinated medical record and prescription system.

**Quality of Life (QOL) in Patients with Pancreatic and
Periampullary Adenocarcinoma (PPAC)**

Sheng J, Wai C, Dotan E, Hoffman J, Denlinger C

Background: QOL includes perceived well-being, symptom burden, satisfaction, and enjoyment of normal activities. Limited data exist on QOL in PPAC survivors. We evaluated factors that may impact QOL.

Methods: Cross-sectional study (survey, chart review) of QOL, fear of recurrence, symptom burden, nutritional factors, and physical activity in disease free stage 0-III PPAC pts who completed treatment \geq 12 months between 1990-2013. Pts identified via Tumor Registry. Survey scales: FACT-Hep, FCRI, FACIT-AD, FHSI-8, GLTS, ASQ. Dillman survey method used.

Results: Of 90 pts, 78 mailed surveys (10 recurred; 2 died). Response rate 77% (n=60). 44 pts returned consent/survey (2 no consent, 6 opt-out, 8 ineligible). Age dx 65 yrs (46-87), survey 70 yrs (51-89). Male 19/Female 25. Pathologic Stage 0 (5), I (13), II (26). Time from dx to survey 5.8 years (0.9-17). Mean scores (SD): FACT-Hep 144.0 (19.10), FCRI 52.61 (26.39), FACIT-AD 98.80 (14.46), FHSI-8 26.17 (4.10) and ASQ 34.40 (4.52), consistent with published cohorts. Pts insufficiently active with GLTS unit 11 (0-140, SD 25.85). Compared to non-diabetics, diabetics (n=23) had poorer overall well-being (139.8 vs 148.1, p=0.05), physical well-being (23.23 vs 25.13, p=0.011), and functional well-being (20.05 vs 23.36, p=0.041). Fatigue-related QOL was improved in non-diabetics. Physical well-being was higher in pts on PPI. Emotional well-being improved in pts whom underwent adjuvant chemotherapy. QOL not associated with pancreatic enzyme use, time from diagnosis/surgery, primary tumor site, surgery type or physical activity.

Conclusion: Despite small sample size, overall QOL, fear of recurrence, hepatobiliary symptoms, and appetite in our cohort appear similar to PPAC populations. Pts are insufficiently active, while diabetics and those who are not on PPI report lower physical well-being. Additional evaluation of QOL in larger cohorts is warranted.

Can I See My Consultant?

**Shah D, Bhatt R, Zavitsanos A, Krauthamer S, Korotun M, Baumgarten D,
Iorio N, Dimache Z, El Shamy O, Hogan C**

The goal of our project was to identify and quantify the barriers of sending our primary care patients to subspecialists. Additionally, we wanted to improve the process of our referral system.

Methods: We analyzed 1000 epic charts for patients seen between the months of June and July (5 week period).

Results: During our project, we identified that over 50% of the patients never received an appointment to their sub-specialists (this number does NOT include no-shows and canceled appointments).

Conclusions: The biggest barrier identified during our chart review, was the patients obtaining appointments. Majority of our patients went to their appointments once it was made for them. We are currently working with the department of medicine on increasing the number of appointments made, in addition to getting our patients appropriate integrated care at Temple.

Gastric Neuromuscular Pathology and Therapeutic Outcome of Gastric Electric Stimulation in Patients with Refractory Gastroparesis

Heckert J, Sankineni A, Thomas R, Parkman H

Aims: To relate histopathology of full thickness gastric biopsies from patients with refractory gastroparesis to therapeutic outcome of gastric electric stimulation.

Methods: Enterra gastric electric stimulator (Medtronic, Inc) was inserted using laparotomy into patients with refractory symptoms from gastroparesis. Full-thickness gastric body biopsies were obtained and analyzed. Therapeutic response was assessed at follow-up using the Clinical Patient Grading Assessment Scale.

Results: Of 151 patients who underwent insertion of a gastric electric stimulator for refractory gastroparesis from July 2010 to November 2013, 140 patients (age of 38.0 ± 11.9 years, 68 diabetic, 66 idiopathic, 6 other) had full thickness gastric body biopsies. 128 patients had follow-up information over 15 ± 10 months. 97 patients (75%) had a CPGAS >1 and were considered to be responding to therapy (RT) while 31 patients had a score of ≤ 0 and were considered not responding to therapy (NRT). C-kit staining showed a significant increase in the number of ICCs/hpf in the myenteric plexus in the NRT group (1.11 ± 0.05 SEM) compared to the RT group (0.89 ± 0.10 ; $p=0.04$). NSE staining showed a significant decrease in ganglia (0.88 ± 0.05) and cell bodies per ganglion (3.11 ± 0.21) in the diabetic patients when compared to the idiopathic patients (1.11 ± 0.06 , 4.87 ± 0.36 ; $p < 0.01$).

Conclusions: Patients who responded to gastric electric stimulation had less ICCs in the myenteric plexus when compared to patients who did not respond to gastric electric stimulation. Diabetic patients have a better response to therapy, have less ganglia, and less cells per ganglion when compared to idiopathic patients. Thus, histopathology of gastric tissue may provide prognostic information for patients undergoing gastric electric stimulation.

**A Case Report of Prostatic Community Acquired Methicillin Resistant
Staphylococcus aureus Abscess**

Kubala SA, Oliveros E, Bhargava A

We present a case of a 55 year old homeless male with past medical history of uncontrolled diabetes mellitus (A1c=15), asthma, and IV drug use who presented with a one month history of bilateral back and suprapubic pain accompanied by dysuria, fevers, and chills who was subsequently found to have MRSA prostatitis.

Prostatic abscess is an uncommon condition that has been associated with the presence of chronic indwelling catheters, genitourinary instrumentation, diabetes mellitus, acquired immunodeficiency syndrome, hemodialysis, or other immune compromising conditions. Escherichia coli and enteric organisms account for the majority of prostate infections. Staphylococcus aureus is reported much less commonly, while methicillin resistant Staphylococcus aureus is considered rare. Morbidity and mortality from MRSA prostatitis increase with delays in identification and proper treatment.

In conclusion, we report a case of MRSA prostatitis in a homeless male with a history of IV heroin abuse and poorly controlled diabetes. His infection presumably arose from hematogenous spread from MRSA bacteremia from IVDU. Once seeded with bacteria, the patient's prostatic abscess development was facilitated by delay in seeking treatment, impaired host defense due to his inadequate blood glucose management, infection with an organism prone to abscess formation, initially inadequate antimicrobial therapy, and poor antibiotic penetration into the prostate. The most important managements of MRSA prostate abscesses include early identification with imaging, appropriate antibiotics, and surgical drainage. Greater awareness of MRSA prostate infection will lead clinicians to pursue the appropriate diagnosis in patients with risk factors of MRSA and symptoms concerning for prostatitis.

Foods Provoking and Alleviating Gastroparesis: Patient Experiences

Wytiaz V, Homko C, Duffy F, Schey R, Parkman HP

Nutritional counseling for gastroparesis focuses on reduction of meal size, fiber and fat to control symptoms. The tolerance of gastroparesis patients for particular foods is largely anecdotal. The aim of this study was to identify and characterize foods provoking or alleviating gastroparesis symptoms.

Methods: Gastroparesis patients completed: 1) Demographic Questionnaire; 2) Patient Assessment of Upper GI Symptoms (PAGI-SYM); 3) Food Tolerant and Aversion Survey asking patients about experiences when eating certain foods utilizing a scale from -3 (greatly worsening symptoms) to +3 (greatly improving symptoms). Descriptive qualities (acidic, fatty, spicy, roughage-based, bitter, salty, bland, and sweet) were assigned to foods.

Results: 45 gastroparesis patients participated (39 idiopathic gastroparesis). Foods worsening symptoms included: orange juice, fried chicken, cabbage, oranges, sausage, pizza, peppers, onions, tomato juice, lettuce, coffee, salsa, broccoli, bacon, roast beef. Saltine crackers, jello and graham crackers moderately improved symptoms. 12 additional foods were tolerated by patients (not provoking symptoms): ginger ale, gluten free foods, tea, sweet potatoes, pretzels, white fish, clear soup, salmon, potatoes, white rice, popsicles, and applesauce. Foods provoking symptoms were generally fatty, acidic, spicy and roughage-based. The foods shown to be tolerable were generally bland, sweet, salty and starchy.

Conclusions: This study identified specific foods that worsen as well as foods that may help alleviate symptoms of gastroparesis. Foods that provoked symptoms differed in quality from foods that alleviated symptoms or were tolerable. The results of this study illustrate specific examples of foods that aggravate or improve symptoms and provide suggestions for a gastroparesis diet.