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Scientific Day

May 16, 2012 • 10 a.m. to 5 p.m. • Aurora Conference Center

2012 program

Scientific Day

Wednesday, May 16, 2012

10 a.m. to 5 p.m.

Welcome and opening remarks

10 to 10:10 a.m.

Sycamore

Oral presentation session I

10:10 to 11:25 a.m.

Sycamore

Rieselbach Distinguished Paper session I

11:25 a.m. to Noon

Sycamore

Lunch break

Noon to 12:30 p.m.

Sycamore

Poster viewing and judging

12:30 to 1:30 p.m.

General Posters (Oak/Pine)

Judged Posters (Buckeye)

Rieselbach Distinguished Paper session II

1:30 to 1:45 p.m.

Sycamore

Oral presentation session II

1:45 to 2:45 p.m.

Sycamore

Break

2:45 to 3 p.m.

Rieselbach Distinguished Paper session III

3 to 3:15 p.m.

Sycamore

Oral presentation session III

3:15 to 4:15 p.m.

Sycamore

Special presentation: Database Research at Aurora Health Care

4:15 to 4:30 p.m.

Sycamore

Innovation project: GlucoDATA

4:30 to 4:45 p.m.

Sycamore

Awards immediately following

Oral presentation session I

Fax Referrals, Academic Detailing and Tobacco Quitline Use: A Randomized Trial

Sheffer MA, PhD, Aurora Research Administration
Baker TB, PhD, UW-CTRI
Adsit RT, MEd, UW-CTRI
McAfee TA, MD, CDC Office on Smoking and Health
Fiore MC, MD, MPH, MBA, UW-CTRI

- Background/significance:** Fax referral programs quickly and economically can link smokers' visiting primary care clinics to state-based telephone quitlines. Yet, it is unclear how to optimize use of this strategy.
- Purpose:** To evaluate the potential of enhanced academic detailing.
- Methods:** Design, Setting, Participants and Intervention: Forty-nine primary care clinics in southeastern Wisconsin were randomized to one of two fax referral program interventions: Fax to Quit alone (F2Q-Only) or Fax to Quit plus Enhanced Academic Detailing (F2Q+EAD). Main Outcome Measures: Clinic and clinician-specific referral and quality referral rates (those resulting in Quitline enrollment) were measured for 13-months post-intervention, starting March of 2009.
- Results:** Mean post-intervention referrals/clinician to the Wisconsin Tobacco Quitline was 5.6 times greater for F2Q+EAD (8.5, SD=7.0) compared to F2Q-Only (1.6, SD=3.6, $p<.001$). The F2Q+EAD (4.8, SD=4.1) condition produced a greater mean number of quality referrals/clinician than did the F2Q-Only (0.86, SD=1.8, $p<.001$) condition. Data were analyzed in 2010.
- Conclusion:** Enhanced academic detailing that included on-site training, technical assistance, and performance feedback, increased the number of referrals more than five-fold over a fax referral program implemented without such enhanced academic detailing. Fax referral to a tobacco quitline plus enhanced academic detailing offers health systems and clinicians a promising route to enroll more of their patients into evidence-based tobacco cessation treatment.
Trial Registry: NCT00989755
-

Prevalance of Helicobacter pylori Infection in Peptic Ulcers in an Urban Community Hospital

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Patel N, MD, Department of Internal Medicine, Aurora Sinai Medical Center
Hassan W, MD, Department of Internal Medicine, Aurora Sinai Medical Center
Affi A, MD, Department of Gastroenterology, Aurora Sinai Medical Center

- Background/significance:** H. pylori infection rates and NSAID use among patients with peptic ulcer disease varies considerably depending on the population studied. It has been estimated that close to 70% of duodenal ulcers and 60% of gastric ulcers are related to H. pylori in Western populations. Among patients who participated in H. pylori eradication trials in the US, peptic ulcer disease due to H. pylori infection was 73%.
- Purpose:** To determine the prevalence of H. pylori infection in patients diagnosed with peptic ulcer disease (PUD) in two urban community hospitals in the last five years (2006-2010).
- Methods:** This was a retrospective study of all patients diagnosed with PUD by upper endoscopy who simultaneously received testing for H. pylori (via rapid urease testing or histopathology) from 2006 to 2010. Chi-square or fisher's exact test was used to detect the difference between groups.
- Results:** A total of 686 ulcers (455 gastric, 231 duodenal) were identified endoscopically and tested for H. pylori. Results of testing were available for 429 gastric ulcers and 221 duodenal ulcers (total=650). Rapid urease testing was used to detect H. pylori in 48% of gastric ulcers and 44% of duodenal ulcers. The remainder had histopathologic testing. 20.3% of gastric ulcers (95% CI=16.5%-24.1%) and 32.6% of duodenal ulcers (95% CI=26.4%-38.8%) were positive for H. pylori ($p<0.001$). The rates of H. pylori in PUD did not vary considerably between African Americans and Caucasians (13.9% vs. 11.4%, $p=0.373$) or between inpatients and outpatients (22% vs. 24%, $p=0.617$). H. pylori infection rate was greater in males with PUD compared to females (28.8% vs. 24.5%, $p=0.016$).
- Conclusion:** H. pylori infection continues to be a significant cause of PUD in both Caucasians and African Americans in the urban community setting. However, this study shows that rates of H. pylori infection contributing to PUD in the past five years has been significantly lower than that previously reported. This may be due to multiple reasons, including widespread use of antibiotics and acid-suppressing agents. Future studies should continue to address H. pylori infection in GI diseases, including PUD, dyspepsia, and GERD, as treatment options may depend on prevalence rates.

Impact of Metabolic Syndrome on Patients with Coronary Artery Bypass Grafts

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Murthy VS, MD, PhD, Department of Cardiology, Aurora St. Luke's Medical Center

Mori N, PhD, Department of Cardiology, Aurora Sinai Medical Center; Center for Urban Population Health

Hashim H, MD, Department of Internal Medicine, Aurora Sinai Medical Center

Allaqaband S, MD, Department of Cardiology, Aurora St. Luke's Medical Center

Background/significance:	Metabolic syndrome (MS) is a known risk factor for native coronary artery disease. Its effect on patency of coronary artery bypass grafts (CABG) is not clear.
Purpose:	We studied the long-term effect of MS on patients with saphenous vein grafts (SVG) and internal mammary artery grafts (IMAG).
Methods:	We investigated 1,000 consecutive patients (mean age 66 years, 66% men) who underwent CABG surgery between Jan. 2000 and Aug. 2004. 517 patients had MS and 483 did not. They were followed to Oct. 2011 or until repeat surgery with angiograms because of angina, abnormal stress test, NSTEMI or STEMI. Atherosclerosis of bypass grafts was classified as patent (0%), mild (<50%), moderate (50-70%), severe (71-99%) or occluded (100%). Wilcoxon rank sum and chi-square/Fisher's exact tests were used to analyze data.
Results:	Failure of SVG was more prominent in patients with MS. There was no difference in disease severity of IMAG in both groups ($p>0.05$). MS patients required more SVG placement in surgery (1.7 vs. 1.5, $p=0.005$) and more repeat percutaneous coronary interventions of their SVG (81% vs. 19%, $p<0.001$). There was no difference in time to presentation to first follow-up angiogram, to first occluded SVG or to first occluded IMAG, number of follow-up angiograms, repeat CABG, or all-cause mortality (all $p>0.05$).
Conclusion:	Patients with MS have more SVG placement in CABG surgery and a higher risk of occlusion.

Percutaneous Coronary Intervention of a Non-infarct Artery in Selected Patients with STEMI Maintains Excellent Clinical Outcomes and Cost Savings Compared to Staged Second-Vessel PCI

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Background/significance:	In patients with ST-elevation myocardial infarction (STEMI) and multivessel disease, ACC/AHA guidelines classify percutaneous coronary intervention (PCI) of a noninfarct vessel as Class III unless there is hemodynamic instability.
Purpose:	We hypothesized that in STEMI patients with rapid door-to-balloon time and favorable anatomy, outcomes for multivessel PCI during STEMI would be comparable to infarct-vessel-only PCI with staging of the second artery.
Methods:	The study group of 2,132 consecutive STEMI patients presented to a single hospital with an interventionalist in-house 24/7/365 from January 2002 to October 2010. Of those, 724 (34%) had multivessel disease, defined as ≥ 1 additional vessel with $\geq 70\%$ stenosis. Patients with cardiogenic shock ($n=155$), prior CABG ($n=122$) or thrombolytics ($n=23$) were excluded, leaving 424. Multivessel PCI was performed in 111; in 313, infarct-vessel-only PCI was performed followed by staged PCI at mean 19.5 days.
Results:	There were no differences in clinical or angiographic characteristics between the two groups. Combining total hospital days for staged PCI, length of stay was 3.9 days for multivessel PCI at initial STEMI vs. 6.5 days for staged PCI ($p<0.0001$), with 30% lower hospital charges.
Conclusion:	For STEMI patients with rapid reperfusion and multivessel disease, a subgroup with favorable anatomy and no hemodynamic compromise can have noninfarct-artery PCI at presentation with excellent outcomes, a significantly shorter total length of stay, and at substantial cost savings compared to STEMI patients who have staged PCI. These data warrant a prospective trial for confirmation and/or modification of the current ACC/AHA guidelines.

Inventory Reduction Strategies Within an Integrated Health Care System

Van Gompel NJ, PharmD, Department of Pharmacy, Aurora St. Luke's Medical Center

Background/ significance:	Elevated health care costs and decreased reimbursement rates put pressure on hospitals and clinics to identify cost saving strategies. The largest expense to a hospital pharmacy is associated with medication acquisition, which commonly lends drug inventory as a major focus for cost containment measures.
Purpose:	The primary goal was a \$800K (7.4%) reduction of inventory costs throughout 15 hospitals, and \$1.25M throughout 7 oncology clinics. A secondary goal to measure a 10% gap closure between current hospital inventory turns and the hospital specific goal based on average daily census.
Methods:	<p>An external consultant identified inventory management opportunities and estimated potential cost savings for management techniques including A-Item Initiative and C-II Safe Management. The highest 50 drugs or 70% of wholesaler expensed medications comprised the A-List items. Purchase history was used to establish max and reorder points for the A-List medications and targeted a turn rate of 18. The C-II Safe Management implementation used historic usage patterns to set par levels that targeted 12 inventory turns. On-site visits and interactive presentations were utilized to complete implementation. Year end inventory assessment from 2010 of \$10.86M served as comparison for 2011.</p> <p>The oncology clinics previously did not have organized inventory control mechanisms in place. Integration of pharmacy technicians and automated storage cabinets was completed during 2011. A return on investment was completed to measure the financial impact of the automated cabinets.</p>
Results:	Hospital control strategies were implemented approximately 45 days before yearly inventory assessment was completed. A total system inventory reduction of \$1.54M was achieved during 2011 when compared to the 2010 baseline value. Inventory turn rate was increased by an average of 2.3 turns per year across the system. The seven oncology clinics achieved an additional \$1.3M from inventory cost savings during 2011. A return on investment analysis found a 616% rate of return.
Conclusion:	Implementation of A-Item Initiative and C-II Safe Management resulted in successful cost savings across the hospital pharmacy system. Web-based interactive presentations were shown to be an effective method for system wide implementation of management strategies. Additional cost savings was achieved with utilization of electronic medication storage in the oncology clinics.

Rieselbach Distinguished Paper



Richard E. Rieselbach, MD
Associate Dean and Chairman
Department of Medicine
University of Wisconsin Medical School
Milwaukee Clinical Campus
1974-1991

Born in Milwaukee, educated at the University of Wisconsin – Madison and Harvard Medical School, trained in Internal Medicine at the University of Illinois and nephrology at Washington University in St. Louis. Dr. Rieselbach has been a faculty member of the University of Wisconsin Medical School since 1965.

Dr. Rieselbach provided the inspiration and administrative leadership which created the Milwaukee Clinical Campus at Mount Sinai Hospital in 1974. He shepherded its growth from the initial 46 faculty (full-time and clinical) and 18 residents/fellows, to 90 full-time faculty, 158 clinical faculty, and 108 residents/fellows in six departments by 1991.

His high standards for clinical and academic excellence fostered the recruitment of leaders and the development of innovative programs in primary care, geriatrics, interventional cardiology and electro-physiology, and high risk obstetrics which came to characterize the campus. He maintained a strong commitment to care of the medically indigent, fostering an expectation of community service in faculty and students. He projected a national vision in progressive reform of medical education and health care delivery.

Rieselbach Distinguished Paper session I

Atrial Fibrillation in the Aging Heart – A Challenge

Arshad Jahangir, MD, FACC, FSGC

Dr. Jahangir received his MBBS from Dow Medical College, University of Karachi, Pakistan in 1986. He served as a resident in Internal Medicine at Nassau County Medical Center in East Meadow, New York, from 1989 to 1990, and at the Mayo Graduate School of Medicine in Rochester, Minnesota, from 1990 to 1992. Subsequently, he completed a Clinical Pharmacology Fellowship at Mayo in 1994, a Clinical Cardiac Electrophysiology Fellowship at Mayo in 1996, and a Cardiovascular Medicine Fellowship at Mayo in 1997. He is a Diplomat of the American Board of Internal Medicine and the American Board of Clinical Pharmacology, and has certification in Clinical Cardiac Electrophysiology and in Cardiovascular Medicine. He began his academic career at Mayo Medical School in 1997, becoming Professor of Medicine in 2009. He is currently Professor (CHS) in the Department of Medicine, University of Wisconsin School of Medicine and Public Health, having joined the Aurora University of Wisconsin Medical Group in 2011.

Dr. Jahangir is Director of the Center for Research on Cardiovascular Aging, and Consultant Cardiologist and Clinical Cardiac Electrophysiologist. He has an international reputation in the area of cardiovascular research. His particular area of interest has been the aging heart. Dr. Jahangir is a member of numerous professional societies, serves as associate editor and reviewer for multiple journals, and is a reviewer for the NIH and for scientific assemblies. He has received major grant funding from NHLBI/NIH, National Institute on Aging, the American Heart Association, and other foundations and endowments. He has authored over 100 peer-reviewed manuscripts and book chapters, and has presented at prestigious conferences around the world.

Poster viewing – General Posters

Thrombocytopenia as the Initial Presentation of Angioimmunoblastic T-Cell Lymphoma: A Case Report

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Leybishkish B, MD, Department of Internal Medicine, Aurora Sinai Medical Center

Presented by: N. Yasmin, MD, Department of Internal Medicine, Aurora Sinai Medical Center

**Background/
significance:**

AITL is a peripheral T-cell lymphoma which typically presents with generalized lymphadenopathy and systemic B symptoms.

Purpose:

We describe a patient with AITL who had an unusual presentation.

Methods:

An 85 year old female presented with complaints of knee pain and generalized weakness for one week. Platelet count was 10,000 which led to subsequent admission. Physical exam was significant for pale conjunctiva and 1+ pitting edema in the lower extremities. No lymphadenopathy appreciated.

Results:

Labs showed a creatinine of 2.6 mg/dl, albumin 3g/dl, AlkPhos 239 IU/L, Hb 9.2 g/dl, HCT 29.2%, MCV 82fl, absolute retic count $51 \times 10^9/L$. Platelets 10,000/microliter, INR 1.5. Adams 13 was negative. LDH 412 U/L. Schistocytes were seen on the peripheral smear. She subsequently received IVIG, dexamethasone, platelets and blood transfusions. CT abdomen showed extensive retroperitoneal, pelvic, inguinal and mesenteric lymphadenopathy. Bone marrow biopsy was showed moderate normocytic anemia, severe thrombocytopenia and mild immature myeloid shift. Serum electrophoresis showed polyclonal elevation of gamma globulins without monoclonal protein. A right axillary lymph node biopsy showed AITL.

Conclusion:

AITL is a peripheral T-cell NHL that commonly presents with systemic B symptoms and generalized lymphadenopathy. Other common findings are hepatosplenomegaly, skin rash, polyarthritis and anemia. One study found that 99 % of patients with AITL had peripheral lymph node enlargement on initial presentation and 91% had involvement of at least 2 or more lymph node groups which was absent or at best very obscure in our patient. 7% of patients had idiopathic thrombocytopenic purpura. Bone marrow was infiltrated in 60% of the cases in the study. In other studies, thrombocytopenia was present in 30% and 18.5% of the cases. One study looking specifically at patients with uninvolved bone marrow found only one of six cases to have thrombocytopenia. In another study that examined bone marrow involvement in AITL, out of the 6 patients with AITL who had uninvolved bone marrow similar to our patient, only one patient had platelet count below 150,000/microliter.

AITL presents a diagnostic challenge for physicians because of its nonspecific manifestations. Thrombocytopenia is a consequence of the immune dysregulation that is part of AITL. Although it is rarely the initial presentation, AITL must be kept in mind in the setting of unexplained thrombocytopenia even if the typical features of a lymphoma are absent.

A Case of Endobronchial Granular Cell Tumor: A Rare Entity

Batool M, MD, Department of Internal Medicine, Aurora Sinai Medical Center

Rihawi M, MD, Department of Pulmonary and Critical Care, Aurora St. Luke's Medical Center

**Background/
significance:**

Granular cell tumors are benign neural tumors first described in 1926. Mostly located in the head and neck region, skin and subcutaneous tissues, their presence in the endobronchial region is uncommon with less than 100 cases reported.

Purpose:

We are reporting a histologically proven case of endobronchial granular cell tumor.

Methods:

A 54 year old female was seen in consultation for COPD exacerbation. Her medical history included COPD on 4 liters of oxygen at home, 40 pack year smoking and hypertension. Chest radiograph showed mild apical fibro-nodular scarring. Despite appropriate treatment, the patient continued to have shortness of breath, cough and wheezing along with increasing oxygen requirements. A high resolution CT scan showed a wedge-shaped opacity in the medial left upper lobe.

Results:

Bronchoscopy was performed revealing an endobronchial whitish growth at the subcarina. Biopsy was obtained. Microscopic examination showed bland appearing eosinophilic cells within the endobronchial submucosa. Cells had intact nuclear-to-cytoplasmic ratio and immunohistochemical stains were positive for CD56, S-100 and vimentin. A diagnosis of endobronchial GCT was made.

Conclusion:

Granular cell tumors of the lung are rare. They comprise only 0.2% of all intrapulmonary neoplasms. 2-6% of GCTs occur in the lung, and of these, 90% are endobronchial. It has been established now that they arise from Schwann cells. Patients with benign endobronchial tumors may present with cough, dyspnea, wheeze, hemoptysis, and post obstructive pneumonia. Chest radiographs may be completely normal. Depending on the size of the endobronchial mass, there may be signs of distal pneumonia, atelectasis, mucoid impaction, bronchiectasis, and air trapping. A retrospective 10 year survey conducted in Netherlands found that 65% of the patients with tracheobronchial tumors were smokers and for endobronchial tumors, 9 of the patients were male and 10 were female. All 31 tracheobronchial granular cell tumors were found to be benign. In the same survey, the tumors also showed a predilection for the upper lobes. In a clinicopathologic study of 20 cases, 53% had obstructive symptoms on history. The GCT was solitary in 75% of the patients. In some instances, malignant granular cell tumors have also been reported. Endobronchial ablation using argon plasma coagulation is the current treatment of choice with special emphasis on bronchoscopy for follow up due to the risk of recurrence.

Case Report: Intra-Abdominal Umbilical Vein Varix Thrombosis: From Diagnosis to Delivery

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Harper DL, DO, Department of Obstetrics, Aurora Sheboygan Clinic

Background/significance:	Fetal intra-abdominal umbilical vein (FIUV) varix is an uncommon abnormality with poorly understood clinical significance. Only 200 cases have been reported in the past 20 years. A study from Fung et al indicated that sonographic abnormalities were detected in 31.9% of fetuses with a 13% prenatal loss rate. There is an association with fetal malformations, fetal death and chromosomal abnormalities. However, more recent studies indicate good fetal outcomes with isolated FIUV varix. This well illustrated case of varix thrombosis is followed from diagnosis to successful delivery.
Purpose:	Case report. To educate and assist physicians and sonographers in making appropriate ultrasound diagnosis of fetal umbilical varix and varix thrombosis for increased fetal mortality.
Methods:	Early ultrasound diagnosis allowed successful pregnancy.
Results:	Successful management and delivery.
Conclusion:	<p>Diagnosis of FIUV varix is defined by an umbilical vein that is at least 50% wider than the non-dilated portion or dilation of 9 mm or greater. Due to increasing awareness, the frequency of diagnosis has increased in the past several years.</p> <p>However, FIUV varix thrombosis is still a rarely diagnosed entity. The diagnosis of FIUV varix thrombosis is made by evidence of clot within the varix. A recent literature search noted only a few cases reported worldwide.</p> <p>Detection typically occurs with the sonographic finding of a sonolucent structure adjacent to the fetal urinary bladder. Color doppler is performed to determine vascularity and search for thrombosis.</p> <p>The diameter of the normal FIUV increases linearly from 3 mm at 15 weeks to 8 mm at term. Detection of an umbilical vein varix should prompt a thorough examination of the fetus, including a fetal survey and echocardiography. Close observation and management is indicated when FIUV varix is seen. Fetal hemolytic disease should be ruled out, and karyotyping should be considered if other anomalies are present.</p> <p>There are considerable differences reported in fetal outcome between different studies. Outcomes are better when diagnosis of umbilical vein varix occurs late in pregnancy. Still, evaluation is necessary to rule out associated malformations, and complications such as thrombosis.</p> <p>Management of isolated FIUV varix should follow standard established protocols with good fetal outcomes expected. Doppler imaging should be performed every two weeks to search for clot, hydrops and monitor varix size. Delivery is recommended if thrombosis is identified.</p>

Use of Surgisis Enterocutaneous Fistula Plug for Treatment of Complex Enterocutaneous Fistulas

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Doherty A, PA, Department of Radiology, Aurora St. Luke's Medical Center

Background/significance:	This educational exhibit is designed to discuss technical and patient management issues related to image-guided placement of Surgisis enterocutaneous fistula plug for the treatment of complex enterocutaneous fistulas of various etiologies.
Purpose:	Bowel fistulas, whether postoperative, post-inflammatory, or infectious, are common conditions, which often heal with conservative management. Persistent fistulas can result in significant morbidity and prolonged drainage. The various treatment options include glue, coil embolization, resection, or surgical bypass of fistula segment. Surgisis fistula plug, an acellular matrix biomaterial derived from porcine small intestine submucosa, designed to stimulate fibroblast proliferation, offers an alternative curative treatment.
Methods:	We reviewed our experience in a number of patients with complex fistulas of various etiologies, including rectal fistula after colectomy in patients with rectal cancer, sigmoid fistula secondary to complicated diverticulitis, and gastric fistula after sleeve gastrectomy. The mean time from fistula diagnosis to plug placement was 278 days (128-467 days).
Results:	We had an 80% technical success rate for initial placement. One patient had the flange pulled through the colonic wall defect during placement, and access back into the bowel could not be obtained in that session. The patient elected for surgical treatment. Clinical failures include recurrent fistulas in patients with active ulcerative colitis, recurrent diverticulitis (6 months later), and persistent gastric leak. Careful post-procedure care includes minimizing bowel activity and patient activity to allow time for incorporation of the plug. The mean follow-up after successful plug placement was 85 days (26-96 days).
Conclusion:	The placement of the Cook Surgisis fistula plug offers an alternative curative treatment of complex enterocutaneous fistulas. We will discuss the procedural challenges that may affect the success of this treatment. Considerations for optimal success include plug size, types of sedation, combination with endoscopy, and careful postoperative management.

Evaluation & Optimization of Observation Patient Medication Practices at Aurora St. Luke's Medical Center

Lydon EM, PharmD, Department of Pharmacy, Aurora St. Luke's Medical Center

Background/significance:	Currently at Aurora St. Luke's Medical Center, patients who are deemed to be in observation status account for approximately 22% of the average hospital census. Depending on insurance, some observation patients may not have their medication expenses reimbursed while being treated at the hospital. For this reason, Aurora Health Care's policy permits observation patients to use their home medications if available. However, use of medications from home in hospital is associated with reduced utilization of medication safety technology, challenging medication charting for nurses and compromised pharmacist productivity.
Purpose:	To evaluate and optimize the process for dispensing hospital supplied medications to eligible observation patients at Aurora St. Luke's Medical Center.
Methods:	A retrospective chart review of 50 observation patients in Cerner™ and Epic™ (medical record software) was performed using a survey tool to evaluate the state of home medication verification, charting and administration prior to optimization. In addition, six months of medication incident reports from the hospital's incident reporting system were reviewed to identify adverse events related to the use of home medications in the hospital. Feedback from pharmacists, clinical nurse specialists and nurse managers about the current observation patient home medication process was collected to confirm the current workflow for verifying, charting and administering of home medications. An ideal workflow for these processes was formulated in an effort to determine where improvements could be made.
Results:	Two significant issues found with the current observation patient home medication workflow include a non-efficient verification/order entry process for pharmacists and nursing confusion regarding charting of home meds. Changes are being made to Epic™ to allow more efficient entry and verification of home medications for pharmacists. Additionally, nursing education is being developed to help nurses review observation patient medication procedures for charting and administration of home meds.
Conclusion:	Conclusions from this project are still pending.

Case Report: Intra-Abdominal Daily Interruption of Continuous Sedation: A Multidisciplinary Approach for the Mechanically Ventilated

Zimmerman JD, PharmD, Department of Pharmacy, Aurora St. Luke's Medical Center

Background/significance:	Thousands of intensive care unit (ICU) admissions occur annually, of which, many patients require the use of mechanical ventilation secondary to a number of clinical indications. Contrary to physiologic breathing, mechanical ventilation is a major cause of agitation for many patients. To ease patient's agitation during mechanical ventilation, the use of sedative infusions has become common practice in many ICUs throughout the country. Evidence-based practice guidelines for sedation recommend the utilization of algorithm-based sedation protocols and titration of sedation to a defined endpoint with a daily interruption of sedation and retitration to minimize prolonged sedative effects. Daily interruption of sedation protocols have been shown to decrease the length of mechanical ventilation, decrease the length of stay in the ICU, increase success of spontaneous breathing trials, and increase the patient's ability to participate in physical and occupational therapy to improve physical status.
Purpose:	The primary objective this project is to implement a multidisciplinary, evidence-based, best practice protocol in mechanically ventilated patients that focuses on the utilization of daily interruption of sedation. Secondary objectives are to measure length of mechanical ventilation, length of stay in both the ICU and hospital and to evaluate the documentation of protocol adherence.
Methods:	A multidisciplinary team consisting of pharmacists, physicians, nurses, respiratory therapists, and physical and occupational therapists was created. A literature search of daily interruptions of sedation paired with spontaneous breathing trials and early physical/occupational therapy was completed. A pilot in the Medical-Respiratory Intensive Care Unit (MRICU) is being conducted based on an agreed upon evidence-based protocol. Pre-protocol implementation data was collected from October 2010 through January 2012. Post-protocol implementation is being collected from February 2012 through present time.
Results:	In total, 730 mechanically ventilated patients were evaluated pre-protocol implementation. The median (interquartile range) of mechanical ventilation days was 2.54 (1.06 – 6.18), length of stay in the ICU in days was 4.56 (2.17 – 9.30), and length of stay in the hospital in days was 11.23 (5.88 – 20.06). The post-protocol implementation data is pending.
Conclusion:	Conclusions are pending the results of post-protocol implementation.

Development of Collaborative Practice Agreements for the Management of Diarrhea and Constipation in Oncology

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Background/ significance:	<p>Collaborative drug therapy management is a multidisciplinary approach to health care in which one or more physicians and pharmacists establish written guidelines that authorize the pharmacist to initiate, modify, and/or continue drug therapy. Such agreements improve patient outcomes by increasing patient compliance, decreasing unnecessary physician office visits, and preventing drug therapy problems.</p> <p>Constipation and diarrhea are among the most commonly reported gastrointestinal symptoms in patients with cancer. Constipation affects 40–60% of patients with advanced cancer and can significantly impact quality of life. Diarrhea may be severe, leading to consequences such as dehydration, electrolyte abnormalities, and death.</p>
Purpose:	To develop and implement collaborative practice agreements (CPAs) for the management of constipation and diarrhea in patients with cancer.
Methods:	Evidence-based CPAs were developed and presented to the oncologists and the Pharmacy and Therapeutics Committee. Approval was obtained for conducting a pilot on the inpatient oncology unit at Aurora St. Luke's Medical Center in February. In December, baseline data was collected via electronic chart review to assess current practices for managing constipation and diarrhea among inpatients with cancer. Information regarding onset of symptoms, bowel regimen prior to admit, inpatient bowel regimen, and time to relief of symptoms was collected. Pre- and post-implementation data will be compared to assess impact.
Results:	<p>Seventeen patients with constipation and eight patients with diarrhea were identified through baseline data collection.</p> <p>The average time to resolution of constipation was four days. Patients received an average of three laxatives. Two patients required methylnaltrexone to relieve constipation. Twelve patients were receiving opioids prior to admission and 15 patients received opioids during their hospital stay. Five patients were on a bowel regimen prior to admission.</p> <p>The average time to resolution of diarrhea was 10 days. Two patients required octreotide. Two patients were on tube feeds and one patient was receiving laxatives.</p> <p>One consult for management of constipation was received during the pilot.</p>
Conclusion:	The pilot will be extended into March to allow for additional data collection. Baseline data will be compared to pilot data, with the goal being to see a reduction in duration of constipation/diarrhea and the number of agents required to relieve symptoms.

Prosthetic Valve Challenges and Multimodality Imaging

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Paterick TE, MD, Department of Cardiology, Aurora St. Luke's Medical Center
Port SC, MD, Department of Cardiology, Aurora St. Luke's Medical Center
Tajik AJ, MD, Department of Cardiology, Aurora St. Luke's Medical Center
Ammar KA, MD, Department of Cardiology, Aurora St. Luke's Medical Center (Presenter)

Background/ significance:	<p>A 47-year-old woman who received a 21-mm aortic valve replacement in 2000 was recently admitted with syncope and subtherapeutic INR, superimposed on exercise intolerance since surgery. She has had multiple hospitalizations for dizziness and chest pain since 2000, and past transthoracic echocardiograms (TTE) revealed an increased mean gradient of 40 mmHg. During prior diagnostic coronary catheterization, the right Judkins catheter inadvertently crossed the valve, and pullback noted no gradient. The gradient seen on TTE was interpreted as echo artifact.</p>
Purpose:	Demonstrate that CT angiography is a superior method to evaluate prosthetic valve structure and leaflet mobility.
Methods:	TTE at admission revealed a mean gradient of 45 mmHg and suggested restricted leaflet motion. Transesophageal echocardiography (TEE) confirmed these findings, with limited leaflet visualization. Due to prior recording of this gradient as artifact, transseptal catheterization was performed and a mean gradient of 56 mmHg obtained. Fluoroscopy indicated decreased leaflet excursion, but was equivocal. Therefore, computed tomographic angiography (CTA) of the aortic valve was done, which clearly demonstrated normal leaflet excursion.
Results:	High gradient was attributed to patient-prosthesis mismatch, and she was referred to surgery.
Conclusion:	Elevated mean gradient from TTE or TEE is more accurate than pullback with an end-hole catheter. Transseptal catheterization should be performed to resolve these issues. CTA is preferable to fluoroscopy for valve leaflet visualization.

Geriatrics Fellows' Most Difficult Case Conference: Knowledge Sharing and Teaching Through Program Networking: A One Year Experience

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Background/significance:	A monthly "Most Difficult Case Conference" (MDCC) has emerged as a promising approach to these challenges. It has grown to involve 13 GFPs in 7 states, networked by a simple conference call. The fellowship teams rotate in selecting and presenting cases experienced as especially taxing, both cognitively and emotionally. Teams at the other sites take turns inquiring about the case, using the "Wisconsin Star Method" as a format. This involves mapping clinical data onto a single ecological field with five domains: medications, medical, behavioral, personal, and social. Geriatric psychiatry and geriatric medicine faculty from other sites then take turns with summary teaching points, and the discussions conclude with "the rest of the story" from the presenting team.
Purpose/Methods:	This is an on-line survey of participants during the second year of the program.
Results:	<p>When compared to last year an increased number of respondents noted that the quality of program was good (72% vs. 59%), enjoyed collaborating with colleagues across the country (89% vs. 74%), and would recommend it to their colleagues (78% vs. 69%).</p> <p>As compared to last year more respondents noted learning new practical strategies for addressing complexity (61% to 36%) and that Wisconsin Star Method was effective in assessing complex cases (61% to 49%). Regular usage of Wisconsin Star Method in clinical practice did not change (18%). Similar to last year, responders found the discussions of the "hardest part of the case" and the "summary teaching points" to be most useful.</p> <p>Participants noted that the conference allows them to feel part of a national interdisciplinary team (61%) and half noted that it has built their emotional and cognitive skills.</p>
Conclusion:	"Geriatrics Fellows Most Difficult Case Conference" has demonstrated an improvement in participant satisfaction over the last 2 years. This assessment of the conference will assist in making the educational case for further dissemination to additional fellowship programs.

Growth Restriction and Twin Gestation: A Systematic Review

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Background/significance:	Monitoring fetal growth throughout pregnancy is one very important way to assess fetal well being. Genetic factors or maternal illness can cause uteroplacental insufficiency and may lead to growth restriction. Growth restricted fetuses are at increased risk of perinatal morbidity and mortality compared to appropriately grown fetuses.
Purpose:	Methods of detection of growth restriction in singletons has been widely studied and management guidelines have been proposed by ACOG. However, very few studies have sought to determine if IUGR among twins is associated with the same risk factors as those found in singletons with IUGR. Additionally, there is a lack of data regarding accurate detection of growth restriction (singleton vs twin nomograms), outcomes and management of twin gestations with this condition.
Methods:	We did PubMed and Cochrane database searches using the terms "fetal growth restriction" and "twins." The search generated 872 abstracts. Articles published before 1990 were excluded, resulting in 66 abstracts. From those we excluded articles that mention twin-twin transfusion syndrome, discordance alone, congenital anomalies or aneuploidy as possible causes of IUGR. The search yielded 22 articles that matched our inclusion criteria.
Results:	The overall rate of IUGR in twins is about 26%. This goes along with the reported incidence of IUGR in twin gestations according to ACOG which ranges from 14–25%. Upon review of the literature, there is evidence supporting and refuting the idea that the use of twin nomograms is necessary to accurately detect IUGR in twins. However, when twin nomograms were utilized the incidence of IUGR was much lower (14%). The clinical significance of this remains uncertain. There is also conflicting evidence on whether morbidity and mortality are worse for twin pregnancies complicated with IUGR. The likely explanation for such discrepancy in the literature is that most of the studies were underpowered to detect true differences in outcomes when comparing growth restricted singletons to twins.
Conclusion:	Both twin gestation and growth restriction represent high risk pregnancy conditions. Together, they may significantly increased maternal and neonatal morbidity and mortality. However, the results of this review did not demonstrate a difference in perinatal outcomes in twins with IUGR compared to singletons. Given the lack of high quality data, current management of IUGR in singletons can also be applied to twins.

Methods for Improving Discharge Prescription Rate Capture

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Background/ significance:	Approximately 25% of patients do not get their discharge prescriptions filled. This can often lead to readmission to the hospital and be harmful to the patient.
Purpose:	With an outpatient pharmacy located within the hospital, we have the opportunity to help prevent these particular readmissions and improve patient safety. Also, because of our 340B status, we are able to generate additional revenue for the hospital through increased prescription capture.
Methods:	Approval from the Institutional Review Board has been obtained. This project consists of two pilots that involve different methods to increase discharge prescription capture. These methods focused on increasing patient awareness of the outpatient pharmacy services, decreasing prescription turnaround time, educating caregivers about the improvements in patient safety that occur with increased prescription capture, and decreasing nursing's time required to send prescriptions to the pharmacy. Percentage of prescriptions filled at the outpatient pharmacy and patient satisfaction scores were measured. A return on investment analysis will be completed at the conclusion of the second pilot, and the most beneficial and efficient processes will be taken from each pilot for further implementation where appropriate.
Results:	Pilot 1 was completed on a general medicine unit with an average census of 13 patients per day in fall of 2011. The percentage of prescriptions filled increased from a baseline of 30.9% to 32.4% after pilot 1 implementation. Inpatient pharmacists offered the outpatient pharmacy services and communicated medication reconciliation results for increased medication education. With these processes, Press Ganey scores also improved. The answer "always" for the medication education domain increased from 38% pre-pilot to 61% post-pilot.
Conclusion:	While a slight increase was seen in prescription capture after pilot 1, several opportunities were identified for improvement for pilot 2. Since discharge is often a busy time for patients, pilot 2 involves other disciplines to increase awareness about the outpatient pharmacy during other points during the patient stay. Also, alternative methods were developed to decrease prescription turnaround time which was identified as a barrier for capturing some prescriptions. Lastly, quality opportunities and patient satisfaction score improvement from pilot 1 were used to motivate caregivers to recommend outpatient pharmacy services with confidence.

Poster viewing – Judged Posters

Ten-Year Outcomes After Revascularization of Peripheral Arterial Disease with Adjunctive Atherectomy

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Background/ significance:	Atherectomy is sometimes used during revascularization of peripheral arterial disease (PAD), but its impact on outcomes warrants further investigation.
Purpose:	To investigate the impact of atherectomy on outcomes of PAD.
Methods:	We reviewed records of patients with PAD revascularized from Jan. 2000 to Dec. 2007 and follow-up through March 2011. Revascularized patients who received atherectomy, thrombectomy or endarterectomy were compared to routine revascularization. Primary end point was a composite of target vessel revascularization (TVR), amputation or death from any cause.
Results:	Of 415 cases (300 pts), 74 cases (53 pts) made up the atherectomy group. Revascularization was by percutaneous intervention with stents in 318 cases and surgical bypass in 97 cases. Event-free survival was better in the routine revascularization group; log rank $p=0.03$. Irrespective of the method of revascularization, there was a higher incidence of combined TVR, amputation or death in the atherectomy group, mainly driven by TVR.
Conclusion:	Patients treated with atherectomy for severe PAD experience a higher incidence of combined TVR, amputation or death.

"You Learn to Go Last": Prenatal Care Experiences in a Sample of African-American Women with Limited Incomes

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Background/ significance:	African-American infants die at a rate nearly three times higher than White infants in Milwaukee and are at a much greater risk of adverse birth outcomes. Access to early, continuous, and quality prenatal care can significantly improve birth outcomes and reduce disparities. Although self-reported experiences of racism have been associated with adverse birth outcomes, there has been limited research on the impact of racism on women's prenatal care experiences.
Purpose:	To examine the presence and nature of experiences of racial discrimination during prenatal care from the perspectives of African-American women in a low income Milwaukee neighborhood.
Methods:	We conducted six focus groups with twenty-nine women and two individual structured interviews. We analyzed transcripts to identify important emergent themes.
Results:	While a few women described perceiving mistreatment as clearly based on race, many more expressed being treated differently based on type of insurance or income level. They described being treated differently by health care providers and staff. They perceived a lower quality of care at clinics that accepted public insurance (versus private insurance); many perceived that only African American women were on public insurance. Many women also described lifetime experiences of racial discrimination and how it affected their lives.
Conclusion:	Our findings suggest a need for increasing provider awareness of the patient's perception of discrimination in health care settings, how these perceptions influence patient-provider relationships, communication, and use of prenatal care services, especially among low-income African-American women.

Appropriateness of Stress Echocardiograms: A Comparison of New and Old Appropriate Use Criteria for Patients Presenting with Acute Chest Pain

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Background/significance:	Many protocols have been established to rule out acute coronary syndrome in low- to intermediate-risk patients presenting with chest pain. Our tertiary care hospital developed an observation-stay chest pain service, run by cardiology fellows and teaching faculty, to provide better and more effective care of these patients, improve patient safety and shorten length of stay.
Purpose:	The goal of this study was to identify the appropriateness of stress echocardiograms (echoes) ordered by our cardiology service using the ACCF/ASE/AHA/ASNC/HFSA/HRS/SCAI/SCCM/SCCT/SCMR 2011 Appropriate Use Criteria (AUC) for Echocardiography, and comparing it with the previously published 2008 criteria for stress echocardiography.
Methods:	We retrospectively reviewed 459 patients admitted to our chest pain service. Baseline patient characteristics, pretest probability of coronary artery disease and length of stay were recorded. The 2008 and 2011 AUC were used to assess appropriateness of the stress echoes using the category of "Detection of CAD: acute chest pain."
Results:	Stress echo was performed in 65% (n=300) of the patients, myocardial perfusion imaging in 15% (n=67). Of patients with stress echo, 83.5% had TIMI risk scores of zero or one. Stress echoes were ordered appropriately in 64.7% and 100% of the cases using 2008 and 2011 criteria, respectively. A significant amount of studies were unclassified (24.7%) using the 2008 criteria because of low pretest probability of CAD. There were no inappropriate stress echoes ordered using the 2011 AUC.
Conclusion:	In a cardiology chest pain service designed to quickly and efficiently rule out acute coronary syndrome, more stress echoes are classified as appropriate using the new 2011 AUC than with the more stringent 2008 criteria. Further evaluation of the 2011 appropriate use criteria is recommended, as stress echo for all patients presenting with acute chest pain but without definite acute coronary syndrome is now considered appropriate, regardless of risk or pretest probability of coronary artery disease.

In-Vitro Environmental Isolation and Partial Characterization of Putative Chrysosporium zonatum

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Background/significance:	Chrysosporium zonatum, the anamorph of an ascomycete fungus, has been associated with human disease. It has been isolated from several worldwide environments by hair-bating.
Purpose:	To describe the serendipitous in-vitro isolation and initial characterization of putative C. zonatum from soil.
Methods:	Piloting a potential new isolation technique for Blastomyces, 5 soil samples were obtained from a Milwaukee County yard, diluted two-fold in aqueous 0.5% allantoin, Tween-80 (20 ml/l) and penicillin/streptomycin and incubated at 37°. Three weeks later, samples were spread on low glucose, high ammonia (4.2 mmol/l) basic salts agar plates at pH=7 at 37° in gas impermeable bags. A strain was isolated, then tested on Sabouraud dextrose agar (SDA) at various temperatures; and at varying ammonia concentrations at 20°. Yeast conversion was attempted on allantoin-based liquid and solid media containing dextrose +/- Tween-80; or glycerol at 20 or 37°.
Results:	A strain was isolated from 1/5 cultures. Soil (decaying bark/sand/clay) beneath a dryer vent yielded a buff colored, zonate, wooly to powdery mold on SDA that grew faster, with darker reverse, at 37–39° vs. 20°, and produced solitary, ovoid aleurioconidia with broad, flat basal scars, sessile or on curved stalks, all consistent with Chrysosporium zonatum. Some large (adia-) spores were formed (similar to Blastomyces' closest relative). It did not convert to a yeast form or grow at 42°. The strain tolerated ammonia levels of 63-93 mmol/l, on low dextrose media, similar to Blastomyces.
Conclusion:	This putative C. zonatum strain may be closely related and share a microenvironment with Blastomyces dermatitidis. Fluctuating domestic outdoor environments such as under dryer vents may harbor fungal pathogens capable of growth at body temperature.

ECHDC2, A Novel Mitochondria Protein is Abundantly Expressed in Dahl S Rat Hearts: Implications for Myocardial Ischemia/Reperfusion Injury

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Background/ significance:	Myocardial infarction (MI) is a life-threatening disorder that remains a source of high morbidity and mortality worldwide. Thus cardioprotection against myocardial ischemia and reperfusion (I/R) injury after MI has been the focus of cardiovascular research for decades. Previously, we reported that Dahl S (SS) rats were more susceptible to myocardial I/R injury than Brown Norway (BN) rats.
Purpose:	Our purpose of this study is to determine potential mechanisms that mediate this differential susceptibility to myocardial I/R.
Methods:	Microarray was performed in heart tissue from SS and BN rats in order to identify unique genes expressed in these hearts. Realtime (RT)-PCR, western blot analysis, histology as well as over expression techniques were also used to determine the expression, localization, and function of unique genes that were differentially expressed in SS and BN hearts.
Results:	Microarray analysis revealed that the mitochondria protein enoyl CoA hydratase containing domain 2 (ECHDC2), a novel protein whose function has not yet been identified, is highly expressed in SS hearts compared with BN hearts. RT-PCR, western blot analysis and histology revealed that ECHDC2 was expressed ~7 fold higher in SS hearts than in BN hearts. To determine the function of ECHDC2 in the heart, we established Human Embryonic Kidney (HEK) 293 cells stably expressing ECHDC2. Induction of ECHDC2 expression by tetracycline increased cell fatty acid-induced but not glucose-induced O ₂ consumption. Under basal conditions, ECHDC2 overexpression did not induce cell death. However, when subjected to simulated ischemia or I/R, cells that over expressed ECHDC2 were markedly more susceptible to death.
Conclusion:	Our data suggest that ECHDC2 increases susceptibility of SS rats to I/R injury in part via modulating mitochondrial bioenergetics. Our findings are the first to suggest that ECHDC2 represents a novel target to prevent myocardial I/R injury.

Diagnosis of Blastomyces dermatitidis in the Urban and Rural Environment: A Comparative Study

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Background/ significance:	Blastomycosis is a systemic fungal infection endemic to northern and eastern Wisconsin. Disease typically starts as a pneumonia, but may disseminate. Diagnosis is labor intensive and time consuming, requiring either culture or histology for Blastomyces dermatitidis. Recently, a urine antigen test has been developed to allow for rapid, if not definitive, diagnosis of blastomycosis.
Purpose:	To compare the diagnostic practices of clinicians in urban/suburban Eastern Wisconsin to those from rural Vilas County.
Methods:	A retrospective review of health department mandatory reports and records from a large eastern Wisconsin health system compared symptoms and diagnostic practices from Vilas County (N=55) and urban/suburban Eastern Wisconsin cases (N=87).
Results:	Pulmonary blastomycosis was more common in rural cases than the urban/suburban group (89.0% vs. 58.4%, P<0.001). Hemoptysis as a presenting symptom was more common among urban/suburban cases (43% vs. 13%, p=0.00). Histologic diagnosis was more common in rural cases (P<0.00), while microscopic diagnosis and serology were each more common with urban/suburban patients. Urine antigen testing was not used extensively at either site.
Conclusion:	Milder cases of pulmonary blastomycosis may be more readily diagnosed in rural, highly endemic settings. More frequent use of urine antigen testing may improve the diagnosis of blastomycosis.

Hyponatremia Associated with Flecainide: Case Series

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Background/significance:	Flecainide is a Class IC antiarrhythmic agent. It is used to prevent and treat cardiac arrhythmias. In the absence of cardiac side effects, flecainide is a well-tolerated agent
Purpose:	Flecainide-induced hyponatremia is not well-documented in literature; only few case reports documented the presence of hyponatremia with the use of flecainide. Its incidence is not reported.
Methods:	We reviewed 663 consecutive patients (65 ± 15 years old, 41.9% males) who were admitted to our institution from 1995 to 2011 and received flecainide therapy. Incidence of drop in serum sodium was calculated. Any drop of serum sodium by 10 mEq/L after starting flecainide therapy was considered hyponatremia. Baseline demographics (age, gender, race), comorbidities (coronary artery disease [CAD], diabetes mellitus, low ejection fraction) and the use of diuretics were analyzed to evaluate the risk of developing hyponatremia with flecainide use. All-cause mortality was assessed. Mean follow-up was 29 months.
Results:	Incidence of hyponatremia in this patient population was 8.9%. The average serum sodium level in patients who had hyponatremia was 127 ± 5 mEq/L. Incidence of hyponatremia was higher in women (10.9% vs. 6%, $p=0.0324$) and with age (<50 : 1.9%, 50-64: 5.8%, 65-74: 7.4%, ≥ 75 : 17.2%, $p<0.001$). Race did not affect incidence of hyponatremia. As expected, incidence increased with use of diuretics (11% vs. 2.9%, $p=0.001$). Elevated creatinine (15% vs. 3.9%, $p<0.001$) and presence of diabetes mellitus (13.6% vs. 7.2%, $p=0.0118$) were associated with higher incidence of hyponatremia. All-cause mortality was higher in patients on flecainide with decreased sodium level (35.6% vs. 10.9%, $p<0.001$). There was no difference in hyponatremia incidence in patients with history of CAD and ejection fraction $<40\%$.
Conclusion:	Incidence of serum sodium reduction with flecainide use during hospital stay in this patient population was 8.9%. Female gender, older age and concomitant use of diuretics are risk factors to increase this incidence.

Discovery of Candidate Antibodies with Anti-Inflammatory Properties in Melanoma Patients

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Background/significance:	Two well known properties of antibodies are their ability to neutralize pathogens and initiate inflammation at sites of tissue injury. Recently, a novel anti-inflammatory property of certain populations of antibodies has been described. These antibodies have a unique molecular signature that consists of a specific type of sugar modification (sialic acid). In the context of cancer, identification of anti-inflammatory antibodies to tumor antigens would support the concept that the immune system does not adequately respond to cancer because inflammatory pathways are suppressed.
Purpose:	The work described here was designed to address the following specific aims: 1) determine the frequency of antibodies to the melanoma antigen NY-Eso-1 in patients with metastatic melanoma; 2) determine whether such antibodies contain sialic acid within their Fc regions, and thus represent candidates for anti-inflammatory antibodies.
Methods:	We used Enzyme Linked Immunosorbent Assay (ELISA) on plasma samples ($n=168$) from sixty patients with metastatic melanoma in order to determine the frequency of patients with antibodies the NY-Eso-1 protein, and changes in antibody titer during IL-2 immunotherapy. Affinity chromatography was used to purify anti-NY-Eso-1 antibodies from positive plasma, and purified IgGs were analyzed further for sialic acid content by SNA lectin chromatography.
Results:	We found that: a) 10% of patients (6 of 60) with metastatic melanoma had high titers ($>1/50,000$) of IgG antibodies to the NY-Eso-1 antigen; b) antibody status (pos or neg) was a stable finding, i.e. there were no seroconversions during the study; c) four of six patients had IgG molecules that were highly sialylated on the Fc chain of IgG, and this ranged from 5-25% of the IgG; d) sialylation was antibody specific, in that antibodies to commonly encountered viruses had $<5\%$ sialic acid content.
Conclusion:	Our data provide evidence for the existence of a population of antibodies to a tumor antigen (NY-Eso-1) that contain sialic acid modification within the effector region (Fc) of the IgG molecule. As such, these antibodies are candidates for anti-inflammatory antibodies and may represent markers of attenuated immune responses in patients with metastatic cancer. This represents the first demonstration of such antibodies in human cancer.

Diabetic Patients Are Not Resistant to Aspirin Inhibition

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- Background/significance:** Daily aspirin in patients with prior MI (secondary prevention) reduces the risk of re-MI by 20-25%. Recent large randomized trials have failed to demonstrate any protective effect of aspirin in primary prevention of MI in diabetic patients. Some investigators have suggested "resistance" to aspirin may be responsible for this lack of benefit. Despite the lack of clinical benefit in primary prevention, we hypothesized that aspirin nevertheless decreases platelet aggregation to a similar degree in diabetics compared to non-diabetics.
- Purpose:** To determine if the maximum amount of aspirin-induced platelet inhibition in diabetic patients with and without history of myocardial infarction (MI) is lower than in nondiabetic patients with and without history of MI.
- Methods:** We divided 187 adults into four groups
1) Diabetics with previous MI (n=41)
2) Diabetics without previous MI (n=9)
3) Nondiabetics with previous MI (n=98)
4) Nondiabetics without previous MI (n=39)

Platelet function testing was performed via light transmission aggregometry using platelet prostaglandin agonist (PPA) to stimulate platelet aggregation. Maximal aspirin-induced decrease in platelet aggregation was defined as the difference between the slopes of the PPA aggregation curves at baseline (off-aspirin) and 2 hours post-aspirin dose (325 mg).
- Results:** Platelets from diabetics with and without a previous history of MI had significantly increased baseline (off-aspirin) platelet reactivity (higher PPA slope) compared to nondiabetic controls ($p<0.05$). Two hours after aspirin, diabetics with a history of MI had a significantly higher PPA slope than nondiabetic patients without a history of MI. Maximal aspirin-induced decrease in platelet function was negatively correlated with age ($r = -0.32$, $p=0.002$); however, when corrected for age, there was no significant difference in the maximum decrease in platelet function among the four study groups.
- Conclusion:** 1) Platelets from diabetics with a history of MI have higher levels of platelet activation both at baseline and after aspirin.
2) Aspirin (325 mg dose) induces a similar decrease in platelet aggregation in diabetics and non-diabetics as assessed by the slope of the PPA aggregation curve.
3) Despite similar effects on platelet aggregation in diabetics vs. nondiabetics, diabetics with a history of MI have higher net levels of platelet aggregation after taking aspirin, due to their higher level of platelet aggregation at baseline.
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Reduced Length of Stay in Patients Treated By a Specialized Chest Pain Care Team

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- Background/significance:** Chest pain is a common diagnosis for hospital admission. These patients are treated by cardiologists, internists and primary care physicians. Our aim was to determine if a specialized chest pain observation service reduces hospital length of stay (LOS), defined as initial presentation to discharge.
- Purpose:** Demonstrate that the Chest Pain Service at Aurora St. Luke's provides timely, expert care.
- Methods:** At Aurora St. Luke's Medical Center, a specialized chest pain service was created to streamline care of patients admitted for chest pain. The team consists of an attending cardiologist and a cardiology fellow. If appropriate, and after myocardial infarction has been ruled out, a stress test is ordered to further stratify the patient. We compared type of stress test ordered and length of stay among patients treated by the chest pain service or by any other team from Jan. 2010 to June 2011 (n=1,637).
- Results:** Patients treated by the chest pain service had significantly shorter LOS than those treated by other services (23.6 vs. 29.4 hours, $p<0.001$), regardless of type of stress test performed. Also, patients who underwent exercise stress echocardiogram had significantly shorter LOS than those who underwent nuclear stress test. Mean stress echo LOS for chest pain service patients was 22.2 hours vs. 23.2 for other services. Mean nuclear stress LOS was 33.7 vs. 40.7 hours, respectively.
- Conclusion:** A specialized cardiology treatment team provides more efficient care of patients with chest pain. Appropriate testing with exercise stress echocardiography further shortens patient length of stay.

Should Endoscopy Be Performed for Abnormalities Detected on Radiologic Imaging?

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Background/significance:

With advances in radiologic imaging, subtle changes are often seen in tissue of the upper gastrointestinal (UGI) tract. The ability of abdominal imaging to differentiate between benign and malignant lesions remains limited and further testing is often needed. Esophagogastroduodenoscopy (EGD) is often used to further investigate these radiographic abnormalities; the utility of endoscopy in this setting is unclear.

Purpose:

To study the correlation between abnormal upper gastrointestinal imaging and endoscopic findings.

Methods:

A retrospective chart review was performed of 151 patients who underwent EGD with an indication code for abnormal imaging of UGI tract between 2005 and 2010. Subjects were excluded if abnormal imaging was not consistent with thickening of bowel wall, the area of abnormality was not visualized during EGD (i.e., liver, pancreas, gallbladder), or there was a missing procedure or pathology report. 83 patients met criteria for this study. Those included had imaging that demonstrated a mass, thickening or irregularity of intestinal wall and subsequent EGD within 3 months of abnormal imaging. Endoscopic and pathologic results were reviewed.

Results:

A total of 7 (8%) cancerous and precancerous lesions were discovered (3 esophageal adenocarcinomas, 1 gastric adenocarcinoma, 1 lymphoma, 1 villous adenoma of the small bowel, 1 large gastric adenoma); all lesions correlated to areas of thickening on imaging. None of these patients had a previously history of UGI malignancy.

Areas of gastric thickening on imaging correlated most reliably on endoscopy. Subjects with both gastritis and esophagitis or duodenitis on biopsy, were placed in the gastritis category. H. pylori was diagnosed in 7 subjects and categorized as gastritis. Esophagitis was detected most reliably on CT. Barrett's esophagus was diagnosed in 4 patients and herpes esophagitis in 1 subject.

Radiological abnormality and corresponding Endoscopic/Pathologic Findings

	Gastritis	Esophagitis	Duodenitis	Barrett's
CT	20	2	1	3
UGI/Esophagram	8	3	0	0
Other imaging	4	2	0	1

	Polyps, benign	Celiac Sprue	Cancer
CT	2	1	6
UGI/Esophagram	4	0	1
Other imaging	1	0	0

Conclusion:

6% of the subjects were diagnosed with a new cancer and an additional 2% had precancerous polyps suggesting that endoscopic evaluation of abnormalities detected on CT scan is beneficial and warranted.

Gender Differences in Depression and Anxiety in Response to Cardiac Catheterization

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Background/significance:	Cardiovascular illness correlates highly with depression and anxiety. There is paucity of research about gender based responses to a cardiac procedure. If replicated in a longitudinal study, our study results show great promise in both diagnosing and designing the treatment interventions prior to the procedures.
Purpose:	Correlation of cardiovascular illness and emotional distress is well documented. However, gender differences in anxiety and depression in anticipation of cardiac catheterization are not known.
Methods:	This pilot study was conducted in 100 subjects (54 men) going for cardiac catheterization. Hamilton anxiety (HAMA) and depression (HAMD) scales were used in 42 subjects (23 men) before catheterization and 58 subjects (31 men) after catheterization but before the results were discussed with them.
Results:	<p>All subjects had completed the interview. In the study 70 subjects (40 men) had a score less than 17 while 30 subjects (14 men) had a score of 17 or more. However, gender related differences were seen.</p> <p>In women, there were no differences in the Hamilton Anxiety scores when assessed before or after catheterization. However, in men the scores were similar to those seen in women before catheterization and were significantly lower after catheterization. Before catheterization 43.5% of men and 36.8% of women had scores of 17 or more, while after the catheterization 12.9% of men and 33.3% of the women had scores of 17 or more.</p>
Conclusion:	These results show an interesting dichotomy of responses to stress of cardiac catheterization. Women maintain their anxiety while men seem to reveal very rapid extinction of the anxiety. If confirmed in longitudinal study, these results suggest significant gender differences in the response to anticipatory anxiety to cardiac catheterization.

Comparison of Three-Dimensional Rotational Angiography with Computed Tomography of the Left Atrium

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Background/significance:	3D rotational angiography (3DRA) is growing as an alternative to CT for guidance during left atrial (LA) ablation procedures. Detailed comparison between these two techniques has been mainly limited to measurement of the pulmonary vein ostia.
Purpose:	In prior studies, detailed comparison between these two techniques has been mainly limited to measurement of the pulmonary vein ostia. We used a qualitative approach to provide additional insights.
Methods:	Seven patients undergoing LA ablation received both CT scanning and 3DRA of the LA. Segmented 3D volume renderings (VR) were registered using specialized software (GE Healthcare, Waukesha, WI). Registration enabled comparison of VR and 2D cross-section views. Three different injection protocols were tried for 3DRA: injection in right atrium (RA); RV injection; and LA injection with rapid RV pacing.
Results:	We observed no difference in VR image quality between RV and RA injection and superior image quality with LA injection. In all cases, we observed a close match between 3DRA and CT. With RA and RV injection, 3DRA VR fused with CT VR matched best when the CT was gated at 75% of the cardiac cycle. With LA injection during RV pacing, the best match was observed with CT gated at 35% of cardiac cycle. Dose for 3DRA (dose-area product [DAP] 876 ± 252 cGy/cm ² , effective dose 1.75 ± 0.5 mSv) was lower than for ECG-gated CT (dose-length product 1958 ± 899 mGy/cm, 33.3 ± 15.3 mSv) and was just a small percentage of the full EP procedure (DAP 11423 ± 6304 cGy/cm ²).
Conclusion:	3DRA has the potential to deliver image quality comparable to CT with lower patient dose. Further studies are necessary to validate these findings with a larger patient cohort.

Accuracy of Biplane CC-Fluoroscopy Fusion for Lesion Marking in Left Atrial Ablation: Comparison to Electroanatomic Mapping

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Background/significance:	CT-fluoroscopy fusion (CT X-ray), registration of real-time images from fluoroscopy with a CT left atrial (LA) model, has been proposed as a simpler and less costly alternative to electroanatomic mapping (EAM) for ablation of LA tachycardias. LA ablation procedures involve marking lesions on an anatomic model; however, accuracy of 3D lesion marking with CT X-ray is unknown.
Purpose:	In this study, we compared the accuracy of 3D lesion marking with biplane CT X-ray versus EAM in a series of clinical cases.
Methods:	CT scanning was performed prior to EP study for patients undergoing LA ablation, and LA models were segmented on a workstation. During the procedure, live fluoroscopic images were fused with CT on an image processing workstation using specialized software (GE Healthcare, Waukesha, WI). ECG gating and respiration motion tracking were performed automatically by the software. Biplane fluoroscopic images were taken, and lesions created using a 3.5mm-tip catheter were marked at the same time as with EAM (Carto XP, Biosense Webster Inc., Diamond Bar, CA) for 6 to 9 points in each patient. The 3D locations of these points were subsequently compared to their corresponding locations on EAM, and distance between lesions marked on the two modalities was measured.
Results:	A total of 53 points from 7 patients were collected and analyzed, with a mean distance between the two modalities of 5.65 ± 2.22 mm.
Conclusion:	Biplane CT X-ray lesion marking is typically within 6 mm of EAM. Further studies are warranted to understand the differences between the two approaches.

Atrial Myocardial Deformation Properties on 2-D Speckle Tracking Echocardiography Correlate with the Degree of Fibrosis on Histology

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Background/significance:	Atrial structural remodeling, particularly fibrosis with aging and/or chronic heart disease increases predisposition to atrial fibrillation (AF). Two-dimensional speckle tracking echocardiography is a novel noninvasive tool that can characterize atrial mechanical function and the substrate for AF. However, it's correlation with atrial structural abnormalities such as degree of fibrosis has not been fully characterized.
Methods:	In patients undergoing coronary artery bypass graft surgery, atrial fibrosis in the right atrial appendage determined by mason trichrome staining was correlated with strain measurements obtained pre-operatively during sinus rhythm. Histological and strain measurements in patients with paroxysmal or persistent AF were compared to those with no history of AF.
Results:	Both global and lateral wall regional strain during sinus rhythm was significantly reduced in patients with history of AF ($p < 0.01$) compared to the no AF group. Depressed contractility reflected by reduced atrial myocardial deformation in the AF group correlated with a higher degree of fibrosis on histology. Whereas, the no AF group showed preserved global and regional contractility and absence of significant fibrosis.
Conclusion:	Global and regional atrial myocardial deformation properties on 2-D speckle tracking echocardiography correlated well with the degree of fibrosis seen on atrial histology identifying abnormal atrial substrate in AF patients.

The Effect of Lard-Based Diet on Mitochondrial Function and Oxidative Stress

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Background/significance:	Animal-based fat commonly used for culinary purposes have been suggested to adversely affect of myocardial function, however its effect on mitochondrial energetics and oxidative stress has not been fully characterized.
Purpose:	The purpose was to assess the effect of a non-lard based (NLBD: PicoLab Rodent Diet 20, 5053; containing unsaturated fatty acids from plants and fish) and lard-based (LBD: OpenSource Diet, D12450B consisting of saturated and monounsaturated fatty acids from lard) diets on mitochondrial function and oxidative stress in ventricular myocardium from mice C57BL/6J.
Methods:	Specific activity of the individual complexes of the mitochondrial respiratory chain and malondialdehyde (MDA) were measured spectrophotometrically in mice heart homogenates.
Results:	After 10 weeks, the weight of LBD fed mice was greater than NLBD ($32.14 \pm 2.87\text{g}$ vs. $26.50 \pm 1.29\text{g}$, $p < 0.05$) and the activities of complex I ($p < 0.05$), III ($p < 0.05$), I-III, ($p < 0.01$), and IV ($p < 0.001$) were significantly reduced in myocardium. There were no differences in complex II, II-III, V, and CS activities. The changes in mitochondrial enzymes activities were accompanied by increased MDA levels ($p < 0.001$), a lipid peroxidation product and a marker of oxidative stress.
Conclusion:	Thus, the composition and not necessarily the amount of dietary fat influence myocardial energetics and oxidative stress with potential for adverse effects on myocardial function.

Improved Care for Hospitalized Seniors Using Acute Care for the Elderly Model of Care and Geriatrics Consult Service

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Background/ significance:

Acute care for the Elderly model of care started in 1990 by Dr. Palmer at the University hospital in Ohio. This model focus on 4 key elements in caring for seniors: prepared environment, patient centered care, early plans for discharge and medical care review. Patients seen on consult service were compared to seniors hospital wide and financial analysis for the two groups showed significant cost saving (\$653 per day) and much lower 30 day readmit rate (2%) for the patients seen by the geriatrics team. Processes of care was monitored as outcomes for the ACE Model of care and showed significant improvement over time including Foley catheter use (from 30% to 15%), restraint use (from 5% to 3%) and referral to PT, OT and Social Service.

Methods:

We adopted this model of care at Aurora West Allis Medical Center (190 beds) in 2006 on one floor. In August 2010, the Hospital administration invited the geriatricians to expand the same model hospital wide including the intensive care unit (5 Floors), the Geriatricians attended the interdisciplinary team rounds and made recommendations utilizing the ACE tracker and ACE cards to identify seniors with high risk of functional decline and complications. The Geriatricians also started Geriatrics consult service.

Results:

Patients seen on consult service were compared to seniors hospital wide and financial analysis for the two groups showed significant cost saving (\$653 per day) and much lower 30 day readmit rate (2%) for the patients seen by the geriatrics team. Physician and staff satisfaction surveys showed high satisfaction rate for both groups. Due to rapid increase in patients volumes on the consult service (50-60 per month) the hospital administration granted and full time Geriatric nurse practitioner to join the team.

Conclusion:

Using this Model, including the Geriatric consult team, we demonstrated an increased cost savings and much lower 30-day readmit rate.

Rieselbach Distinguished Paper session II

Skin Preparation Reduces Cardiac Implantable Device Infections

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Background/ significance:

A recently reported increase in cardiac implantable electronic device (CIED) infections is disproportionate to the increase in implants. The culprit organism in most CIED infections is reported as some form of staphylococcal bacteria.

Purpose:

We hypothesized changes in skin preparation prior to and during the procedure would reduce the incidence of CIED infections.

Methods:

Three interventions identified by a multidisciplinary team were implemented at our institution starting November 15, 2009. Process changes were: 1) avoidance of antibiotic pocket flushing; 2) preoperative skin washing with chlorhexidine gluconate 4% solution the night before and morning of implant procedure; and 3) strict 3-minute dry time after surgical skin preparation with chlorhexidine gluconate 2% and isopropyl alcohol 70% at time of implantation. Implant data from January 2008 to October 2010 (n=3,878, mean age 71 ± 13 years, male 61%, Caucasian 88%) were reviewed. Population characteristics and CIED infection rates were compared before (n=2,622) and after (n=1,251) implementation of process changes. Average follow-up was 22.1 months. Kaplan-Meier method was used to calculate estimated infection rates and Cox regression to identify infection predictors.

Results:

Comorbidities (CAD, cardiomyopathy, diabetes, hypertension, hemodialysis, use of glucocorticoids) were similar in both groups. There was slightly less primary implantation (47% vs. 41%, $p=0.001$), warfarin use (28% vs 25%, $p=0.02$) and prior transvenous temporary pacing (4.7% vs. 2.7%, $p=0.0035$) in the postintervention group. However, univariate and bivariate analyses showed no statistically significant effect on CIED infection risk. Antibiotic pocket flushing was reduced from 73% to 28% post interventions. During the study period, 30 CIED infections occurred. After implementation of interventions, CIED infection rate at 12 months post-implant decreased from 1% (n=27) to 0.24% (n=3), $p=0.01$ (hazard ratio 4.2; 95% CI: 1.28-13.86) with similar results at 3- and 6-month follow-up.

Conclusion:

Multidisciplinary interventions (avoidance of antibiotic pocket flushing, additional preoperative skin washing and strict 3-minute dry time after surgical skin preparation) significantly reduce post-CIED infections.

Oral presentation session II

Geographical Analysis of ADHD Diagnosis in Children: Dane County vs. Eastern Wisconsin

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Background/ significance:

Although causes of Attention Deficit/Hyperactivity Disorder (ADHD) remain to be identified, evidence suggests genetic and environmental factors. A previous study of the geographic distribution of ADHD in Eastern Wisconsin (prevalence 13.5%) suggested that male gender, white race, lower block group median household income and population density, and greater distance to the nearest park were factors predictive of ADHD diagnosis.

Purpose:

To perform a similar study in Dane County, WI.

Methods:

Cross sectional study of children (5-17) that received well child care in Dane County UW Family Medicine clinics (N=7954) from 2007-2008. Children diagnosed with ADHD (ICD-9 codes 314.0 – 314.9) were compared to those without ADHD diagnosis. Street addresses were geocoded to 2000 Census block group and analyzed. Univariate analysis was done by chi-square test or Mann-Whitney U test, multivariate analysis by logistic regression.

Results:

ADHD diagnosis was present in 309 (3.9%) of children (74.1% male $p=0.000$) and more frequently diagnosed in Black children (6.8%) than Whites (4%), Native American (2.7%), Hispanics (1.6%), or Asians (1.3%). In contrast to Eastern WI, Black race was predictive of ADHD, while median household income, population density and distance to nearest park did not have significant correlations. There was a trend toward lower income in ADHD diagnosed children in school district boundaries where ADHD was greater than 4%. The range of ADHD within school district boundaries was 2.4– 7.1% (for $N>100$ /district).

Conclusion:

ADHD diagnosis was much less common in this Dane County cohort compared to Eastern WI; was more common among blacks, but not predicted by other geo-demographic factors. Like Eastern Wisconsin, ADHD diagnosis prevalence varied with apparent school district boundaries.

Is Bigger Better? The Paradox of Body Surface Area and Outcomes After Percutaneous Coronary Intervention for ST-Elevation Myocardial Infarction

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Background/ significance:

Studies have reported more mortality and cardiovascular morbidity in patients with high body mass index (BMI), but the impact of body surface area (BSA) after contemporary interventions has not been established. This study aimed to determine the effect of BSA on mortality and complications after percutaneous coronary intervention (PCI) for ST-elevation myocardial infarction (STEMI).

Purpose:

Determine the impact of body surface area on clinical outcomes after PCI in patients with STEMI.

Methods:

We analyzed a prospective registry of patients with STEMI who received PCI at a tertiary care hospital from January 2003 to December 2009. Post-PCI complications were documented prior to patient discharge. Deaths occurring after index hospitalization were identified via National Death Index.

Results:

Of 2,195 study patients (mean age \pm standard deviation 61.5 ± 13.2 years), 31.5% were women. Mean BSA and BMI were 2.0 ± 0.3 m² and 29.2 ± 6.2 kg/m², respectively. Patients in the lowest quartile of BSA had 1-year all-cause mortality of 11.0%, which progressively decreased to 5.1% in the highest BSA quartile, $p<0.0001$. After adjusting for sex and BMI, there was a 60% relative risk reduction (95% confidence interval 10-85, $p=0.02$) in 1-year mortality for a 1 m² increase in BSA. Lower BSA was associated with higher incidence of cardiogenic shock, acute renal failure, coronary dissection and vascular and bleeding complications post-PCI.

Conclusion:

In STEMI patients treated with PCI, low BSA is associated with higher mortality and complication rates irrespective of BMI and sex.

Can a Real-Time Checklist, Automatically Generated By the Electronic Medical Record, Predict 30-Day Readmissions in Hospitalized Elderly?

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Background/significance:	Approximately one-fifth of Medicare beneficiaries are readmitted within 30 days. A software called "ACE Tracker" enables the health care team to quickly view risk factors that may be correlated with readmission at the bedside and identify vulnerable seniors in the hospital.
Purpose:	Can a real-time "ACE Tracker" tool embedded in the electronic medical record predict 30-day readmissions?
Methods:	<p>Acute Care for Elders (ACE) Tracker is a real-time report that captures relevant data from the electronic medical record of older patients including: readmission risk score, number of medications, Morse fall score, urinary catheter usage, functional status, Braden and pain score.</p> <p>The readmission risk score is generated from the electronic medical record ranging from 0-20 based on presence of the following risk factors.</p> <p>1) Admitting diagnoses: congestive heart failure (CHF), psychosis, other vascular surgeries, chronic obstructive pulmonary disease (COPD), pneumonia, gastrointestinal problems 2) Chronic diseases: CHF, COPD, diabetes mellitus, shortness of breath, skin ulcers, cirrhosis, leukemia, peripheral vascular disease, stroke, metastatic cancer, malnutrition, acute respiratory failure, rheumatoid arthritis, hypertension. 3) Demographics: hospital admission in prior 6 months, length of stay. 4) Social factors: functional status, Medicaid, living situation and educational barriers.</p>
Results:	Validation of readmission risk tool: The readmit risk score was determined for 227 patients at four hospitals on one day and those patients were followed for thirty days afterwards. Forty-one percent had a value score of 7 or more. Using a cutoff value of 7, sensitivity was 61%, specificity= 22%, positive predictive value=12%, negative predictive value= 77%. The positive and negative likelihood ratios were 0.8 and 1.8. Univariate and multivariate analyses were performed on variable predictors available on "ACE Tracker." The risk of readmission was correlated with number of medications ($p=0.03$) and readmission risk score ($p=0.001$).
Conclusion:	Number of medications variable on "ACE Tracker" correlates with readmission. The readmission risk score is better at identifying those who are not at risk for readmission. Software tools automatically built into the electronic medical record may help health care workers define populations who are and who are not at risk for re-hospitalization.

High Dose IL2 and Neuropsychiatric Manifestations and Treatment

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Background/significance:	The management of patients with end stage renal cell carcinoma (RCC) or melanoma is a difficult problem. Most of these patients derive clinical benefit from immunotherapy, particularly high-dose bolus interleukin (IL)-2, based entirely on immune modulatory effects. Unfortunately, it has significant neuro-psychiatric side effects that sometimes mandate stopping the IL-2 treatment.
Purpose:	Treatment of patients with end stage renal cell carcinoma (RCC) or melanoma remains difficult. Immunotherapy with high-dose bolus interleukin (IL-2) is the first biological product clinically approved for the treatment of these cancers. Although effective in 15-20% of patients, high-dose IL-2 treatment has significant neuropsychiatric side effects that mandate treatment cessation. Currently, there is little information available on patients who are prone to these neuro-psychiatric side effects. The main objective was to investigate whether occult brain metastases predispose the patient to developing neuro-psychiatric side effects.
Methods:	We performed retrospective medical chart reviews of patients who had either RCC or malignant melanoma. Variables considered include patient demographics, cancer type, IL-2 treatment, response to treatment, location of metastasis, prior surgery, prior psychiatric history, and substance abuse. We conducted multivariable log-binomial regression analyses to examine the association between risk factors and neuro-psychiatric side effects.
Results:	Our study population included 261 cancer patients, among them 54% had melanoma (N=141) and 31% had post neuro-psychiatric disorders (N=81). We found that nicotine abstinence in past smokers (remission) was significantly associated with increased neuro psychiatric side-effects (RR=1.88, $P=.015$) among melanoma patients, but not RCC patients. The multivariable regression analysis showed that having pre-existing psychiatric disorders was the only factor significantly associated with neuropsychiatric effects (aRR=1.92, $P<0.0001$), after adjusting for potential confounders. Having brain metastasis, however, was not significantly associated with neuropsychiatric effects (aRR=1.10, $P=0.627$).
Conclusion:	Contrary to our original hypothesis, prior psychiatric history was the only significant factor predisposing patients to develop neuro-psychiatric side effects during IL-2 treatment and not occult brain metastases. Future studies with larger patient numbers and longitudinal design will help to refine the findings from this research

Rieselbach Distinguished Paper session III

Vitamin D Deficiency: Is it Associated with Preeclampsia? A Case-Control Study

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Background/significance:	Preeclampsia (PE) is a condition characterized by HTN and proteinuria and occurs in 5-8% of pregnancies. Several of the proposed properties of vitamin D could potentially have beneficial effects for maintenance of pregnancy.
Purpose:	The purpose of this study is to test the hypothesis that there is an association between low vitamin D levels of pregnant women and PE.
Methods:	IRB approval was obtained for this case-control study. Per ACOG, gestational HTN(GHTN) was defined as SBP ≥ 140 mmHg or DBP ≥ 90 mmHg occurring >20 wks of gestation. PE is defined by HTN and proteinuria (≥ 300 mg in a 24hr urine specimen) that may be associated with multiple signs, symptoms and abnormal labs. Subjects were enrolled at a tertiary care center in Milwaukee, WI between Oct. '09 and Dec. '11. Cases included were women with PE or GHTN, ≥ 18 yrs, & singleton pregnancy. Subjects excluded were pregnant women with chronic HTN, DM, <18 yrs, or thyroid disease. Controls were women without PE or GHTN, ≥ 18 yrs, & singleton pregnancy. Subjects were consented after delivery and blood analyzed. Vitamin D def. was defined as 25(OH)D of ≤ 20 ng/ml, insufficiency as 21-29ng/ml, and sufficient as ≥ 30 ng/ml. A multivariate log-binomial linear regression analysis was used & $p < 0.05$ was statistically significant.
Results:	Of 117 consented subjects, 12 subjects were lost and 105 were analyzed (51 cases and 54 controls). Cases consisted of 8 GHTN, 19 mild and 24 severe PE. More than half were African American. More cases were obese (62.7% vs 38.9%, $p=0.05$) and enrolled in fall/winter than controls. 25(OH)D in both groups were similar. Majority of the patients were insuf. or def. in 25(OH)D (84.3% cases vs 83.3% controls), with mean value of 18.7 (SD=10.7) in cases and 16.6 (SD=10.4) in controls. Hypocalcemia ($\text{Ca}^{+2} < 8.4$ mg/dl) was more prevalent in cases than controls (67.3% vs 34.6%, $p=0.001$). MgSO_4 was received by more cases than controls (68.6% vs 5.7%, $p < 0.001$). Comparing patients with 25(OH)D suf. and insuf. or def., there was no difference in age, race, BMI, season, PNV intake, Ca^{+2} and subjects on MgSO_4 . Using a multivariate log-binomial linear regression analysis, there was no significant association between the HTN disorders & 25(OH)D, when adjusting for confounding variables.
Conclusion:	While 25 (OH)D def. or insuf. was found in the majority of pregnant women, it was not statistically different between controls and cases with HTN disorders of pregnancy. There is insufficient evidence to recommend vitamin D supplementation for the prevention of HTN disorders in pregnancy.

Oral presentation session III

Measurement of Left Ventricular Epicardial Contraction Timing Using Intraprocedural Fluoroscopy

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Background/significance:	Currently, there is no intraprocedural technique available to assess left ventricular (LV) wall motion timing and identify the optimum target vessel for LV lead placement in cardiac resynchronization therapy.
Purpose:	We tested the precision of a novel fluoroscopic method designed to track motion of coronary sinus venous landmarks on the LV epicardium by employing the method to track sonomicrometry (sono) crystals, which also served as a reference of local strain.
Methods:	Sono crystals (12-16) were placed subepicardially along the coronary sinus (CS) and primary venous branches of the posterior and anterior LV in 6 dogs. Cine images at 30 frames/sec in multiple fluoroscopic views were acquired during right atrial (RA) pacing and right ventricular (RV) pacing to simulate left bundle branch block. A three-dimensional model of the veins and crystals was built from two projections, and only segments that could be viewed within 30 degrees of orthogonality were used to calculate motion timing. Motion of crystal pairs was tracked in a single projection, and the time interval from QRS onset to maximum slope of the strain waveform was compared to corresponding data obtained from sono crystals.
Results:	Correlation between fluoroscopy motion timing and sono timing using pooled data from RA and RV pacing from a total of 130 segments was $R^2 = 0.806$, $p < 0.005$.
Conclusion:	The novel fluoroscopic tracking technique has a high level of precision. Further study of this approach is warranted to extend the technique to motion analysis.

Presence of Obstructive Sleep Apnea Increases the Burden of Ventricular Arrhythmias and Appropriate Therapy in Elderly with Implantable Cardioverter Defibrillator

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Background/significance:	Obstructive sleep apnea (OSA) has been shown to increase cardiac arrhythmogenesis in patients with structural heart disease, however, its impact on recurrent cardiac hospitalization, implantable cardioverter defibrillator (ICD) therapy and mortality in the elderly has not been well characterized.
Purpose:	We sought to determine the impact of OSA on cardiovascular morbidity and mortality in this patient population.
Methods:	Elderly patients (≥ 60 years) who underwent ICD implantation were included in the study. Clinical and echocardiographic parameters were compared, long term outcomes determined using Kaplan-Meier and logistic regression models between those with OSA (Apnea hypopnea index > 15) and without OSA.
Results:	Of 285 patients, 48 had documented OSA at the time of ICD implant. Patients with OSA were predominantly male (89 vs. 76%, $p = 0.01$) and had a higher prevalence of hyperlipidemia ($p < 0.001$). There were no significant differences in the age at implant (75 ± 6 vs. 73 ± 8 , $p = 0.07$) or co-morbidities such as presence of coronary artery disease, prior myocardial infarction, heart failure, stroke, hypertension, diabetes, atrial fibrillation, atrial and ventricular dimensions and LV ejection fraction (38 ± 16 vs. $33 \pm 14\%$, $p = 0.08$), or primary versus secondary prevention of sudden cardiac death indication for ICD implant. Over a mean 3 ± 2 year follow up, the OSA group had a much higher burden of sustained ventricular arrhythmias receiving appropriate shocks and/or anti-tachycardia pacing therapy (52 vs. 35%, $p = 0.03$) and recurrent (> 2) cardiac hospitalizations (57 vs. 35%, $p < 0.01$). However, overall mortality was not different between the two groups.
Conclusion:	The presence of OSA in elderly patients with ICD is associated with increased arrhythmia burden and recurrent cardiac hospitalization. Further research is warranted to establish whether control of sleep disordered breathing in this population reduces ventricular arrhythmogenesis and hospitalization.

Frequent Periodic Leg Movement During Sleep is a Risk Factor for Left Ventricular Hypertrophy and Adverse Cardiovascular Outcomes

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Background/significance:	Sleep disturbance caused by obstructive sleep apnea is recognized as an important factor contributing to adverse cardiovascular outcomes. However, the effect of restless legs syndrome, another common cause of fragmented sleep, on cardiac structure, function and long-term outcomes is not known.
Methods:	Restless legs syndrome patients referred for polysomnography were divided into those with frequent (periodic movement index [PMI] >35/hour) and infrequent (≤ 35 /hour) leg movement during sleep. Clinical and echocardiographic parameters were compared and long-term outcomes determined using Kaplan-Meier and logistic regression models.
Results:	Of 584 patients, 47% had PMI >35/hour. Despite a similarly preserved left ventricular ejection fraction (mean 63%), the patient group with PMI >35/hour had significantly higher left ventricular mass and mass index reflective of left ventricular hypertrophy. There were no significant baseline differences in presence of hypertension, diabetes, hyperlipidemia, myocardial infarction, stroke or heart failure between the groups. Patients with frequent PMI were older, predominantly male and had higher prevalence of coronary artery disease and atrial fibrillation. On multivariate analysis, predictors for gender-specific moderate-to-severe left ventricular hypertrophy were PMI >35/hour, age, female sex and apnea-hypopnea index. Patients with PMI >35/hour had a significantly higher risk of heart failure and mortality compared to patients with PMI ≤ 35 /hour. The presence of moderate-to-severe left ventricular hypertrophy was associated with a significantly increased likelihood of heart failure, recurrent hospitalization and mortality over a median 33-month follow-up.
Conclusion:	Frequent periodic leg movement during sleep is an independent predictor of severe left ventricular hypertrophy and is associated with increased cardiovascular morbidity and mortality.

Multifaceted Effort to Improve Hospitalized Senior Care at a Large Tertiary Teaching Medical Center

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Background/significance:	Older adults account for 36% of US health care expenses, 38% of hospital discharges and 48% of inpatient days of care. The Acute Care for Elders (ACE) model of care has shown decreased length of hospital stay, reduced risk of nursing home placement and higher health care providers' satisfaction with patient care. A multifaceted approach incorporating ACE concepts at various levels of care may improve the overall quality of care provided for seniors in the acute hospital setting.
Purpose:	To evaluate the efficacy of a multifaceted effort to improve the care of hospitalized seniors at a large tertiary teaching medical center.
Methods:	The ACE concept was implemented on multiple hospital floors. Geriatricians partnered with the interdisciplinary team during daily rounds and used the ACE tracker, an electronic medical record tool, to help manage and treat patients at high risk for delirium, readmission, falls, pressure ulcers, polypharmacy, as well as those who needed advanced directives and discharge planning. Next, a geriatrician attended hospitalist group rounds to advise and educate in management of their older patients. Utility of these services were measured via a physician survey. An ACE consultation service was created to assist any physician in the care of hospitalized complex, vulnerable elderly patients. Outcomes such as length of stay, cost, 30 day readmission rate and disposition (home versus another facility) were compared with care where ACE consult was recommended to the attending physician, but not obtained. T-tests were performed for continuous variables. Chi-square tests were performed for categorical variables.
Results:	After one year, the ACE program showed improvement in processes of care by decreased foley catheter use (29.5% vs 24.2%, $P < .001$) and increased PT/OT (60.7% to 68.2%, $P < .001$) and social service referrals (55.2% to 62.2%, $P < .001$). Hospitalist surveys of geriatrician involvement in rounds indicated high satisfaction with recommendations (5 on a scale of 5) and future consultations when deemed clinically appropriate. In its first year, the ACE consultation service saw 478 consults which resulted in decreased length of stay by one day ($P = 0.063$). Although there was a cost savings of \$252 per patient and lower 30 day readmission rates (18.6% vs. 24.6%), this was not statistically significant ($P = 0.246$ and $P = 0.153$ respectively).
Conclusion:	A multifaceted effort using ACE concepts can improve various aspects of care in hospitalized seniors.

Special presentation

Diabetes Research at Aurora Health Care

Michael Michalkiewicz, DMV, PhD, Aurora Research

Dr. Michalkiewicz received his DVM from the University of Wroclaw, Poland, and his PhD in physiology from the University of Warsaw, Poland. His specific research interests include the genetic and epigenetic mechanisms of hypertension and other complex diseases. He is Research Scientist, Sr. with Aurora Research.

Innovation project

GlucoDATA

Siatta Dunbar, DO, Department of Family Medicine, Aurora Sinai Medical Center

Dr. Dunbar participated in the Aurora Innovations Project, in conjunction with the University of Wisconsin-Milwaukee College of Engineering and Applied Science. She will present her innovation project regarding direct transmission of patient glucose values to the electronic health record.



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