

# HAWAI'I MEDICAL JOURNAL

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**AMERICAN COLLEGE OF PHYSICIANS HAWAI'I CHAPTER  
ABSTRACTS 2009**

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## **Hypoplasia of the Posterior Communicating Artery in Japanese American Men**

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Tiffany Tanaka MS3 (Student Member);  
Helen Petrovitch MD; Lon White MD; Kamal Masaki MD;  
Webster Ross MD; Jane Uyehara-Lock MD

### **Background**

There are many variations of the Circle of Willis (COW). The purpose of this study was to compare the prevalence at autopsy of hypoplasticity of the posterior communicating artery (PCoA) in Japanese American men to results from studies involving other ethnic groups.

### **Methods**

703 men of the Honolulu Asia-Aging Study (HAAS) were autopsied and the COW was dissected and examined. Hypoplasticity of the PCoA was recorded and compared with previous studies.

### **Results**

The prevalence of hypoplastic PCoA was found to be greater in HAAS men than in other published reports. Previous studies reported hypoplasia of the PCoA ranging from 16.7% - 81% of cases. In this series, some degree of PCoA hypoplasia was observed in 85% of decedents, including 60.2% with bilateral hypoplasia. The age at death was unassociated with the severity, side, uni-laterality or bilaterality of the hypoplasia.

### **Conclusion**

A high prevalence of hypoplastic PCoA was observed in this cohort. The lack of any apparent relationship with age at death suggests that brain perfusion sufficient to sustain life was not embarrassed by the hypoplasia. Additional analyses will be needed to address the likely origins of the hypoplasia, and to discern any impact on parenchymal brain structure, or relationship with infarcts, hemorrhages, or atrophy.

## **Timed 10-Foot Walk as a Predictor of Incident Parkinson's Disease: The Honolulu-Asia Aging Study**

Jacqueline De Luca MS2 (Student Member);  
G. Webster Ross MD; Christina Bell MD; Kaon Fong BS;  
Robert Abbott PhD; Helen Petrovitch MD; Lon White MD;  
Patricia Blanchette MD, FACP; Kamal Masaki MD

### **Background**

The timed 10-foot walk is used clinically to diagnose and monitor functional impairment. Case-control studies have shown slower walking speeds in patients with prevalent Parkinson's disease (PD). We examined whether walking time predicts 10-year incident PD in elderly Japanese-American men.

### **Methods**

The Honolulu-Asia Aging Study began with the fourth Honolulu Heart Program examination in 1991-93, when 3606 Japanese-American men ages 71-93 years performed the timed 10-foot walk. Walking time (seconds) was used both as a continuous variable and divided into three groups (fast, intermediate, slow). Subgroup analysis excluded those with prevalent stroke or dementia at baseline. Both prevalent (n=66) and incident (n=45) PD were studied as outcomes. Final diagnosis of PD was based on consensus from 2 neurologists using standardized criteria. Chi-square tests, T-tests, multiple logistic regression and Cox regression were used for analyses. This study was approved by the IRB of Kuakini Medical Center.

### **Results**

The prevalence of PD was highest in those with slowest walking times (3.1%, 1.2%, 0.4% respectively,  $p < 0.0001$ ). Using multiple logistic regression analyses adjusting for age, triceps skinfold thickness, midlife smoking and midlife caffeine, those with the slowest (OR=7.39, 95% CI=2.92-18.73,  $p < 0.0001$ ) and intermediate (OR=2.88, 95% CI=1.10-7.57,  $p=0.03$ ) walking times were significantly more likely to have prevalent PD compared to those with the fastest walk times (reference). Cox proportional hazards models demonstrated a significant increase in risk of 10-year incident PD in those with slow walk times compared to fast (RR=2.26, 95% CI=1.08-4.73,  $p=0.03$ ). This relationship was slightly stronger when subjects with prevalent stroke or dementia at baseline were excluded (RR=2.49, CI=1.19-5.21,  $p=0.02$ ).

### **Conclusion**

Slower walk time was significantly independently associated with prevalent PD, and with 10-year incident PD. It is likely that slow walking time is a marker of pre-clinical PD, in addition to being a manifestation of clinically recognized PD. Early screening for PD will be helpful when treatments become available that delay or arrest progression of disease.

## Heritable or Random? Coronary Artery Anomalies and Native Hawaiian and Pacific Islanders

Tiffany Tanaka MS III (Student Member);  
Lee Guertler MD, PhD; Robert Hong MD;  
Christian Spies MD; Todd B. Seto MD, MPH

### Background

Variation in the origin, course and distribution of coronary arteries are well-characterized, with some abnormalities associated with an increased risk of myocardial ischemia and sudden death. The incidence of anomalous coronary arteries ranges from 0.3-1.2%, with anomalous origin of the right coronary artery from the left coronary sinus (anomalous RCA) one of the most common. Generally considered a random occurrence, anecdotal observations at our institution led us to hypothesize that Native Hawaiian and Pacific Islander (NHPI) race is associated with anomalous RCA.

### Methods

We reviewed all diagnostic angiographies performed at The Queen's Medical Center from 7/1/05-7/31/08 to identify subjects with anomalous RCA. All cases were classified based on the association with the left main coronary artery ostium (separate or shared) and location relative to the sinotubular junction (STJ). All cases were independently reviewed by 2 board certified cardiologists. For each case, we identified 2 controls, matched on age (+ 5yr), gender, and date of service (+15d). Demographic and clinical information were obtained through medical record review. We performed conditional logistic regression to identify the relationship between NHPI race and anomalous RCA.

### Results

Twenty subjects with anomalous RCA (5 with shared ostium, 4 with ostium above STJ, 11 with separate ostium below STJ) were identified and matched to 40 controls with similar age (~63 yo) and gender distribution (40% female). Compared to controls, cases were more likely to be NHPI (45% vs. 13%,  $p < 0.001$ ) and less likely to be Caucasian (20% vs. 35%) and Asian (35% vs. 45%). Cases were less likely to be diabetic (10% vs. 33%,  $p = 0.07$ ) and have significant coronary artery disease (35% vs. 65%,  $p = 0.05$ ) than were controls. There were no differences in the prevalence of myocardial infarction, heart failure, hypertension or tobacco use. Subjects with anomalous RCA were more likely to be NHPI than non-NHPI (OR 5.1, 95% CI 1.4-19.1). After controlling for the presence of coronary artery disease and diabetes, subjects with anomalous RCA were still more likely to be NHPI (OR 11.8, 95% CI 1.4-96.9).

### Conclusions

Our study suggests that anomalous RCA is more frequently encountered in NHPI than other populations. To our knowledge, this is the first study to demonstrate an association between race and a coronary anomaly. Although we did not find an association between anomalous RCA and myocardial infarction, future studies should evaluate the use of CT/MRI to examine the course of the anomalous artery, possible genetic associations, and the long-term outcomes of these patients.

## Highest Quartile of White Blood Cell Count Predicts Incident Stroke: The Honolulu Heart Program

Tiffany Ching MS2 (Student Member); Christina Bell MD;  
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Patricia Blanchette MD, FACP; Beatriz Rodriguez MD, PhD;  
J. David Curb MD, FACP; Kamal Masaki MD

### Background

Previous studies have found that inflammation is significantly associated with atherosclerosis and stroke. We hypothesized that higher levels of white blood cell (WBC) count, a marker of inflammation, were associated with prevalent and 8-year incident stroke in elderly Japanese-American men in the Honolulu Heart Program.

### Methods

The Honolulu Heart Program is a prospective population-based cohort of Japanese-American men living in Hawai'i, established in 1965. At exam 4, which was held between 1991 and 1993, participants included 3,741 men who were 71-93 years old. WBC count was measured as part of a complete blood count using a Coulter counter machine in 3,569 subjects. Subjects were divided into quartiles of WBC for analysis: mean WBC values were 4.4, 5.5, 6.5 and 8.6 from lowest to highest quartile, respectively. Eight years of follow-up data for incident stroke (through December 1999) were available. Those with prevalent stroke at Exam 4 were excluded from the incidence analyses. Chi square tests, T-tests, multiple logistic regression and Cox proportional hazards models were used for analyses. Analyses were adjusted for age, hypertension, diabetes, smoking status, BMI, physical activity, cholesterol, and alcohol consumption. This study was approved by the IRB of Kuakini Medical Center.

### Results

Prevalence of stroke increased significantly by WBC quartiles (2.7%, 3.2%, 5.4%, 6.3%,  $p = 0.0004$ ). Incident stroke had a borderline association with WBC quartiles (6.4%, 6.2%, 6.9%, 9.1%,  $p = 0.08$ ). Using multiple logistic regression, prevalent stroke was not significantly associated with WBC quartiles after adjusting for age and cardiovascular risk factors. Using Cox regression, those in the highest quartile of WBC had a borderline association with incident stroke compared to the lowest quartile (RR = 1.41, 95% CI = 0.97-2.07,  $p = 0.08$ ). Stratified analyses found that the highest quartile of WBC was significantly associated with an increased risk for incident stroke in diabetics (RR = 1.82, 95% CI = 1.11-2.98,  $p = 0.02$ ), ever smokers (RR = 1.63, 95% CI = 1.00-2.66,  $p = 0.05$ ), and men with cholesterol > 190 (RR = 1.81, 95% CI = 1.06-3.09,  $p = 0.03$ ).

### Conclusion

Those in the highest quartile of WBC had a borderline independent association with incident stroke in elderly Japanese-American men. This relationship was stronger among diabetics, ever smokers, and those with higher cholesterol levels. High WBC may be useful to identify those at risk for stroke among subgroups with cardiovascular risk factors.

## Is Exhaled Nitric Oxide a Useful Diagnostic Indicator of Asthma in Asians?

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Marianne Yoshida RN; Rei Miike MPH

### Background

Asthma afflicts 11% of children and 8% of adults in Hawai'i (2005 Hawai'i Behavioral Risk Factor Surveillance System). In addition to patient history, symptoms and spirometry testing, exhaled nitric oxide (eNO) has been used to monitor airway inflammation and response to medication. However, studies suggest that eNO values are higher in Asian than in white children and that smoking can decrease in eNO levels. These interactions can confound interpretation of eNO. The objective of this study is to determine if  $eNO \geq 15$ ppb is indicative of physician-diagnosed asthma among smokers and non-smokers in Hawai'i's multiethnic population.

### Methods

Exhaled NO was measured in triplicate by chemiluminescence (Sievers 280i Nitric Oxide Analyzer) in 59 subjects with physician-diagnosed asthma and 110 non-asthmatic subjects. Subjects were also characterized using questionnaires, spirometry, methacholine challenge, albuterol response, differential cell count, and skin test responses to 8 aeroallergens as approved by the UH Committee on Human Studies. Subjects were from 5 racial groups: White (n=40), Asian (n=60), Pacific Islander (n=3), Mixed (n=63) and Other (n=3). Association between  $eNO \geq 15$  ppb and physician-diagnosed asthma was tested by chi-square analysis.

### Results

All 59 subjects with asthma were well controlled; the frequency of  $eNO \geq 15$  ppb in this group was 12%. After controlling for age, gender, BMI and smoking status, high eNO levels approached significance as a predictor for physician-diagnosed asthma ( $p=0.09$ ), with an adjusted odds ratio of 9.9 (95% CL 0.7-139.4) for whites. It was not significant in Asian, mixed, Pacific Islander or other races.

### Conclusions

$eNO >15$  ppb is more likely to reflect asthmatic airway inflammation in White subjects, but may not be such an accurate indicator in Asian subjects. Repeated studies in individual subjects at different levels of asthma control are needed to show correlation with disease control.

## Viral Hepatitis in a Homeless Shelter in Hawai'i

Daniel E.C. Boyce MS (Student Member);  
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Kenneth T. Akinaka MRA; Heather Lusk BS

### Introduction

It is estimated that as many as 21,000 people in Hawai'i may be infected with HCV. Most of those infected with viral hepatitis are unaware they are infected. Complications from viral hepatitis include liver cirrhosis and hepatocellular carcinoma. Hawai'i has the highest incidence of hepatocellular carcinoma in the United States. In 2003 there were over 6000 homeless and over 155,000 people at-risk of becoming homeless living in the state of Hawai'i. Risk factors for hepatitis, such as drug use, tattoos, sexual contact, and sharing of personal hygiene equipment are more prevalent in the homeless population.

### Methods

To determine the incidence of hepatitis B and C among a population of homeless individuals, a health fair was held at a Honolulu area homeless shelter with approximately 200 residents. The incidence of hepatitis B and C was determined by anti-HCV and HBsAg blood tests. A survey was also conducted regarding risk factors and basic demographics.

### Results

Fifty-four homeless adults were tested; 22 of these were born in the United States and 28 were born in Micronesia. Three of the 22 (14%) participants tested positive for hepatitis C, compared to a national average of 1.8%. All were born in the United States. The primary risk factor among this group was jail time (100%), followed by illegal drug injection (67%), tattoos (67%), ear/body piercing (67%), snorting drugs (33%), blood transfusions (33%), and a sex partner with hepatitis (33%). One of the 28 (4%) Micronesians tested positive for hepatitis B. The only risk factor was ear/body piercing. Only one of those tested recalled being vaccinated for hepatitis A. Seven (13%) of those tested had been previously vaccinated for hepatitis B. Only one of the three infected with HCV had been previously vaccinated for HBV.

### Conclusion

Homeless people in Hawai'i are more likely to have hepatitis B or C because risk factors are common among this population. Additionally, a large proportion of Hawai'i's homeless people come from the Pacific Islands, where the prevalence of hepatitis B is one of the highest in the world. In addition there are significant risks of hepatitis spread among the homeless and into the general population as many homeless do not realize they are infected. The health fair approach was an effective means for screening homeless people for hepatitis B and C. Our preliminary information suggests homeless shelters may be a good place for education, screening, and possibly interventions as well.

## **Percutaneous Coronary Intervention (PCI) Outcomes Assessment: A Comparison of Risk-adjustment Models**

CPT Mitchell Marzo MC, USA (Associate);  
CPT Kim Kenney MC, USA (Associate);  
CPT Nicolas Ondrasik MC, USA (Associate);  
COL Thomas Wisenbaugh MC, USA

### **Background**

American College of Cardiology (ACC) Guidelines recommend that PCI be performed at centers whose risk-adjusted outcomes are comparable to those reported in large registries. The ACC-National Cardiovascular Data Registry (NCDR) and the New York State (NYS) Registry are the two largest data repositories that are used to develop risk-adjustment models based on logistic regression that incorporate multiple patient and procedural risk factors.

### **Methods**

Our objective was to determine which risk-adjusted outcome model was most appropriate for use at our facility. We reviewed the medical records, phone, and mail correspondence of patients undergoing PCI up to 30 days after their procedure at Tripler Army Medical Center between January 2002 and June 2008. In-hospital mortality and 30 day mortality rates were calculated. We also extracted data components from the ACC-NCDR and the NYS Registry models for each patient. We then calculated individual patient risk according to each model. Goodness of fit, correlation among models, and discriminatory ability were assessed respectively with the Hosmer-Lemeshow statistic, scatter plots, and receiver operating characteristic (ROC) curves.

### **Results**

We reviewed the records of 499 patients undergoing 565 PCIs during the study period. There was 100% follow up to 30 days. Our observed 30-day mortality was 1.5%. The Hosmer-Lemeshow statistic showed the data best fit the 2002 ACC model. However, the correlation between the 2002 and 2003 ACC-NCDR models was nonlinear, with the 2002 model yielding higher expected mortality rates in our patients over most of the range of risk and on average 13.4% vs. 1.0% for the 2003 model and 2.0% for the NY model. Areas under the ROC curves for 2002 and 2003 ACC and NY State models were 0.91, 0.90, 0.92, respectively,  $p=NS$ . The NY State ROC curve found the most predictive probability of death to be at a cut-point of 0.15. Plots of NY State risk by deciles for 30-day mortality showed 2 of the 8 deaths to be outliers with markedly lower risk than the others.

### **Discussion**

We selected the NY model as our risk predictor and benchmark because the NY State sets the highest standard (0.7% observed mortality) and used fewer intra-procedural variables. We were also concerned that the two ACC models were not linearly related and gave widely disparate results. Probability models provide for quantitative and therefore very objective identification of outliers for case review. We feel that when a patient's predicted probability of death exceeds 0.15 according to the NY State model, alternatives to PCI should be strongly considered.

## **Simulation Training Enhances Knowledge of the Management of Basic Medical Emergencies After Standard Web-based Syllabus Training**

Ashlee Nekoba MD; Emilio Ganitano Jr., MD (Member)

### **Background**

High-fidelity medical simulation training involves the use of life-like mannequins in "real-time" scenarios, and, unlike traditional medical education, emphasizes critical thinking and communication skills in the management of medical crises. Traditional teaching methods such as didactics, problem-based learning and apprenticeship are limited in its ability to teach the urgency of medical emergencies, and trainees have limited exposure in "hands-on" experiences. Simulation training provides the opportunity for trainees to master management skills in a safe environment where real patients cannot be harmed, and to receive feedback and view the consequences of errors made while managing medical crises. We therefore hypothesize that human simulation training is an effective tool in the teaching of the management of basic medical emergencies. In addition, we perform this pilot study to determine if there is an added benefit of the use of simulation training in combination with traditional Web-based didactic teaching.

### **Objective**

To determine the effectiveness of using human simulation training as an adjunct to Web-based learning in undergraduate medical education.

### **Methods**

Sixty third-year medical students were enrolled in an Introduction to Medical Emergencies workshop during their Internal Medicine Clerkship, in which they completed a pre-test on basic medical emergencies (Test 1). They then completed a self-directed Internet-based teaching module on medical emergencies, followed by a post-Web-didactic test (Test 2). Students then participated in simulation training consisting of six case-based scenarios using a high-fidelity simulation mannequin, and received feedback using video play back. This was followed by a post-simulation test (Test 3). Each test was a multiple choice written examination, and results of all three tests were compared to evaluate the effect of simulation training on medical knowledge.

### **Results**

A difference in the median percentage score was demonstrated between the pre-test (Test 1) [40% with interquartile range (IQR) (20%, 62%)], post-web-didactic test (Test 2) [58%, IQR 28%, 85%], and the post-simulation test (Test 3) [73%, IQR 53%, 95%]. Multivariate analysis of variance demonstrates a significant improvement from Test 1 to Test 2, after the web based teaching module, and from Test 2 to Test 3, after simulation training ( $p<0.001$ ).

### **Conclusions**

High fidelity simulation training is effective in improving knowledge of basic medical emergencies, especially when integrated with traditional Internet based teaching modules. The results of this study suggest an important role for simulation training in medical education.



## A Rare Case of Cystic Tracheomegaly in a Patient with Prior Pulmonary Tuberculosis

CPT Jordanna Walker MD (Associate);  
MAJ Donald Helman MD (FACP)

### Introduction

Distortion of the lung parenchyma and bronchiectasis are common sequelae following pulmonary tuberculosis. Although the trachea can be involved in active cases, the discovery of tracheomegaly in treated patients has rarely been reported. We describe a case of incidentally detected tracheo-bronchomegaly in a patient with prior tuberculosis.

### Case Report

Our patient is a 33-year-old Peruvian woman with a past history notable for treatment of active pulmonary tuberculosis in 2000 while living in Chile. She immigrated to the United States in 2005 and was referred to the Tripler pulmonary clinic in 2007 for evaluation of an abnormal chest X-ray. At that time she had no pulmonary symptoms and her X-ray findings were consistent post-tuberculosis scarring in the left upper lobe. She returned one year later when a pre-employment chest X-ray revealed new air space disease in the left lower lobe. A chest CT which was remarkable for left upper lobe bronchiectasis and scarring, left lower lobe tree-in-bud infiltrates and a markedly dilated trachea (3.4 cm) as well as bronchomegaly with numerous cystic outpouchings. The patient's only pulmonary symptom is a rare non-productive cough. She denies hemoptysis, fevers, sweats or weight loss. Her physical examination was unremarkable. Acid-fast stains of sputa have been negative and cultures are pending.

### Discussion

Common tracheal complications after tuberculosis infection include tracheal and endobronchial stenosis as well as malacia of the trachea and main bronchi. Diffuse tracheobronchomegaly most commonly occurs as a congenital malformation (Mounier-Kuhn syndrome) but is also reported in patients with connective tissue disorders (Ehlers-Danlos syndrome) or as a consequence of chronic infectious and inflammatory conditions. To date, however, there have been only five reported cases of tracheobronchomegaly following tuberculosis infection. In one of those reports, the authors hypothesize that their patient's symptoms and tracheal findings were comparable to an acquired form of Mounier-Kuhn syndrome. If the patient does have an acquired type II Mounier-Kuhn syndrome, one would expect her to eventually manifest symptoms of ineffective cough and bronchiectasis. Our case is the first American case described and is unique in that it illustrates that asymptomatic post-tuberculosis patients can have significant alterations in the structure of their proximal airways.

## Proteinuria in HIV Infected Patients: Hawai'i Population

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Dominic Chow MD, MPH; Cecilia Shikuma MD (Advisor)

### Background

Microalbuminuria (MAU), defined as the excretion of 30-300 mcg of albumin /mg of creatinine, is an independent cardiovascular risk factors. MAU is an indicator of endothelial dysfunction which can result in development of atherosclerosis and cardiovascular disease. In HIV infected patients, MAU is an earliest indicator of HIV associated nephropathy. There is no data of the manifestation of MAU among HIV-infected population in Hawai'i. This study assessed the correlation of MAU with metabolic and clinical parameters.

### Methods

Cross sectional study to identify the rate of MAU among patients from the Hawai'i Aging with HIV-1 cohort study, and relation between MAU and other cardiovascular risks and metabolic condition, included history of hypertension, diabetes mellitus, insulin level, BMI, waist -hip ratio as well as HIV laboratory data including CD4 count, plasma HIV RNA and peripheral blood mononuclear cell DNA.

### Results

Data were available on 104 patients aged between 45 to 73 years old (median 52.5), men 88.5%. Ten percent were diabetic and 23% were hypertensive. The rate of proteinuria was 22% (18 patients with MAU and 5 patients with macroalbuminuria. In logistic regression, proteinuria was significant for history of hypertension (P=0.002), diabetes mellitus (P=0.001), impaired fasting glucose (P=0.038), insulin resistance (P=0.006), waist-hip ratio (P=0.032) and lower CD4 count (P=0.052). In multivariate logistic regression, proteinuria is still significant for history of hypertension (P=0.009) and lower CD4 count (P=0.036).

### Conclusions

The rate of proteinuria in HIV infected patients in Hawai'i population was 22%. (Prevalence of MAU in normal population is 5-10%, Diabetes patient 10-30% and hypertensive non diabetes 5-25%) Proteinuria is significantly related to cardiovascular and metabolic parameters in HIV patient. Furthermore, lower CD4 count is also related to MAU. Clinical relevance of the rate of proteinuria in HIV-infected warrant further research.

# Chronic Exertional Compartment Syndrome: An Unusual Cause of Rhabdomyolysis

John Downs MD (Associate); David Finger MD, FACP

## Introduction

Chronic exertional compartment syndrome (CECS) of the lower extremity is an under-recognized cause of lower extremity pain following exercise. Most patients complain of muscle aching or cramping within 10 to 30 minutes of exercise, usually with resolution between episodes. The development of rhabdomyolysis in the setting of CECS, however, is a rare occurrence. This complication may progress to an acute compartment syndrome, which is often a surgical emergency. We present a case of rhabdomyolysis in a patient with lower extremity CECS.

## Case Report

A 35-year-old African-American soldier presented to our emergency department with a one-day history of severe bilateral posterior lower leg pain which prevented him from walking. His symptoms developed three days following exercise that consisted of resisted calf raises followed by a three-mile run. He denied use of nutritional supplements, steroids, cholesterol-lowering agents, or trauma. Physical examination was notable for tense, swollen, and tender bilateral calf muscles. The patient was unable to dorsiflex either foot due to intense pain, but sensation and pulses were intact. Serum creatine kinase (CK) peaked at 39,007 U/L (25-200), aldolase was > 150 U/L (< 8.1), urine myoglobin was 93 mcg/L (< 28) and urinalysis showed 1+ blood with only 1 red blood cell on microscopy. Serum chemistry was without evidence of electrolyte or renal dysfunction and sickle cell screen was negative. An MRI revealed diffusely increased T2 signal throughout the medial and lateral gastrocnemius muscles bilaterally. The patient was treated with aggressive volume resuscitation and was discharged uneventfully after 48 hours, with normalization of CK levels one month later. However, the patient continued to complain of exertional distal leg/calf pain. Subsequent pre- and post-exercise compartment pressure testing was performed showing elevations consistent with a diagnosis of CECS. The patient was referred for elective surgical fasciotomy.

## Conclusion

Chronic exertional compartment syndrome is an under-recognized but not uncommon disorder in the young, active military population. Clinicians should be familiar with the typical presenting symptoms, diagnostic studies and treatment options. Additionally, CECS should be on the differential diagnosis for patients presenting with post-exertional rhabdomyolysis since this can progress to an acute compartment syndrome. Surgical fasciotomy remains the gold standard therapeutic intervention with a high cure rate and prevents future potential acute compartment syndromes.

# Glucagon-assisted Removal of Jejunal Foreign Body by Push Enteroscopy

Michael E. Goldberg DO (Associate);  
Matthew Pantsari MD

## Introduction

Enteroscopy, or evaluation of the upper GI tract beyond the reach of the standard endoscope, can be very useful for the evaluation of obscure bleeding, suspected lesions, or malabsorptive processes of the small intestine. Glucagon has been well-documented as an effective spasmolytic and anti-motility agent in patients undergoing endoscopy or other radiological procedures. We describe a rare case of successful removal of a jejunal foreign body by enteroscopy using Glucagon as an anti-motility agent.

## Case Report

A 36-year-old active duty man was having a routine dental procedure. During the procedure, the patient accidentally swallowed a drill bit that became detached from the drill. The drill bit was radiographically confirmed to be in the stomach and the patient was sent to be seen by Tripler Army Medical Center Gastroenterology. It was determined that endoscopic retrieval of the drill bit should be attempted due to the risk of penetrating the stomach. On initial endoscopic evaluation, the drill bit was not seen in the stomach. Glucagon was immediately given in an attempt to decrease motility making the retrieval of the drill bit possible. Enteroscopy was performed using a pediatric colonoscope and the drill bit was successfully retrieved from the jejunum through an overtube.

## Discussion

Approximately 1500 people die every year in the United States from ingested foreign bodies of the upper GI tract. Approximately 80-90% of the objects will pass spontaneously and only 1% will require surgery. The majority of sharp-pointed objects that enter the stomach will pass through the remaining GI tract without incident, but perforation rates as high as 35% have been reported and usually occur in the ileocecal valve area. The most common sharp-pointed foreign objects are chicken and fish bones, paperclips, toothpicks, needles, razors, and dental prostheses. Diagnostic enteroscopy utilizing a colonoscope has been described in the evaluation of many gastrointestinal disorders, but it has not been described in the removal of foreign bodies from areas distal to the ligament of Treitz. Similarly, Glucagon has been described in the literature as facilitating extraction of foreign bodies from the duodenum, but not distal to the ligament of Treitz. This is a unique case that demonstrates the ability to extract a foreign body distal to the ligament of Treitz with the aid of Glucagon as an antimotility agent. This novel use of Glucagon, could have future implications in post jejunal polypectomy or post ampullectomy to increase retrieval percentages.

# A 56-year-old Man with Lemierre's Syndrome: An Unexpected Diagnosis; A Case Report and Literature Review

Dagmar Lin MD (Associate);  
Naluporn Chokrunvaranon MD (Associate);  
Gary Kuniyoshi MD; Royden Young MD (Member)

## Background

Anaerobic infection is an uncommon etiology of severe sepsis, especially in the immunocompetent host. Lemierre's syndrome is characterized by oropharyngeal infection, usually by *Fusobacterium necrophorum*, followed by septic thrombophlebitis of the internal jugular vein with embolization to the lungs and other organs. Since the introduction of antibiotics, Lemierre's syndrome has become relatively rare.

## Methods

A comprehensive search was performed for Lemierre's syndrome with Pubmed.

## Case Report

A 56-year-old healthy man presented with acute onset of fever, chills, abdominal pain, non-bloody stools and jaundice for 9 days and was admitted to the medical ICU with severe sepsis and multi-organ failure. Physical examination showed a febrile, ill-appearing, tachypneic male with icteric sclerae and conjunctival injection, and hepatomegaly. Laboratory data revealed lactic acidosis (anion gap metabolic), acute renal failure, hyperbilirubinemia, anemia and thrombocytopenia. Bilateral pulmonary nodules were found on a chest CT. Then, he developed respiratory failure. Due to the geographic location and a recent hike to a fresh water fall, Manoa Falls, leptospirosis was also considered and doxycycline was added to his vancomycin and imipenem/cilastatin.

Initial blood cultures showed gram variable rods, *Fusobacterium necrophorum*. The pulmonary nodules represented septic emboli and a subsequent neck CT with contrast confirmed a thrombus in the right internal jugular vein. Diagnostic work up for dengue fever, leptospirosis, malaria, tuberculosis, rickettsial diseases were negative. Antibiotics were changed to clindamycin. The patient recovered with complete resolution of the acute renal failure, improving hyperbilirubinemia.

## Review of Literature

Lemierre's syndrome or "postanginal septicemia" is the classical presentation of a primary oropharyngeal infection mainly caused by *Fusobacterium necrophorum* associated with subsequent thrombophlebitis of the internal jugular vein and metastatic abscesses. First reported in 1900, named after French pathologist, the incidence of this syndrome is 0.8 per million persons per year. Current treatment is a 4- to 6-week course of intravenous penicillin G, clindamycin, or metronidazole. The mortality in untreated patients is as high as 30% to 90%, with rates of endocarditis and embolic events estimated at 12.5% and 25%, respectively. The role of anticoagulant therapy is controversial.

In the patient the initial clinical picture was consistent with leptospirosis, though diagnostic work up for this was negative and blood culture revealed the organism *Fusobacterium necrophorum*. One should suspect Lemierre's syndrome in young, previously healthy patients

who have present with either a complicated course or sepsis and pulmonary symptoms after an acute oropharyngeal infection.

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## The Effect of Antiviral Therapy in Chronic Hepatitis C: Improvement in Fasting Plasma Glucose Levels in Patients with Impaired Fasting Glucose

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Nuntra Suwantararat MD (Associate);  
Alan D. Tice MD, FACP, (Advisor);  
Richard F. Arakaki, MD (Advisor)

## Background

Hepatitis C infection (HCV) is associated with insulin resistance and increases risk for diabetes. Treatment of HCV in patients with diabetes improves fasting plasma glucose (FPG) levels. However, the effect of antiviral therapy in chronic HCV on FPG levels in the individuals with Impaired Fasting Glucose (IFG) or Normal Fasting Glucose (NFG) has not been previously reported. The purpose of this study is to evaluate the glycemic response in patients treated for HCV.

## Methods

Patients with HCV infection received antiviral therapy with ribavirin plus either pegylated-interferon- $\alpha$  2a or interferon- $\alpha$  2b for 24 or 48 weeks based on viral genotypes. Forty-three patients were included in this analysis and 8 individuals with diabetes were excluded. Of the remaining 35 patients; 27 individuals had FPG level <100mg/dl and 8 were with Impaired Fasting Glucose (FPG>100 mg/dl). The FPG levels and weight were determined before, at the end of treatment, and >1 months post-treatment.

## Results

The mean FPG level increased by 7.67 mg/dl in the NFG group and decreased by 10 mg/dl in the IFG group at the end of antiviral therapy. This difference between groups was statistically significant ( $p=0.0316$ ). Individuals usually lose weight with antiviral therapy, however the changes in FPG levels in the two groups remained significant adjusted for weight change ( $p=0.0291$ ) and weight change plus initial weight ( $p=0.0213$ ) using linear regression analysis. The post-treatment FPG change from end of treatment showed some reversal in the two groups but the change was not statistically significant. Separate analysis of the change in FPG levels with treatment between individuals with SVR (0.6 mg/dl increase; N=25) versus non SVR (11 mg/dl increase; N=10) was not significantly different.

## Conclusions

Antiviral treatment in patients with HCV impacts FPG levels; reducing fasting hyperglycemia in patients with IFG and increasing levels in NGT individuals. The impact of treatment appears to be independent of weight and weight change and viral response. The effect of HCV treatment probably alters other factors involved in glucose homeostasis and may be a transient effect.

## **Murine Typhus and Direct Support for a Diagnosis Using Broad-Range PCR and Mass Spectrometry; An 89-year-old Female from Molokai with an Acute Febrile Illness: A case Report and Review of the Literature**

Nuntra Suwantararat MD (Associate);  
Matthew J. Bankowski PhD; Mark W. Eshoo PhD;  
Royden S. Young MD (Member) (Advisor)

### **Background**

Endemic murine typhus, an uncommon flea-borne, zoonotic disease caused by *Rickettsia typhi*, is uncommon in the United States because of improvements in hygiene and effective rodent control. Hawai'i had a high incidence and epidemic episodes in 1998 and 2002. Specific antibody testing is the most common test to support a diagnosis. However, cross reactivity among the rickettsial species make serologic diagnosis difficult. Since culture is labor intensive, lengthy and poses biohazard concerns, molecular testing offers an attractive alternative for diagnostic support.

### **Methods**

A 10-year incidence of murine typhus was obtained from the Hawai'i State Department of Health. Clinical laboratory testing was performed at both Diagnostic Laboratory Services and an external reference lab for specific serological testing. PCR and mass spectrometry was performed at Ibis Biosciences, Carlsbad, CA.

### **Case Report**

An 89-year-old woman presented with a four-day history of a worsening febrile illness. She lived in a dry area of Kaunakakai, Moloka'i and denied fresh water exposure. She had a history of rodent in her home and traveled to Tennessee within the month prior to admission. She presented with headache and myalgias without rash. Physical examination revealed confusion and a fever of 101.5°F. Laboratory data revealed a white blood cell count of 6.6, hemoglobin 11.3, platelet count 61,000, creatinine 1.7, total bilirubin 1.0, AST 259, ALT 110, alkaline phosphatase 205. The patient was empirically treated with doxycycline. Specific antibody testing showed a positive titer for rickettsial IgM (1:128) and IgG (1:64). Leptospirosis, dengue fever, ehrlichiosis, and influenza type A and B testing were all negative. Blood cultures showed no growth. Subsequently, the patient is clinically improved. Four weeks after being discharged, convalescent testing for both the IgG and IgM rickettsial titers showed a significant elevation to 1:256. The confirmation of murine typhus diagnosis was provided by broad-range polymerase chain reaction with electrospray mass spectrometry (PCR/ESI-MS). Both sera were positive for *Rickettsia typhi* specific DNA amplicons.

### **Discussion and Review of Literature**

The incidence of murine typhus in Hawai'i over the past 10 years has been reported in range of 2-47 cases per year. In this patient, the differential diagnosis included murine typhus, leptospirosis, dengue fever, and ehrlichiosis. Besides the empirical treatment with doxycycline and subsequent clinical improvement, culture or

molecular testing offers the most definitive diagnosis. A fourfold rise in titer is confirmed for acute murine typhus, but is usually reported after the fact. Broad-range PCR with mass spectrometry detection is a novel universal biosensor approach for microbiology to directly provide serologic evidence of rickettsial infection. Molecular testing is safer than culture, offers a much faster turn-around time than either culture or serology, and exhibits both a very high sensitivity and specificity.

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## **Effect of Acarbose on Insulin Secretion in Newly Diagnosed Patients with Type 2 Diabetes**

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Teera Chentanez MD (Associate); Richard F. Arakaki MD

### **Background**

The initial phase of hyperglycemia in type 2 diabetes is exhibited by postprandial excursion with near normal fasting glucose and hemoglobin A1c levels. Intervention to improve postprandial hyperglycemia may reduce progressive disease by impacting beta cell function. Acarbose is an  $\alpha$ -glucosidase inhibitor that slows digestion of complex carbohydrates and decreases postprandial hyperglycemia. We examined the effect of Acarbose on insulin secretion in newly diagnosed type 2 diabetes.

### **Methods**

A randomized, crossover study in patients with diabetes diagnosed within a year, provided Diet and Exercise (D+E) recommendation and Acarbose titrated to 100 mg TID for 4-5 months. Insulin secretory capacity was measured by Insulin-to-Glucose Ratio (IGR) at 30 minutes during a 75 gm OGTT.

### **Results**

Insulin secretion increased after treatment with Acarbose and the difference compared to diet and exercise alone was statistically significant (Acarbose- 0.307 to 0.764; D+E- 0.484 to 0.264;  $p=0.04$ ). There were no differences observed between the two groups for changes in A1c level (Acarbose- 5.85 to 6.03; D+E- 5.93 to 6.03;  $p=0.76$ ), BMI (Acarbose- 26.98 to 26.63; D+E- 25.25 to 25.33;  $p=0.45$ ), fasting glucose level (Acarbose- 112.75 to 111.75; D+E- 117.75 to 116.25,  $p=0.65$ ), and post-challenge glucose level (Acarbose- 216.50 to 210.50; D+E- 213.00 to 213.75;  $p=0.78$ ).

### **Conclusion**

Acarbose treatment appears to improve insulin secretory capacity despite similar glycemic and weight changes. Acarbose may improve beta cell function by promoting other factors independent of glycemia.

## **Blink Frequency and Eye-lid Closure Correlate with Increasing Simulator Driving Accidents in Sleep Disorder Patients Over a Period of Mild Sleep Deprivation**

Jaime Torres (Member); William Torch; Carlos Cardillo; Chad Bouchard; Michael Russo (Member)

### **Introduction**

There were 1413 fatal or injury motor vehicle accidents in Hawai'i County in 2004. Between 52 and 70% of American Drivers report driving drowsy, with 13% of women and 32% of men reporting falling asleep at the wheel. We assessed several oculometric parameters for their correlations with simulated motor vehicle accidents in patients with Obstructive Sleep Apnea (OSA).

### **Methods**

After approval from the Western IRB, we performed a 34-hour continuous wake study of 34 volunteers (18-58yrs; M=15/F=16) in an automobile simulator to identify whether ocular measures can identify increased risk of motor vehicle accidents in specific patient populations. ANOVA was executed on all simulator and oculometric variables. Mauchly's test of sphericity, and Greenhouse-Geisser adjustments were applied.

### **Results**

Session effects showed consecutive linear increases in Off Road Accidents  $F(2.5, 50) = 6.389, p < 0.002$ ; Collisions  $F(2.5, 50) = 3.953, p = 0.01$  and Road Edge Excursions  $F(2.5, 50) = 7.325, p = 0.001$ . The diagnostic-group effect for Off Road Accidents,  $F(3, 20) = 4.53, p = 0.01$ ; Collisions,  $F(3, 20) = 3.56, p = 0.03$ ; and Road Edge Excursions,  $F(3, 19) = 4.86, p = 0.01$  were tested using Least Significant Difference (LSD) post-hoc comparisons. Significant session effects were seen for PERCLOSE  $F(3.2, 72.5) = 7.467, p < 0.0001$  and Blink Rate  $F(2.6, 59.7) = 6.257, p = 0.002$ . Multiple Regression Analyses for predicting Off Road Accidents, Collisions, and Road Edge Excursions showed that Session 4 had consistent significant regressions with PERCLOSE and Blink Rate accounting 54.2% of the variation in Off Road Accidents, 52.1% of the variation in Road Edge Excursion, and 32.7% of the variation in Collisions.

### **Conclusions**

Increasing percent eye closure (PERCLOSE) and decreasing blink-rate correlated highly with increasing accidents and collisions in a group of sleep disordered patients.

## **The First Case of Vancomycin-Intermediate Staphylococcus aureus in Hawai'i**

Suttirak Chaiwongkarjohn MD (Associate); Pornpoj Pramyothin MD (Associate); Nuntra Suwantarat MD (Associate); Matthew J. Bankowski PhD; Terrie Koyamatsu; Steve Seifried PhD; Steven J. Berman MD, FACP; Erlaine F. Bello MD, FACP (Advisor)

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a major cause of morbidity and mortality in both healthcare- and community-associated infections. The prevalence of MRSA infection in Hawai'i has increased in recent years and may be the highest in the United States. Intravenous vancomycin has been one of the most frequently prescribed antibiotics for moderately severe and severe MRSA infection and methicillin-sensitive *S. aureus* (MSSA) infection in patient with beta-lactam or sulfa allergy. In other countries and parts of the United States, MRSA with a reduced susceptibility to vancomycin has emerged. Due to the high clinical vancomycin failure and mortality rate, these vancomycin-intermediate *Staphylococcus aureus* (VISA) strains deserve serious attention. We describe the first reported case of VISA infection in Hawai'i.

A 61-year-old Japanese woman with diabetes mellitus, hypertension, hyperlipidemia, end-stage renal disease requiring hemodialysis, and history of T11-T12 spinal laminectomy with instrumentation complicated by MRSA osteomyelitis and bacteremia presented to the hospital with worsening back pain, bilateral lower extremity weakness, and urinary and fecal incontinence due to cauda equina syndrome as a result of a new spinal compression fracture. Prior to this admission she had received 20 weeks of vancomycin during hemodialysis for her complicated MRSA infection. She was found to have dialysis catheter-related MRSA bacteremia which persisted for 2 weeks despite catheter removal and adequate treatment with intravenous vancomycin with high vancomycin trough levels  $\geq 19 \mu\text{g/ml}$ . All eight *Staphylococcus aureus* blood culture isolates were initially found to have vancomycin MICs of 1-2  $\mu\text{g/ml}$  from an automated Vitek2 assay which suggesting the organism was susceptible to vancomycin. However, due to clinical treatment failure, vancomycin MICs were requested by broth microdilution and found to be 4  $\mu\text{g/ml}$ . Thus, this organism was classified as vancomycin-intermediate *S. aureus* (VISA). After being changed to daptomycin, her blood cultures were sterilized.

This case illustrates the emergence of VISA infection in Hawai'i in a patient with typical risk factors for VISA among previous described. Furthermore, this strain is developing reduced susceptibility to vancomycin which requires additional confirmation. In MRSA-infected patients who fail to respond to vancomycin therapy, suspicion for VISA infection should be raised and additional MIC susceptibility testing either by E-test, broth microdilution or agar dilution should be requested.

## Acetyl-L-Carnitine for the Treatment of HAART-Associated Lipoatrophy

Kahoko Taki MD (Associate); Dominic Chow MD (Advisor); Cecilia Shikuma MD (Advisor)

### Background

Lipoatrophy in HIV-infected patients is one of the major adverse effects of highly active anti-retroviral therapy (HAART). Acetyl-L-Carnitine (ALC) is a mitochondrial co-factor primarily involved in the transport of fatty acids across the mitochondrial membrane. The objective of this study was to evaluate the potential of ALC to delay or halt the progression of peripheral fat loss.

### Methods

This was an open label, prospective randomized controlled study. Patients were assigned to receive ALC 1gm daily or no medicines for 24 weeks. All patients underwent baseline and follow up studies including DEXA scanning, abdominal CT, and fasting blood tests which included glucose and insulin measurements.

### Results

A total of 21 participants were recruited, 10 of whom were randomly assigned to the control group, 11 to the ALC group. Ninety-five percent of the participants were men. The median age was 51 years old. Median changes among the different studies were compared after 24 weeks. DEXA scanning analysis showed no statistically significant median changes in arm, leg, trunk or total body fat between two groups. Abdominal CT analysis also showed no statistically significant changes in total, visceral, or subcutaneous abdominal fat. No change in the amount of fatty liver present was observed by calculating the liver/spleen ratio from the CT scans. Finally, no significant changes were noted in the lipid profiles, glucose values, or in HOMA IR obtained from serum samples.

### Conclusion

In this small pilot study, ALC did not delay the progression of peripheral fat loss.

## Eosinophilic Myocarditis – Rapid Onset and Resolution of a Rare Cardiomyopathy

Song Ching Ong MD (Associate); Hahn La MD; Philip H. Kuo MD; Michael Dang MD; Christian Spies MD (Member) (Advisor)

A 47-year-old woman with no past medical history presented with chills and myalgia. She was given naproxen and oseltamivir (Tamiflu). Within two days she developed nausea, epigastric pain and dyspnea and presented to the ER. Blood pressure was 95/74 mmHg. Physical examination revealed moderate epigastric and right upper quadrant tenderness. Her heart and lung examination was unremarkable. Her EKG showed subtle ST-segment depression in the inferior leads. Troponin I was 6.09 ng/dl. She underwent cardiac catheterization but no coronary artery disease was seen and equalization of filling pressures was documented. Echocardiography demonstrated a decreased left ventricular ejection fraction of 40% and a pericardial effusion with tamponade. There was also left ventricular hypertrophy with a very bright appearance of the myocardium. She underwent creation of a pericardial window with myocardial and pericardial biopsy. The myocardial specimen demonstrated eosinophilic myocarditis. Peripheral eosinophilia was absent. Stool studies for parasitic infection were also negative. Serum IgE was elevated (302 IU/ml). She was started on therapy with steroids and an ACE-inhibitor. She improved rapidly and was eventually discharged. Repeat echocardiogram 16 days later documented normalization of ejection fraction, near-complete resolution of ventricular hypertrophy and absence of the previously noted bright appearance of her myocardium.

Eosinophilic myocarditis may occur in association with malignancy, parasite infection, hypersensitivity myocarditis (HSM), endomyocardial fibrosis, and with the idiopathic hypereosinophilic syndrome. The most likely etiology in the present case is HSM, which can occur without peripheral eosinophilia. Very few biopsy-proven cases of eosinophilic myocarditis due to HSM have been reported in the literature. As was seen in the presented case, prognosis is usually very good and complete resolution can be expected; if no myocardial necrosis is documented.

## Practice Patterns for Pulmonary Arterial Hypertension: A Survey of 741 Chest Physicians

CPT Micah J. Roberts (Associate);  
and MAJ Donald Helman (FACP)

### Introduction

Current pulmonary arterial hypertension (PAH) guidelines recommend altering medical management when a patient “deteriorates or fails to respond.” Due to a lack of published data, PAH guidelines do not specifically define failure or response. The purpose of our study was to determine, in the absence of guidelines, how chest physicians currently follow their patients with PAH and what endpoints are used to determine therapeutic success or failure.

### Methods

We analyzed data from an electronic survey that was sent to physician members of the Pulmonary Vascular Disease Network of the American College of Chest Physicians. The survey collected data regarding practice demographics, frequency of follow-up visits and testing. The respondents were asked to grade the importance of select clinical indicators (six minute walk distance (6MWD), desaturation during 6MWD, VO<sub>2</sub>max, mean pulmonary artery pressure, right atrial pressure, pulmonary vascular resistance, cardiac output, mixed venous oxygen saturation, Tei index, right ventricular systolic pressure by echocardiogram, BNP, uric acid, DLCO, Borg dyspnea score). To determine the minimal clinically important difference (MCID) for these 14 endpoints, the survey also inquired about what percent change from baseline at three and 12 months would prompt continuation vs. adjustment of current management.

### Results

The overall response rate was 21%. Respondents (n=741) and non-respondents (n=2751) were similar with regards to age, gender, years of practice, and practice location. Academic chest physicians were more likely to respond to the survey than physicians in private practice (p=0.01). The majority of respondents (80.6%) manage patients with PAH, however 58% of respondents only see between 1 and 5 PAH patients per month, while just 11% see more than 20 patients per month. 50.1% plan routine follow up every 3 months, while 38.0% see their patients more frequently. Of 14 efficacy measures, only the 6MWD (83.6%), cardiac output (68.3%) and Borg dyspnea score (64.4%) were tests that were ranked as very important or important. Among the 14 options for routine testing, there was no consistent pattern for MCID for improvement or deterioration at three or 12 months.

### Discussion

Our analysis demonstrates that in the absence of formal guidelines, there is no consistent pattern regarding the frequency and type of follow-up testing or what MCID is sufficient to impact clinician decisions regarding PAH patient management. The survey also demonstrates that most chest physicians see relatively few patients with PAH each month.

## Vitamin D Status in HIV-infected Subjects Living in Hawai'i

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### Background

Recent studies have shown low vitamin D status, which is best determined by measuring 25-hydroxyvitamin D (25-OHD) levels, to be associated with increased incidence of insulin resistance, diabetes mellitus type 2, cardiovascular events (including myocardial infarction, heart failure, stroke and sudden cardiac death) and overall mortality. Patients living with HIV have been reported to have higher rates of osteoporosis/osteopenia and cardiovascular disease. Despite presumed adequate sun exposure, suboptimal vitamin D status is still possible in individuals living in Hawai'i, particularly in the presence of impaired 1 $\alpha$ -hydroxylation of 25-OHD resulting in low 1,25 dihydroxyvitamin D (1,25-(OH)<sub>2</sub>D) levels. We sought to determine the vitamin D status in a cohort of HIV infected subjects living in Hawai'i by assessing levels of 25-OHD and 1,25-(OH)<sub>2</sub>D in banked blood specimens.

### Methods

Demographic and medical history was obtained from the subjects at a single visit of the Hawai'i Aging with HIV cohort study, a longitudinal study exploring the impact of aging on HIV. Levels of 25-OHD and 1,25-(OH)<sub>2</sub>D were measured by enzyme-linked immunosorbent assays (Immunodiagnostic Systems, Fountain Hills, AZ).

### Results

Serum samples were available from 104 subjects. Mean age and body mass index were 49.57 $\pm$ 11.36 year and 25.09 $\pm$ 5.03 kg/m<sup>2</sup>, respectively. The mean 25-OHD level was 25.06 $\pm$ 15.73 ng/mL. Suboptimal vitamin D levels (defined as 25-OHD level <30 ng/mL) were observed in the majority of subjects (n=81/104, 77.88%). Six subjects (n=6/104, 5.77%) were found to have vitamin D deficiency, defined as having 25-OHD level <12 ng/mL. Mean 1,25-(OH)<sub>2</sub>D level was found to be 75.99 $\pm$ 52.81 pmol/L. Almost one-third of the subjects (n=33/104, 31.73%) were found to have 1,25-(OH)<sub>2</sub>D levels below the lower reference limit (47.7 pmol/L).

### Conclusion

Despite abundant environmental ultraviolet radiation in Hawai'i, a significant number of HIV-infected individuals in this cohort were found to have low vitamin D status, which may impose an even greater risk for osteoporosis and cardiovascular disease upon these individuals. Impaired 1 $\alpha$ -hydroxylation may be a factor contributing to the low vitamin D levels. If these results are verified, prompt detection of low vitamin D status and more widespread use of vitamin D supplementation may be appropriate in this population considering the low risk-benefit ratio of vitamin D supplementation.

## **Atrial Fibrillation Increases Risk of All-Cause Mortality: The Honolulu Heart Program**

Kahealani Rivera MD (Associate); Irwin Schatz MD, MACP; Randi Chen MS; J. David Curb MD, FACP; Beatriz Rodriguez MD; Kamal Masaki MD

### **Introduction**

The natural history of atrial fibrillation (AF) has not been well characterized. Studies have found increased cardiovascular and cerebrovascular morbidity and mortality in patients with AF. However, there are few long-term population-based studies, and none in Asian populations. We studied the long-term effect of AF on all-cause mortality in a population of Japanese-American men.

### **Methods**

Participants were Japanese-American men born between 1900-1919, who were living on the island of O'ahu and enrolled in the Honolulu Heart Program in 1965. Electrocardiograms (12-lead) were performed during 3 mid life examinations between 1965 and 1974, and during 2 late life examinations between 1991-1996. Mid-life AF was defined as having fibrillation or flutter at any of the first 3 exams, and late life AF was defined as having fibrillation or flutter at either exam 4 or 5. The primary outcome was all-cause mortality and data were available through December 2007 (36 years and 13 years of follow-up for mid-life and late life analyses, respectively). This study was approved by the IRB of Kuakini Medical Center.

### **Results**

The prevalence of AF in mid-life was 0.74%, and in late-life was 4.4%, and increased significantly with age ( $p < 0.05$ ). Those with AF in mid life were significantly more likely to die during 36 years of follow-up (98% vs 86%,  $p = 0.01$ ). Similarly, those with AF in late life were significantly more likely to die during 13 years of follow-up (88% vs 71%,  $p < 0.0001$ ). Multivariate Cox proportional hazards models adjusting for age, BMI, hypertension, diabetes, smoking, physical activity, cholesterol, alcohol consumption, prevalent coronary heart disease and stroke at baseline, found that AF was a significant independent predictor of mortality in mid-life (RR = 1.57, 95% CI = 1.19-2.09,  $p = 0.002$ ) and late-life (RR = 1.65, 95% CI = 1.34-2.03,  $p < 0.001$ ). AF remained an independent predictor of all-cause mortality after exclusion of those with CHD and stroke at baseline, in both mid-life (RR = 1.58, 95% CI = 1.16-2.16,  $p = 0.004$ ) and late life (RR = 1.72, 95% CI = 1.32-2.23,  $p < 0.001$ ).

### **Conclusions**

Atrial fibrillation was a significant independent predictor of all-cause mortality in both mid life and late life. Future studies should focus on cause of death in these patients, and whether treatment modifies this risk.

## **Increases in blink Duration and Increasing Driving Simulator Accidents in Narcolepsy Patients Over a Period of Brief Sleep Deprivation**

Patrick Twomey (Associate); William Torch; Carlos Cardillo; Chad Bouchard; Michael Russo; (Member)

### **Introduction**

There were 1413 fatal or injury motor vehicle accidents in Hawai'i County in 2004. Between 52 and 70% of American drivers report driving drowsy, with 13% of women and 32% of men reporting falling asleep at the wheel. Treated narcoleptic patients exposed to even mild sleep deprivation may be at higher risk of having a drowsy driving accident than well rested healthy individuals.

### **Methods**

After approval from the Western IRB, we performed a 34-hour continuous wake study of 34 volunteers (18-58yrs; M = 15/F = 16) in an automobile simulator to identify whether ocular measures can identify increased risk of motor vehicle accidents in specific patient populations. This abstract will discuss the subpopulation with narcolepsy (N = 8). Repeated Measure ANOVA was executed on all simulator and oculometric variables. Mauchly's test of sphericity, and Greenhouse-Geisser adjustments were applied.

### **Results**

Session effects showed consecutive linear increases in Off Road Accidents  $F(2.5, 50) = 6.389$ ,  $p < 0.002$ ; Collisions  $F(2.5, 50) = 3.953$ ,  $p = 0.01$  and Road Edge Excursions  $F(2.5, 50) = 7.325$ ,  $p = 0.001$ . The diagnostic-group effect for Off Road Accidents,  $F(3, 20) = 4.53$ ,  $p = 0.01$ ; Collisions,  $F(3, 20) = 3.56$ ,  $p = 0.03$ ; and Road Edge Excursions,  $F(3, 19) = 4.86$ ,  $p = 0.01$  were tested using Least Significant Difference (LSD) post-hoc comparisons. These comparisons revealed a significantly higher number of Off Road Accidents, Collisions, and Road Edge Excursions for the Narcolepsy group when compared to Control. The introduction of Age and Gender as covariates produced no significant between-subjects effects or interactions in any of the variables. Blink duration increased significantly for the narcolepsy group  $F(1, 13) = 10.436$ ,  $p = 0.007$ .

### **Conclusions**

Narcoleptic patients demonstrated a significantly increased number of simulated vehicular mishaps over a period of extended wake, and the oculometric measure Blink Duration closely correlated with these mishaps.



## Endogenous Serum Testosterone and Estradiol and All-Cause Mortality in Older Men: The Honolulu-Asia Aging Study

Suteevan Cholitkul MD (Member); Lenore Launer PhD; Suwitda Cholitkul MD (Member); Christina Bell MD; Randi Chen MS; Robert Abbott PhD; Helen Petrovitch MD; G. Webster Ross MD; Patricia Blanchette MD, FACP; Lon White MD; Kamal Masaki MD

### Introduction

Serum testosterone gradually declines with age in men. Low endogenous testosterone has been associated with cardiovascular events, whereas high endogenous estrogen has been linked to risk of stroke and coronary heart disease in elderly men. We studied the associations between endogenous serum testosterone and estradiol and mortality in elderly men.

### Methods

The Honolulu-Asia Aging Study is a longitudinal cohort study of elderly Japanese-American men in Hawai'i, a continuation of the Honolulu Heart Program that began in 1965. At examinations that were conducted between 1991 and 1993, serum testosterone and estradiol levels were measured in 3,168 men aged 71 to 93 years. Subjects were divided into quintiles based on levels of bioavailable testosterone and estradiol. Data on all-cause mortality were available through December 2007, providing 16 years of follow-up. This study was approved by the IRB of Kuakini Medical Center.

### Results

Men in the lowest quintile of bioavailable testosterone were significantly more likely to die during follow-up compared to those in the highest quintile (84.7% vs 69.7%,  $p < 0.0001$ ). Using Cox proportional hazards models adjusting for age, BMI, hypertension, diabetes, pack-years smoking, physical activity index, cholesterol, alcohol consumption, and prevalent coronary heart disease, stroke, cancer and dementia at baseline, men in the lowest quintile of bioavailable testosterone levels had a significantly higher risk of all-cause mortality compared to those in the highest quintile (RR=1.29, 95% CI=1.12-1.48,  $p < 0.001$ ). Conversely, men in the highest quintile of bioavailable estradiol levels had a significantly higher risk of all-cause mortality compared to those in the lowest quintile (RR=1.19, 95% CI=1.04-1.37,  $p = 0.012$ ) adjusting for the above factors.

### Conclusions

Low endogenous testosterone and high endogenous estradiol levels were associated with an increased risk of all-cause 16-year mortality in elderly Japanese-American. These findings should be confirmed by other prospective studies.

## Walking and Eight-Year Incident Depressive Symptoms: The Honolulu-Asia Aging Study

Toby Smith DO (Associate); Kamal Masaki MD; Kaon Fong MS; Robert Abbott PhD; G. Webster Ross MD; Helen Petrovitch MD; Patricia Blanchette MD, FACP; Lon White MD

### Background

Associations of higher levels of physical activity with fewer depressive symptoms have been reported from both cross-sectional and longitudinal studies. However, there are few data in elderly populations. We studied the association between physical activity and 8-year incident depressive symptoms in a cohort of elderly Japanese-American men.

### Methods

The Honolulu-Asia Aging Study is a continuation of the Honolulu Heart Program, a longitudinal population-based study of Japanese-American men on Oahu, Hawai'i. At the fourth exam in 1991-93, 3734 survivors aged 71-93 years were examined. Physical activity was assessed by self-reported distance walked per day. Depressive symptoms were measured with an 11-question version of the Centers for Epidemiologic Studies Depression Scale (CES-D) at the 4th exam ( $n = 3196$ ) and again at the 7th exam 8 years later (1999-2000,  $n = 1417$ ). Presence of depressive symptoms was defined as CES-D-11 score  $\geq 9$  or taking anti-depressants. Subjects with prevalent depressive symptoms at exam 4 were excluded from the incidence analysis. Chi square, t-tests and multiple logistic regression models were used for analyses. This study was approved by the IRB of Kuakini Medical Center.

### Results

Incident depressive symptoms were present in 9.8% of men. Age adjusted 8-year incident depressive symptoms were 13.6%, 7.6% and 8.5% for low ( $< 1/4$  miles/day), intermediate ( $1/4$  to 1.5 miles/d) and high ( $> 1.5$  miles/day) walking groups at baseline,  $p = 0.008$ . Multiple logistic regression analyses were adjusted for age, education, marital status, BMI, hypertension, diabetes, alcohol, smoking status, prevalent coronary heart disease, stroke, cancer, Parkinson's disease, dementia or cognitive impairment and difficulty walking. Compared to the lowest walking group (reference), those in the intermediate and highest walking groups had significantly lower odds for developing 8-year incident depressive symptoms (OR=0.52; 95% CI=0.32-0.83,  $p = 0.006$ ; and OR=0.61; 95% CI=0.39-0.97,  $p = 0.04$  respectively).

### Conclusion

Daily physical activity, even low level activity such as walking, is strongly associated with a lower risk for development of depressive symptoms over eight years in elderly Japanese-American men.

## Curriculum Development in Skin and Wound Care

Samina Ahsan MD (Member); Kamal Masaki MD;  
Barbara M. Bates-Jensen PhD, RN;  
Patricia L. Blanchette MD, MPH, FACP

### Background

Good training in skin and wound care is necessary for physicians to provide high quality care to elderly patients, and is often inadequate in residency and fellowship programs. As the population of the United States ages, a greater number of individuals will be at high risk for developing skin ulcers and wounds.

### Methods

A new curriculum in skin and wound care was introduced to the Geriatric Medicine Fellows at the University of Hawai'i in 2007-08. It was presented as a didactic seminar series to 11 geriatrics fellows. The seminar series was taught as weekly one-hour sessions over three weeks, and covered the following topics: pressure ulcers, dressings, and chronic wounds and ulcers. Trainees were asked eight questions before and after participating in the seminars, to assess their own knowledge of the subject. Each question was rated 1 to 5 on a Likert scale, with 1 representing "strongly disagree" and 5 representing "strongly agree". T-tests were used to compare means before and after participation in the seminars.

### Results

The authors found significant differences in means for all eight self-assessment questions. These questions included comfort in evaluating and treating pressure ulcers (3.5 versus 4.6,  $p < 0.0001$ ); ability to diagnose stage 1 pressure ulcers (3.7 versus 4.9,  $p < 0.0001$ ); ability to diagnose stage 2 pressure ulcers (3.8 versus 5,  $p < 0.0001$ ); ability to diagnose stage 3 pressure ulcers (3.8 versus 5,  $p < 0.0001$ ); ability to diagnose stage 4 pressure ulcers (3.9 versus 5,  $p < 0.0001$ ); ability to choose different types of dressings (3.1 versus 4.5,  $p < 0.0001$ ); ability to differentiate between venous, arterial and neuropathic ulcers (3.2 versus 4.6,  $p < 0.0001$ ); and ability to differentiate between skin conditions that mimic pressure ulcers (3.4 versus 4.5,  $p < 0.0001$ ).

### Conclusions

Implementation of a structured curriculum in skin and wound care led to a significant improvement in trainees' self assessment of their knowledge on the subject. In the future, trainees will be asked to complete pre and post knowledge tests to objectively assess improvements in knowledge related to the seminar series.

## Polypharmacy Improvement Adherence Project: Patient Outcomes

Pia Lorenzo MD (Member); Christina Bell MD;  
Wendy Iwasaki PharmD; Kamal Masaki MD;  
Patricia Blanchette MD, MPH, FACP

### Introduction

The risk of adverse drug reactions increases with number of drugs used. Polypharmacy in nursing homes, defined as > nine medications, causes 48-69% of drug related problems. Last year, the Polypharmacy Outcomes Project, a Geriatric Medicine Fellowship program quality improvement project to teach the practice-based learning and improvement competency, was carried out in a teaching nursing home. We found improvements in patient care and fellow education regarding polypharmacy. To study the long-term effect, we are conducting the project for a second year.

### Methods

After IRB approval, we conducted a chart review study in a 180-bed teaching nursing home. Using the Minimum Data Set, geriatrics fellows reviewed the charts of 75 patients using > nine medications. Based on Beers' Criteria for potentially inappropriate drug use in elderly patients, fellows recommended to continue, taper or modify individual medications. A second survey identified drug-drug interactions and contraindications. Recommendations were discussed with the attending physician of each patient, who made the final decision. T-tests were used to compare differences pre and post recommendations, and to compare the results from the first and second year of the project.

### Results

Twenty-one patients (28%) had appropriate medication regimens and no further recommendations were made. A total of 84 recommendations were made and 49 (58%) were implemented. Prior to the review, 75 patients were on a total of 1251 medications, of which 43 (3.4%) were identified as high-risk. Recommendations led to 8.7% reduction in total number of medications,  $p = 0.18$ . There were significant reductions in the number of high-risk medications per patient (0.57 to 0.49,  $p = 0.03$ ) as well as in the number of contraindications per patient (0.12 to 0.04,  $p = 0.03$ ). From the first to the second year of the project, there was no significant reduction in total medications per patient, however, there was a trend toward significance in the reduction of high-risk medications per patient (0.93 in 2007 versus 0.57 in 2008,  $p = 0.07$ ).

### Conclusion

There was a significant reduction in the number of high-risk medications and medications with contraindications with the polypharmacy reduction project in 2008. Additionally, there was a trend toward reduction in the number of high-risk medications from 2007 to 2008, suggesting some lasting effects of the project despite significant patient turnover. This project may provide a model for teaching trainees about practice-based learning and improvement in an aging population.

## **Polypharmacy Improvement Adherence Project: Nursing Home Medication Cost Outcomes**

Pia Lorenzo MD (Member); Christina Bell MD; Wendy Iwasaki PharmD; Kamal Masaki MD; Patricia Blanchette MD, MPH, FACP

### **Introduction**

The risk of adverse drug reactions increases with number of drugs used. Polypharmacy in nursing homes, defined as > nine medications, causes an estimated 48-69% of drug related problems. The Polypharmacy Outcomes Project, a quality improvement project, resulted in a significant reduction in nursing home medication costs in 2007. This study examined outcomes of a second nursing home polypharmacy review one year later.

### **Methods**

After IRB approval, data on prescribed medications, dosing schedules and routes of administration were obtained from 75 nursing home charts in patients with polypharmacy. Medication costs were determined from nursing home consultant pharmacist and internet pharmacy sources. Geriatric medicine fellows recommended to continue, taper or modify each medication based on Beers' criteria for potentially inappropriate drug use in elderly patients. Additional review identified high-risk medications, drug-drug interactions and contraindications. Recommendations were discussed with each patient's attending physician, who made the final decision. T-tests compared medication costs before and after the project, and baseline medication costs of the 2007 and 2008 projects.

### **Results**

The total number of medications prescribed was 1251, with an average cost of \$755 per patient per month. One or more medications costing over \$100 per month were documented in 66 patients (88%). The total cost of scheduled medications was \$56,653 per month. After the project, the total number of medications decreased to 1232. The mean number of drugs costing more than \$100 per month was significantly reduced from 2.21 to 2.08 medications per patient ( $p=0.007$ ). The average cost of scheduled medications decreased significantly from \$755 to \$730 per patient per month ( $p=0.0002$ ). The total cost for discontinued medications was \$1869 per month, translating into a projected savings of \$22,431 per year. There were no significant differences in mean cost of scheduled medications per patient or mean number of medications costing over \$100 per month in 2008 compared to 2007.

### **Conclusion**

Reducing polypharmacy in nursing homes reduces medication expense and may avoid costly adverse drug reactions. This project led to improvements in patient care and decreased costs, at the same time providing education in systems-based practice for physicians in training. Future directions include examining ways to extend the cost-reduction impact of the project.

## **Prevalence of Anal Intraepithelial Neoplasm in Anal Pap Smears of HIV Positive Men Who Have Sex with Men**

Melissa Ching MD; Cris Milne RN, MPH; Cecilia Shikuma MD

### **Background**

Anal intraepithelial neoplasm (AIN) caused by human papillomavirus (HPV) infection has the potential to progress to anal squamous cell carcinoma (SCC). There has been an increase in the incidence of AIN and anal cancer in human immunodeficiency virus (HIV) positive men who have sex with men (MSM). It has been proposed that routine screening for AIN with anal pap smears be implemented in high-risk populations. The Clint Spencer Clinic (CSC) in Hawai'i serves HIV positive individuals and offers anal pap smears. If needed anoscopies and biopsies of dysplastic lesions are also performed to confirm the diagnoses. This study presents preliminary data on the prevalence of anal dysplasia in HIV MSM to better understand the scope of the disease in Hawai'i.

### **Methods**

Retrospective chart review of pathology reports of anal pap smears anal biopsies via anoscopies.

### **Results**

22 HIV positive MSM obtained anal pap smears. One chart was not available. The results showed: 6/21 (29%) normal, 1/21 (5%) ASCUS, 11/21 (52%) LSIL, and 3/21 (14%) HSIL. Out of the 21 patients, 15 patients underwent anoscopies with biopsies. Out of the 15 patients who obtained biopsies obtained results showed: 1/15 (7%) insufficient, 1/15 (7%) condyloma, 7/15 (47%) mild dysplasia 2/15 (13%), moderate dysplasia, and 1/15 (7%) squamous cell carcinoma in situ.

### **Conclusion**

There was a high rate of AIN present in our patient population. Further studies need to be done to examine whether routine screening of MSM is cost effective and prevents morbidity and mortality related to SCC.

# **Necrotizing Fasciitis: Incidence, Mortality, Risk Factors and Microbiological Profile, Among Patients in Hawai'i**

Nuntra Suwantararat MD (Associate), C. Mullen, S. Howman, Alan D. Tice MD, FACP

## **Background**

Necrotizing fasciitis is a rare infection in United States with a prevalence of 3.5 per 100,000. However, an extremely high incidence of necrotizing fasciitis has been noted in Hawai'i including a cluster of severe streptococcal skin infection in Maui with documented three fatal cases in a three month period in 2004. More information is needed to determine the factors, and microbiology of this infection in Hawai'i.

## **Methods**

A retrospective case-control study identified patients admitted to Queen's Medical Center, during 1998-2005 with necrotizing fasciitis patients (ICD 9 code; 728.86) and cellulitis (ICD 9 code; 682.2,-682.6). Cellulitis cases were matched by age and gender. These two populations were compared by demographic information, comorbidities, laboratory results, interventions, and outcomes.

## **Results**

A total of 240 patient charts: 120 of necrotizing fasciitis patients and 120 of cellulitis patients, were reviewed and found to have a mean age of 56.4 years with 69.2% men and 30.8% women. There was no difference in mean age, gender, body weight, height and body mass index between both patient groups. Hawaiian and Pacific Islander (including Micronesian, Tonga, Samoa) ethnicity was statistically associated with necrotizing fasciitis patients ( $P=0.05$ ) which Caucasian less so ( $P=0.02$ ). There was no association with other risk factors including diabetes mellitus, peripheral vascular disease, cancer, end stage renal disease, congestive heart failure, NSAIDs use or history of injection drug use. With necrotizing fasciitis patients, 73% were found to have a positive blood cultures on the first day of admission which was statistically significant compared to 8% in cellulitis patients ( $P=0.012$ ) as well as 90% of necrotizing fasciitis patients were found to have a positive wound cultures versus 71% of cellulitis groups ( $P=0.006$ ). The most common causative pathogen was beta-hemolytic, group A Streptococcus (positive blood culture; 21% in necrotizing fasciitis vs 4% in cellulitis group, positive wound culture 32% in necrotizing fasciitis versus 6% in cellulitis group) followed by Methicillin-sensitive Staphylococcus aureus (MSSA) and Methicillin-resistant Staphylococcus aureus (MRSA). In necrotizing fasciitis patients, wound culture was positive for MRSA (12%) more common than MSSA (8%). Forty-six patients with necrotizing fasciitis had definite diagnosis with pathological evidence of necrotic tissue. Fifty-three percent of necrotizing fasciitis patients were admitted to intensive care unit. Mortality rate of necrotizing fasciitis was 13% (15 patients died) with 75% were men ( $n=11$ ) and high BMI (44.04) compared to others NTZ patients (BMI 34.4)

## **Conclusion**

Hawai'i has a high incidence and mortality rate of necrotizing fasciitis which significantly related to Hawaiian and Pacific Islander ethnicity. Further investigations are needed in regard to predisposing factors and mechanism of disease.

# **Percutaneous Coronary Intervention (PCI) Outcomes Assessment: A Comparison of Risk-Adjustment Models**

Nicholas Ondrasik MD (Associate)

## **Background**

American College of Cardiology (ACC) Guidelines recommend that PCI be performed at centers whose risk-adjusted outcomes are comparable to those reported in large registries. The ACC-National Cardiovascular Data Registry (NCDR) and the New York State (NYS) Registry are the two largest data repositories that are used to develop risk-adjustment models based on logistic regression that incorporate multiple patient and procedural risk factors.

## **Methods**

Our objective was to determine which risk adjusted outcome model was most appropriate for use at our facility. We reviewed the medical records, phone, and mail correspondence of patients undergoing PCI up to 30 days after their procedure at Tripler Army Medical Center between January 2002 and June 2008. In hospital mortality and 30 day mortality rates were calculated. We also extracted data components from the ACC-NCDR and the NYS Registry models for each patient. We then calculated individual patient risk according to each model. Goodness of fit, correlation among models, and discriminatory ability were assessed respectively with the Hosmer-Lemeshow statistic, scatter plots, and receiver operating characteristic (ROC) curves.

## **Results**

We reviewed the records of 499 patients undergoing 565 PCIs during the study period. There was 100% follow up to 30 days. Our observed 30-day mortality was 1.5%. The Hosmer-Lemeshow statistic showed the data best fit the 2002 ACC model. However, the correlation between the 2002 and 2003 ACC-NCDR models was nonlinear, with the 2002 model yielding higher expected mortality rates in our patients over most of the range of risk and on average 13.4% vs. 1.0% for the 2003 model and 2.0% for the NY model. Areas under the ROC curves for 2002 and 2003 ACC and NY State models were 0.91, 0.90, 0.92, respectively,  $p=NS$ . The NY State ROC curve found the most predictive probability of death to be at a cut-point of 0.15. Plots of NY State risk by deciles for 30-day mortality showed 2 of the 8 deaths to be outliers with markedly lower risk than the others.

## **Discussion**

We selected the NY model as our risk predictor and benchmark because the NY State sets the highest standard (0.7% observed mortality) and used fewer intra-procedural variables. We were also concerned that the two ACC models were not linearly related and gave widely disparate results. Probability models provide for quantitative and therefore very objective identification of outliers for case review. We feel that when a patient's predicted probability of death exceeds 0.15 according to the NY State model, alternatives to PCI should be strongly considered.

## Hepatocellular Cancer in Pacific Islanders

Margaret Ochner MPH, MS4 (Student Member)

### Background

Hepatocellular cancer (HCC) has a high incidence in Asian countries and is increasing in incidence in the United States. The ethnicity broadly described as "Asian and Pacific Islanders" is known to have an especially high incidence in the United States, but no study has characterized HCC in the subgroup of Pacific Islanders alone.

### Methods

This is a retrospective study of a prospectively collected database on HCC patients from 1993 to 2008. Data collected included demographics, risk factors, tumor characteristics, laboratory studies, treatment and survival. Of 523 patients with HCC, 72 were identified as Pacific Islanders and this group was compared to 85 patients in the cohort who were Caucasian. Chi-square analyses were used to identify differences in the above characteristics between the groups. Cox proportional hazards model was used to determine regression analysis of survival data.

### Results

In Pacific Islanders, mean age was 55.6 years with male to female ratio of 58:14 which was not significantly different in distribution from Caucasian. Pacific Islanders were more likely to have hepatitis B (36.1% vs 5.9%,  $p < 0.05$ ), symptoms at presentation (59.7% vs 41.2%,  $p = 0.003$ ), and larger tumors ( $p = 0.02$ ). Caucasians were more likely to have hepatitis C (64.7% vs 43.1%,  $p = 0.012$ ) and encephalopathy (30.9% vs 12.7%). Although more HCC was found on screening in Caucasians (16.7%) compared to Pacific Islanders (6.9%), this was not statistically significant. Mean survival was not different between Pacific Islanders (10.9 months, 95% CI 6.77-24.1) and Caucasians (43.3 months, 95% CI 21.2-75.5). Using backwards multivariate regression analysis, factors that were associated with decreased survival included late stage III/IV at presentation (Hazard ratio 3.2), female gender (HR 2.58), increased Child-Turcotte-Pugh score (HR 2.52), smoking (HR 2.1), and alcohol use (HR 2.0). Ethnicity did not independently affect survival.

### Discussion

Pacific Islanders were more likely to have hepatitis B and present with symptoms and larger tumors, though they were just as likely to have their HCC found upon screening. Although ethnicity did not independently affect survival, efforts should be made to better educate the community on the importance of identifying & vaccinating against preventable hepatitis B in Pacific Islanders and in general recognizing the risk for HCC in this group.

Currently awaiting IRB approval to study staging of HCC using this entire database. The application does include all the data collected including ethnicity and survival differences.

## Atrial Fibrillation and Cognitive Decline: The Honolulu-Asia Aging Study

Chad Tao MS2

### Background

Atrial fibrillation (AF) increases risk of stroke, microemboli, and possibly low cerebral perfusion. Studies of AF and cognitive function demonstrate mixed results, and there are no studies in elderly Asian populations.

### Methods

The Honolulu Heart Program (HHP) began in 1965-68 with 8006 Japanese-American men ages 45-68 years. The Honolulu-Asia Aging Study started with HHP exam 4 in 1991-93, when 3734 men ages 71-93 years were studied for cognitive function and dementia. Mid-life AF was assessed by 12-lead ECG at any of the first 3 HHP exams (1965-74), and late-life AF was assessed at exam 4 or 5 (1991-96). Beginning at exam 4, cognitive function was assessed with the Cognitive Abilities Screening Instrument (CASI), scores range from 0-100. Cognitive decline was defined as a  $>1$  SD decline in CASI score ( $>14$  points at 6 years). Standardized criteria were used to classify dementia (DSM-IIIIR), Alzheimer's disease (AD; NINCDS-ADRDA), and vascular dementia (VaD; California AD-DTC). Prevalent and incident dementia and subtypes were studied. Incidence analyses excluded prevalent cases. This study was approved by the IRB of Kuakini Medical Center.

### Results

The prevalence of AF was 0.7% in mid life and 4.4% in late life, and increased significantly with age ( $p < 0.05$ ). There were no significant associations between mid-life AF and late life cognitive decline or dementia. Late-life AF was associated with higher rates of prevalent dementia (3.3% vs 7%,  $p = 0.03$ ). This association lost significance after adjusting for covariates. In longitudinal analyses with multiple logistic regression adjusting for age, education, prevalent stroke and apoE4, late-life AF was significantly associated with 6-year cognitive decline (OR = 2.16, 95% CI = 1.25-3.74,  $p = 0.006$ ). Multivariate Cox proportional hazards models found a borderline significant association between late-life AF and incident AD (RR = 2.06, 95% CI = 0.95-4.47;  $p = 0.066$ ), but not with all-cause dementia or incident VaD.

### Conclusions

Late-life AF was significantly associated with six-year cognitive decline, and was marginally associated with incident AD. There was no association with incident VaD, possibly because clinically recognized VaD in this cohort is mostly due to lacunar infarcts. The association between AF and incident AD may reflect co-prevalent silent small and microscopic infarcts contributing to the clinical expression of Alzheimer lesions. Future interventions to reduce late life cognitive decline may well include improved identification and treatment of AF and allied cardiovascular abnormalities.

## Impaired Olfaction Predicts Incident Dementia in Elderly Men: The Honolulu-Asia Aging Study

Margaret H. Ochner MPH, MS4 (Student Member)

### Background

Olfaction deficits have been noted in neurodegenerative diseases, especially Alzheimer's dementia. However, there are no prospective cohort studies of olfaction and incident dementia. We examined the predictive value of olfaction deficits for incident dementia and its subtypes in elderly Asian men.

### Methods

The Honolulu-Asia Aging Study (HAAS) is a population-based study of Japanese-American men that began with the fourth Honolulu Heart Program examination. In 1991-93, 3734 Japanese-American men ages 71-93 years were administered the Cognitive Abilities Screening Instrument (CASI). Incident dementia over 6 years of follow-up was classified by DSM III-R criteria, incident Alzheimer's disease (AD) was classified by NINDS-ADRDA criteria, and incident vascular dementia was classified by California ADDTC criteria. Olfaction was measured using the Brief Smell Identification Test at Exam 4 or Exam 5 of the HAAS, and was analyzed as a continuous variable and in quartiles. Subjects with prevalent dementia were excluded from incidence analyses. This study was approved by the IRB of Kuakini Medical Center.

### Results

Bivariate analyses showed significant differences in mean CASI score by olfaction quartiles, where lower CASI scores were associated with impaired olfaction ( $p < 0.0001$ ). Those in the lowest quartile of olfaction had significantly higher incident dementia (18.9% vs 2.7%,  $p < 0.0001$ ) and incident AD (9.7% vs 1.5%,  $p < 0.0001$ ) compared to those in the highest olfaction quartile. Using Cox proportional hazards models, adjusting for age, education, ApoE4, prevalent cardiovascular diseases and risk factors, those in the lowest quartile of olfaction had a significant increase in risk of incident dementia (RR = 5.73, 95% CI = 2.97-11.1,  $p < 0.001$ ), and incident AD (RR = 5.73, 95% CI = 2.35-14.0,  $p < 0.001$ ), using the highest quartile as reference. These relationships were stronger when analyses included only those with good cognitive function at baseline.

### Conclusion

Impaired olfaction was a significant predictor of incident dementia and Alzheimer's disease, but not vascular dementia. Clinically, this may prove to be a useful tool for early detection of AD and possibly early institution of treatment or preventive measures.

## Atrial Fibrillation Increases Risk of All-Cause Mortality: The Honolulu Heart Program

Matthew Uechi MS2 (Student Member)

### Introduction

The natural history of atrial fibrillation (AF) has not been well characterized. Studies have found increased cardiovascular and cerebrovascular morbidity and mortality in patients with AF. However, there are few long-term population-based studies, and none in Asian populations. We studied the long-term effect of AF on all-cause mortality in a population of Japanese-American men.

### Methods

Participants were Japanese-American males born between 1900-19, who were living on the island of O`ahu and enrolled in the Honolulu Heart Program in 1965. Electrocardiograms (12-lead) were performed during 3 mid life examinations between 1965 and 1974, and during 2 late life examinations between 1991-1996. Mid-life AF was defined as having fibrillation or flutter at any of the first 3 exams, and late life AF was defined as having fibrillation or flutter at either exam 4 or 5. The primary outcome was all-cause mortality and data were available through December 2007 (36 years and 13 years of follow-up for mid-life and late life analyses, respectively). This study was approved by the IRB of Kuakini Medical Center.

### Results

The prevalence of AF in mid-life was 0.74%, and in late-life was 4.4%, and increased significantly with age ( $p < 0.05$ ). Those with AF in mid life were significantly more likely to die during 36 years of follow-up (98% vs 86%,  $p = 0.01$ ). Similarly, those with AF in late life were significantly more likely to die during 13 years of follow-up (88% vs 71%,  $p < 0.0001$ ). Multivariate Cox proportional hazards models adjusting for age, BMI, hypertension, diabetes, smoking, physical activity, cholesterol, alcohol consumption, prevalent coronary heart disease and stroke at baseline, found that AF was a significant independent predictor of mortality in mid-life (RR = 1.57, 95% CI = 1.19-2.09,  $p = 0.002$ ) and late-life (RR = 1.65, 95% CI = 1.34-2.03,  $p < 0.001$ ). AF remained an independent predictor of all-cause mortality after exclusion of those with CHD and stroke at baseline, in both mid-life (RR = 1.58, 95% CI = 1.16-2.16,  $p = 0.004$ ) and late life (RR = 1.72, 95% CI = 1.32-2.23,  $p < 0.001$ ).

### Conclusions

Atrial fibrillation was a significant independent predictor of all-cause mortality in both mid life and late life. Future studies should focus on cause of death in these patients, and whether treatment modifies this risk.

## A Survey of Attitudes Concerning Sickle Cell Trait Screening of Intercollegiate Student-Athletes at a NCAA Division I University

Nicole Meunier MS3 (Student Member)

### Background

Sickle Cell Trait (SCT) is considered a benign condition in the general population, but medical evidence suggests that in certain circumstances including dehydration, high humidity, heat, and poor physical conditioning, sickling may occur. This increased predisposition to sickling can lead to sudden death or other serious medical conditions, with at least 30 documented cases from 1974-2007. The 2007 National Athletic Trainers Association (NATA) consensus statement recommends that the SCT status of all athletes be determined during the pre-participation examination. Current NCAA guidelines recommend that participation in SCT screening be voluntary and offered to both "black and non-black" individuals. Our purpose is to evaluate the attitudes of student-athletes regarding SCT screening at a NCAA Division I University.

### Methods

Student-athletes at the University of Hawaii at Manoa were asked to participate in a voluntary survey study. The survey instrument included questions on sport(s) played, gender, year in college, ethnicity and 12 specific questions regarding SCT screening. Surveys were distributed by a single individual who was available to answer participants' questions. The data was analyzed using Excel spreadsheet software to compile descriptive statistics and perform chi-squared tests.

### Results

The survey was completed by 271 (113 women, 158 men) of 445 (60.9%) student-athletes, representing 17 different sports teams at one institution. Seventy-eight percent (n=212) of participants believed that SCT screening should be voluntary for all ethnic groups. While seventy-five percent (n=203) of participants stated they would undergo voluntary screening to identify genetic conditions that could increase their health risk during athletics, only 40% (n=108) would agree to volunteer for SCT screening. Compared to those without African ancestry, subjects with African ancestry were more likely to know their own SCT status, if they had been tested for SCT, and if anyone in their family has SCT; the results of these comparisons demonstrated statistical significance (p-value .04, .03, and .00008, respectively). However, of 34 participants (12.5%) who reported having at least part African ancestry, only five (14.7%) were aware of their SCT status. Further, only 50% of African ancestry participants said they would volunteer for SCT screening. Fifty-seven percent of subjects feel that it is discriminatory to require SCT screening only for high-prevalence ethnicities.

### Conclusion

Although most participants believed that SCT screening should be voluntary for all athletes, fewer than half would choose to undergo voluntary testing. Participant awareness of SCT status was low,

even among those with African ancestry. A majority of participants would consider it discriminatory to limit SCT screening to certain ethnicities. To our knowledge, this is the first study to investigate the attitudes of student-athletes concerning SCT screening. The findings will help team physicians, athletic trainers, coaches, and administrators understand how student-athletes feel about participation in SCT screening.

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## Surfing as a Risk Factor for Gastro-esophageal Reflux Disease

Yasuhiro Norisue MD (Associate)

### Background

Gastro-esophageal reflux disease (GERD) is characterized by the reflux of gastric contents into the esophagus. Studies support the role of increased intra-abdominal pressure contributing to reflux symptoms. We suspected that paddling in the prone position on hard surfboard surfaces would lead to increased intra-abdominal pressures, and subsequently increase the risk for GERD in surfers compared to non-surfing athletes. This survey compared the prevalence of reflux symptoms in surfers versus non-surfers who participate in other aerobic sporting activities.

### Methods

A modified Gastrointestinal Symptom Rating Scale (GSRS) was used to obtain the prevalence and ratings of subjective reflux symptoms in surfers (n=185) and non-surfer participants who participate in other aerobic sporting activities (n=178).

### Results

The prevalence of reflux symptoms at least twice a week GERD was 7% in non-surfers and 21% in surfers respectively. GERD was significantly higher in surfers, with an odds ratio of 3.6 (p<0.001) after adjustment for demographic variables, using the multivariate regression model. The prevalence of GERD increased significantly as the frequency of surfing increased (p<0.001), and as the duration of surfing increased (p<0.001). The ratio of surfers who reported avoidance of meals shortly before surfing was significantly higher than that of non-surfers (p<0.001).

### Conclusion

Surfing is strongly associated with GERD, and leads to changes in behavior to reduce symptomatology.

# Improvements in Diabetes Care in a Predominant Native Hawaiian and Pacific Islander Population

Rachel Lee MD

## Background

Despite effective and cost-effective therapies, the burden of diabetes may not be shared equally by all, with variation in diabetes incidence, treatment and outcomes. We sought to assess the quality of diabetes care among a predominantly Native Hawaiian (NH) and Pacific Islander (PI) population.

## Methods

We identified all patients with a new diagnosis of diabetes seen at the Queen Emma Clinics from 1/05-12/06, who attended >1 follow-up visit within six-months of the index visit. Medical records were reviewed to obtain demographic and clinical data from the index visit through a twelve-month follow-up. Quality measures were adopted from the National Diabetes Quality Improvement Alliance, and are consistent with national standards from the ADA, AMA and HEDIS. Compliance within twelve-months from the index visit was calculated.

## Results

We identified 324 patients with 57% (n=185) PI, 15% (n=49) NH, 13% (n=42) Asian, 9% (n=28) Caucasian, and 6% (n=20) other. Compared with Caucasians, PIs were more likely to have Medicaid/Quest/no insurance (90% vs. 64%, p<0.01) and NH were younger (50yo vs. 57yo, p<0.01). There were no differences in hyperlipidemia (~63%), CAD (~10%), or resident-care (~88%). Overall, performance improved from the index visit to the twelve-month follow-up (Table), with rates on all quality measures meeting or exceeding national benchmarks (i.e., HbA1c <9.0% = 79%,

LDL < 130 = 64%, influenza = 53%, pneumovax = 43%). However, test results could not be located for a number of subjects. For example, of the 185 PIs and 47 NHs, 31% did not have HbA1c results in the medical record within twelve-months of the index visit.

## Conclusions

In this multicultural clinic that serves a predominantly NHPI and underinsured population, diabetes care meets or exceeds national benchmarks. Although NHPI have higher HbA1c than Caucasians, other measures are similar or better. One-third of patients, however, may not receive follow-up lab testing, although this may reflect documentation difficulties. Further research is required to determine the impact of improved documentation and performance improvement interventions on diabetes care.

Table				
Quality Measure	PI	Hawn	Asian	White
<b>HbA1c &lt; 9.0%</b>				
Index visit, % (total n)	47%* (182)	36%* (47)	61% (39)	69% (26)
12mo f/u, % (total n)	74%* (127)	53%* (34)	86% (29)	100% (18)
No test w/i 12mo	31%	31%	31%	36%
<b>LDL &lt; 130 mg/dL</b>				
Index visit, % (total n)	185	49	42	28
12mo f/u, % (total n)	75% (110)	72% (32)	80% (25)	60% (9)
No test w/i 12mo	41%	35%	40%	68%
<b>Vaccination</b>				
Pneumovax	58%	37%	43%	32%
Influenza	68%	57%	52%	68%
<b>Other</b>				
Eye exam	35%	25%	28%	30%
Foot exam	76%*	64%	60%	58%

# Resting Heart Rate and All-Cause Mortality in Elderly Japanese-American Men: The Honolulu Heart Program

Suwitda Cholitkul MD (Associate)

## Introduction

Elevated heart rate is a significant predictor for cardiovascular death in many studies. We studied whether resting heart rate in mid-life and in late-life is a risk for mortality in Japanese-American men, a population that has not been previously studied.

## Methods

The Honolulu Heart Program is a longitudinal cohort study of Japanese-American men in Hawai'i which started in 1965. Resting heart rate was measured as ventricular rate on EKG in mid-life (ages 45-68 years) in 7,997 men at exam 1 (1965-68). Late-life resting heart rate was measured in 3,729 men ages 71-93 years at exam 4 (1991-93). Subjects were divided into quartiles of mid-life and late-life resting heart rate. All-cause mortality data were available through December 2007, providing 42 years of follow-up for the mid-life analysis, and 16 years of follow-up for the late-life analysis. We used chi square, t-tests and Cox proportional hazards models. This study was approved by the IRB of Kuakini Medical Center.

## Results

Late-life heart rate was significantly associated with mortality (72.9%, 74.7%, 76.5%, 82.8% died during 16 years of follow-up from lowest to highest quartile respectively, p<0.0001). In multivariate Cox proportional hazards regression models adjusting for age, BMI, hypertension, diabetes, pack-years smoking, physical activity index, cholesterol, alcohol consumption, and prevalent CHD, stroke and cancer, all-cause mortality was significantly higher in subjects in the second (RR = 1.08, 95% CI = 1.01-1.16, p=0.03), third (RR = 1.08, 95% CI = 1.01-1.16, p=0.02) and fourth quartiles (RR = 1.12, 95% CI = 1.04-1.20, p=0.002) of mid-life heart rate (reference = lowest quartile). Similarly, multivariate Cox proportional hazards models adjusting for the above factors and prevalent dementia found a significant increase in all-cause mortality in the fourth quartile of late-life heart rate (RR = 1.20, 95% CI = 1.06-1.35, p=0.003), using the lowest quartile as reference.

## Conclusions

All-cause mortality was highest in subjects in the highest quartiles of heart rate in both mid-life and late-life in elderly Japanese-American men. High heart rate may be a marker of underlying disease, and it is not clear whether slowing of heart rate will modify this association.



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**Leland Dao, D.O., Family Practitioner**



## Integrating Educational Technology into the Basic Sciences

**Craig Okumura MEd; Kenton Kramer PhD; and Richard Kasuya MD, MEd**  
**Office of Medical Education, John A. Burns School of Medicine, University of Hawai'i**

The John A. Burns School of Medicine (JABSOM) is nationally and internationally recognized for its Problem-Based Learning (PBL) curriculum. During the preclinical years, medical students spend the majority of their time learning in small group sessions through the discussion of hypothetical clinical cases, called Health Care Problems (HCP). Additional learning opportunities are through lectures, laboratory sessions, colloquia, community health activities and clinical skills encounters. Despite this demanding schedule, JABSOM faculty members continue to explore ways to provide additional basic science instruction without adding additional lecture hours to the curriculum. The authors' approach to this problem utilizes online interactive modules, which students can work through on their own.

Today's medical students tend to be technologically sophisticated and interested in contemporary forms of instructional delivery that capitalizes on their familiarity with multi-media technology. The challenge is to develop instructional strategies that take into account new techniques for delivering basic science information. Many educational entities struggle with combining exponentially growing information with efficient methods of delivery. With pressures to limit program cost and simultaneously increase in student enrollment there is an increasing demand to find alternative instructional delivery methods. In particular, medical schools are investing in technologies to make course content available outside of the classroom.<sup>1</sup>

During the first two years at JABSOM, medical students attend small group tutorials, basic science lectures and laboratory sessions, and colloquia. These venues provide the basic science framework needed to work through and understand the HCPs and clinical skills patient encounters. Little time is left during the week for additional lectures and other classroom-based learning opportunities. This dilemma has led to two questions: 1) Could an asynchronous instructional module serve as an effective learning tool for the basic science faculty? 2) How would our students react to such instruction?

To examine these questions, an interactive, multi-media-enhanced, Web-based instructional module (eModule) on immunology was developed and tested using first-year medical students. Their assessment of the module was collected and analyzed. Dick and Carey's Systematic Design of Instruction guided the instructional design process.<sup>2</sup> Antibody structure, function and diversity were chosen as the content for the first module. The template for this module is called the JABSOM eModule.

The objectives of the immunology eModule are that first-year medical students will: 1) identify the parts of an antibody, 2) identify antibody isotypes, 3) match the antibody functions with the isotypes, and 4) explain antibody diversity from somatic recombination with 100% accuracy. Two immunologists, from JABSOM's Department of Tropical Medicine, Medical Microbiology and Pharmacology,

served as content experts and advisors. Performance objectives were developed for each sub-skill, and pre- and post-test questions were written to test the module's effectiveness. Interactive, embedded questions were used throughout the module, providing the learners with immediate feedback after each section of the module. The Adobe Creative Suite software package was used to develop the visual design of the module. Creative graphical elements were used to grab the learner's attention and provide visual information on antibody structure (Figure 1). The final product was converted to a pdf format. Video clips and interactive elements were included in the module to dynamically represent specific instructional content. The eModule can be viewed at: <http://tinyurl.com/emodule>.

Prior to releasing the eModule, two faculty members from the Tropical Medicine and two faculty members from the Office of Medical Education, not involved with the module development, were consulted for content accuracy and clarity. Based on their feedback, modifications were made. The completed eModule was beta-tested on 18 first-year medical students. Pre- and post-tests were administered. Following the post-test, an attitudinal survey was administered to gauge student reaction to the mode of delivery, format, design, and instructional value of the eModule. This study was approved by the UH's Institutional Review Board (IRB).

Of the 48 test items on the pre-test, 37 or 77%, showed positive gains in correct responses on the post-test. On five test items, all students received 100% on both the pre- and post-test questions indicating those content areas were too basic and thus were removed from the eModule. All students scored higher in their post-test scores, demonstrating an overall gain in knowledge (Figure 2).

All participating students found the eModule's format suitable and felt it would enhance classroom-based lectures. A student commented *"I really enjoyed the instructional module. It was very engaging and facilitated my understanding of the topic."* Concerning the interactive nature of the eModule, another student commented *"Lectures help me in the initial presentation of the subjects, but I find that educational tools, like this one, help in supplementing and reinforces my learning better than lectures."* Twelve of the 18 students indicated that the information on antibodies was new to them and felt that this module would help them better understand immunological concepts involving antibodies. The majority of students indicated that they would review this module in the future. As a result of the positive feedback, the eModule was posted online for the classes of 2011, 2012, and 2013 during their first year of medical school.

This study supports previous research that suggests that blending classroom-based instruction with web-based instruction can appeal to students with varied learning styles<sup>3</sup> and can increase learner motivation and outcomes.<sup>4</sup> Higher education, including medical education, is beginning to incorporate educational technologies such as online course management systems and information repositories

to prepare students for today's technology-saturated world. There is a need to develop enhanced learning opportunities for academic training and life-long learning.<sup>1</sup> This instructional module could be an effective solution to this problem. Additional eModules covering various topics are currently being developed and explored.

**Acknowledgements**

This eModule was developed by Craig Okumura to fulfill the requirements for a Master's Degree in Educational Technology at the University of Hawai'i College of Education. Contributions of Drs. William Gosnell, Karen Yamaga, Sandra Chang, and Leslie Tam from the JABSOM Department of Tropical Medicine and contributions

of Drs. Gwen Naguwa and Marlene Lindberg from the Office of Medical Education are greatly appreciated. Ariana Eichelberger and Drs. Catherine Fulford and Rachel Boulay from the College of Education, Department of Educational Technology are acknowledged for their guidance, encouragement and support.

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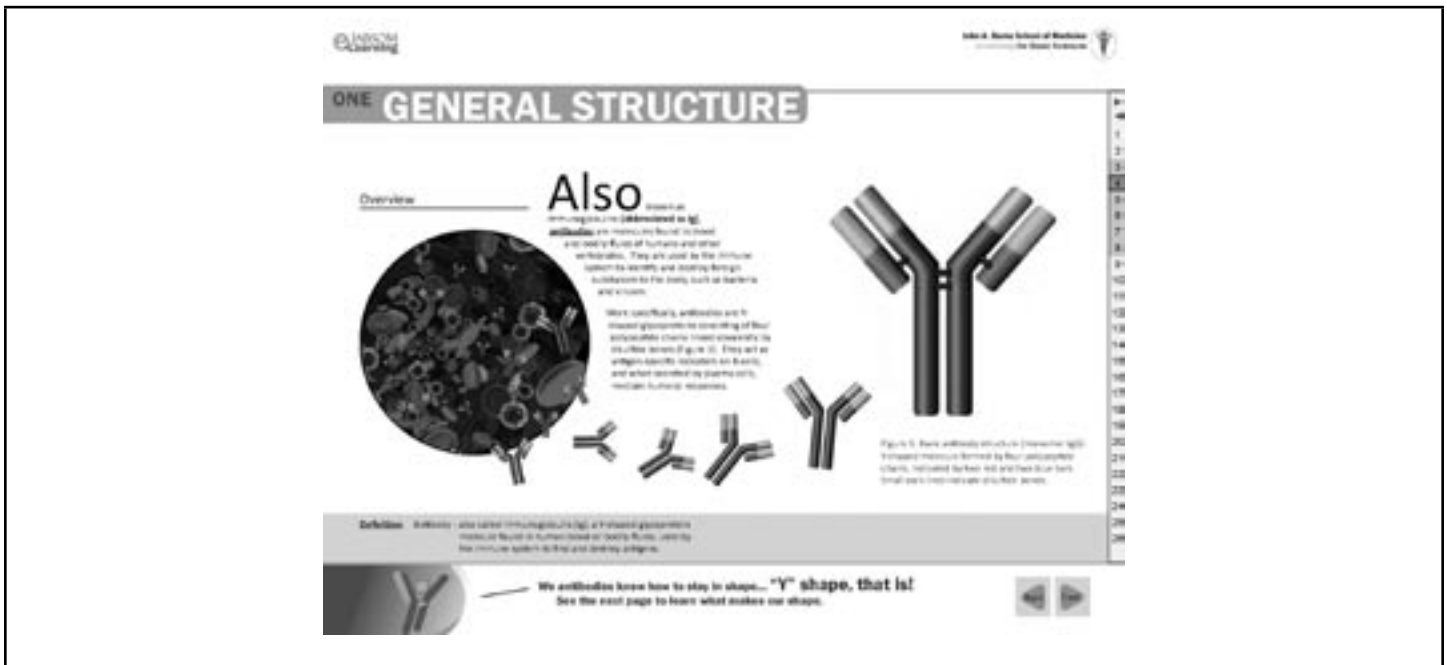


Figure 1.— Sample page showing the format of the antibody eModule

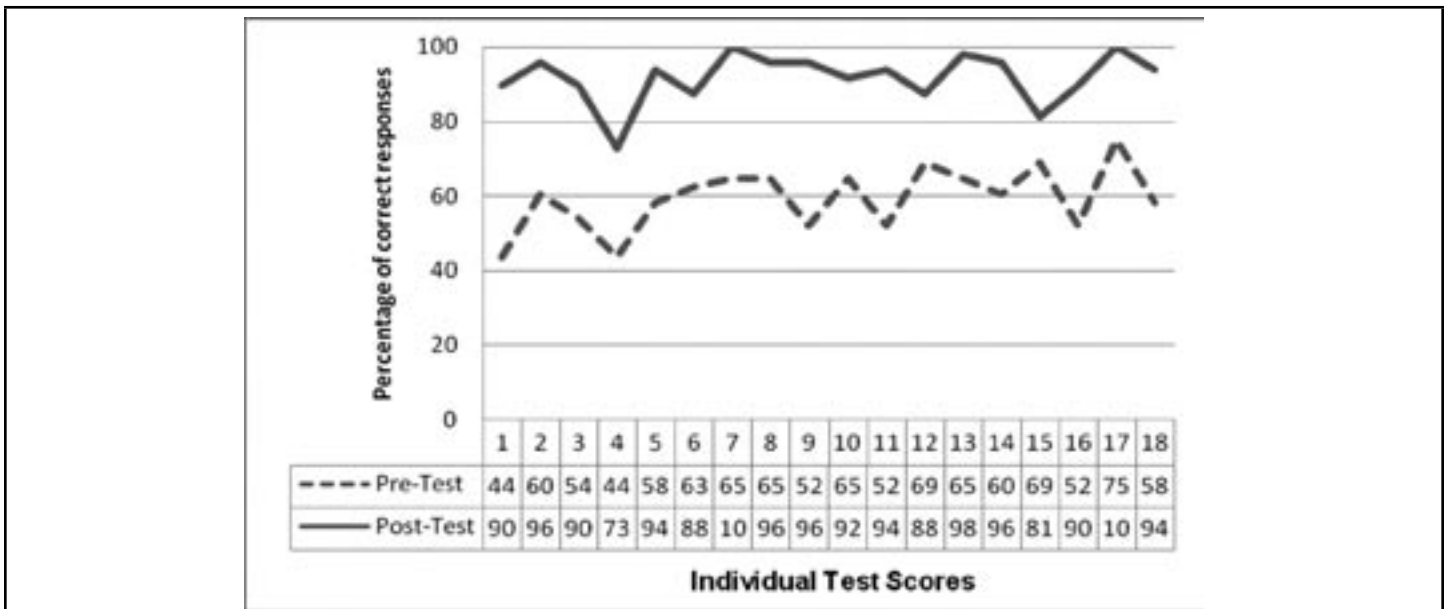


Figure 2.— Pre- and Post-Test Scores by Student


# UPCOMING CME EVENTS

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Date	Specialty	Sponsor	Location	Meeting Topic	Contact
<b>October 2009</b>					
10/5-10/10	GYN	Mayo Clinic	Hyatt Regency Maui, Ka'anapali Beach, Maui	22nd Annual Advanced Techniques in Endoscopic & Robotic Gynecologic Surgery and Optional Hands-on Laparoscopic and Robotic Suturing Techniques Workshop	Tel: (480) 301-4580 Email: mcs.cme@mayo.edu Web: www.mayo.edu/cme
10/15-10/17	CD, IM	University of California, Davis, Health System	Hyatt Regency Maui, Ka'anapali Beach, Maui	29th Annual Current Concepts in Primary Care Cardiology	Tel: (866) 263-4338 Web: cme.ucdavis.edu
10/20-10/24	Multi	American Society of Human Genetics	Hawai'i Convention Center, Honolulu	2009 Annual Meeting	Web: www.faseb.org/genetics/ashg
10/22-10/24	Multi	International Society for Technology in Arthroplasty	Hilton Waikoloa Village, Hawai'i	22nd Annual Congress	Web: www.istaonline.org
10/27-11/1	CHP	American Academy of Child and Adolescent Psychiatry	Hilton Hawaiian Village, Honolulu	56th Annual Meeting	Tel: (202) 966-2891
10/25-10/28	OBG	Central Association of Obstetricians & Gynecologists	Maui, Hawai'i	2009 Annual Meeting	Tel: (701) 838-8323
10/26-10/30	AN	California Society of Anesthesiologists	Grand Hyatt, Poipu Beach, Kaua'i	2009 CSA Fall Hawaiian Seminar	Web: www.csahq.org
10/31-11/6	PD	University Children's Medical Group	Grand Hyatt Kaua'i	Aloha Update: Pediatrics 2009	Tel: (800) 354-3263 Email: info@ucmg.org Web: www.ucmg.org
<b>November 2009</b>					
11/1-11/6	DR	University of California San Francisco School of Medicine	Hyatt Regency Maui, Ka'anapali Beach, Maui	Diagnostic Radiology Seminar	Tel: (415) 476-4251 Web: www.cme.ucsf.edu/cme
11/15	Multi	The Queen's Medical Center & the Hawai'i Chapter, American Academy of Pediatrics	Kahala Resort & Spa, O'ahu	Physician Health Thyself	Tel: (808) 377-5738
11/21	Multi	Hepatitis Support Network of Hawai'i	Queen's Conference Center	Viral Hepatitis in Hawai'i 2009	Tel: (808) 373-3488 Web: www.hepatitis.idlinks.com
<b>December 2009</b>					
12/2-12/4	PD	Department of Pediatrics, Stanford University School of Medicine	Mauna Lani Bay Hotel & Bungalows, Kona, Hawai'i	Popular Pediatric Clinical Topics 2009	Tel: (650) 497-8554 Web: www.cme.lpch.org
<b>January 2010</b>					
1/9-1/14	Multi	Pan-Pacific Surgical Association	Sheraton Waikiki	29th Biennial Congress of the Pan-Pacific Surgical Association	Tel: (808) 941-1010 Email: www.panpacificsurgical.org
1/18-1/22	AN	California Society of Anesthesiologists	Hyatt Regency Maui, Ka'anapali Beach, Maui	2010 CSA Winter Hawaiian Seminar	Web: www.csahq.org
<b>February 2010</b>					
2/10-2/13	Multi	The Society of Laparoendoscopic Surgeons	Hilton Hawaiian Village, Honolulu	Asian American MultiSpecialty Summit IV: Laparoscopy & Minimally Invasive Surgery	Tel: (305) 665-9959 Email: Conferences@SLS.org

2/11-2/12	Multi	Department of Surgery, John A. Burns School of Medicine	Hyatt Regency Waikiki, Honolulu	Cross-Cultural Health Care Conference: Collaborative and Multidisciplinary Interventions	Tel: (808) 586-2920
2/13-2/16	OTO	University of California San Francisco School of Medicine	Hilton Hawaiian Village, Honolulu	Pacific Rim Otolaryngology Head and Neck Surgery Update Conference	Tel: (415) 476-4251 Web: www.cme.ucsf.edu/cme
2/14-2/19	IM, ID	University of California San Francisco School of Medicine	The Fairmont Orchid, Kohala Coast, Hawai'i	Infectious Diseases in Clinical Practice: Update on Inpatient and Outpatient Infectious Diseases	Tel: (415) 476-4251 Web: www.cme.ucsf.edu/cme
<b>March 2010</b>					
3/26-3/30	AN	International Anesthesia Research Society	Hawai'i Convention Center, Honolulu	84th Congress	Tel: (216) 642-1124 Web: www.iars.org
<b>April 2010</b>					
2/14-2/19	IM	University of California San Francisco School of Medicine	Wailea Beach Marriott, Maui	Primary Care Medicine: Update 2010	Tel: (415) 476-4251 Web: www.cme.ucsf.edu/cme
<b>November 2010</b>					
11/1-11/5	AN	California Society of Anesthesiologists	Mauna Lani Resort & Spa, Kailua-Kona, Hawai'i	2010 CSA Fall Hawaiian Seminar	Web: www.csaahq.org
<b>January 2011</b>					
1/24-1/28	AN	California Society of Anesthesiologists	Mauna Lani Resort & Spa, Kailua-Kona, Hawai'i	2011 CSA Winter Hawaiian Seminar	Web: www.csaahq.org





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## ❖ FOR SOME, TOO MUCH TO DRINK ISN'T ENOUGH.

"How many times in the past year have you had X or more drinks in a day?" A study in the Journal of General Internal Medicine found that this single screening question, which is recommended by the National Institute on Alcohol Abuse and Alcoholism (NIAAA), accurately identifies patients with an unhealthy use of alcohol. With males the X factor is five, with females it is four, and if the response is more than one time per year, 82% were found to have a drinking problem. The point is simply that in the primary care medical office this diagnosis is often missed, and including this question could be very useful as well as save time.

## ❖ OOPS! NURSE, DID THIS PATIENT SIGN THE ORGAN DONATION CARD?

By reviewing the records of more than 5,000 randomly selected patients ages 50 to 69 years in 23 primary care practices scattered in the Midwest and West Coast, investigators found a shocking failure to report abnormal test results to patients of one in fourteen events. This study from Weill Cornell Medical College appeared in a recent Archives of Internal Medicine and should get the attention of everybody in the active practice of medicine. The reports included ultra-sound, x-ray, blood chemistries, mammography, biopsies, etc., and sometimes included failure to report cancer findings. One office actually missed informing 26% of their patients with test results. Interestingly, practices with electronic records systems fared no better than those with paper systems. Failure to communicate such reports is a malpractice threat of major proportions.

## ❖ POUR ME A DOUBLE CAFFEINE MOCHA LATTE TO GO, PLEASE.

The January 2009 Journal of Alzheimer's Disease reported a study out of Helsinki, Finland, where researchers looked at the medical records of 1409 patients over a period in excess of two decades. It was found that those who drank four or five cups of coffee each day during mid-life were much less likely to develop Alzheimer's or other dementia than those who eschewed the caffeinated beverage. Data were collected at five-year intervals beginning in 1972 when average participant age was 50. Findings at ages 65 to 79 showed that heavy coffee drinkers (five + cups/day) had the highest level of cholesterol and highest rate of tobacco use, but were 65% less likely to have dementia than those who drank little or no coffee. Moderate coffee consumers at three or four cups/day appeared to have nearly 70% less dementia. Non-coffee drinkers not only showed higher rates of mental deterioration, but also scored higher for depression. Tea drinking was included in the study, but appeared to have no effect. Interesting to note that other studies have found that coffee drinkers performed better on cognitive testing and have less risk of Parkinsonism.

## ❖ EVENTS ARE JUST MORE ANNOYING WHEN YOU ARE STERILE INSTEAD OF VIRILE.

Every year an estimated one-third of older adults take a tumble. In 2005, 15,802 persons age 65 and beyond died as a result of injuries sustained from a fall. CDC surveyed and analyzed data from their 2006 Behavior Risk Factor Surveillance System (BRFSS). The report indicated that approximately 5.8 million adults over age 65 had fallen at least once in the preceding three months. 31% of those who fell required a doctor's visit or restricted activity for at least one day. The gender frequency was nearly the same with women at 15% and men at 16%, but women at 35.7% reported significantly more injuries than men 24.6%. No analysis was attempted of risky activity, or osteoporosis, or ancillary physical conditions. Once again Hawaii proves a safer place to live with the lowest fall rate at 12.8% of respondents while Vermont had the highest report at 20.1%.

## ❖ EVEN IF YOU ARE ON THE RIGHT TRACK YOU CAN STILL GET RUN OVER.

The administration's American Recovery and Reinvestment Act of 2009 provides incentives for health care providers who demonstrate use of EHR (electronic health records). Supposedly, qualifying physicians will be eligible for additional Medicare payments of as much as \$44,000 over a five year course. Problems however, are that there are no provisions in the package to cover the out-of-pocket cost of adopting EHR, and the bill would dock Medicare pay for physicians who fail to use EHR by 2015. Penalties would begin at 1% of Medicare fee schedule and increase each year to a maximum of 5%. The Health IT (information technology) Policy Committee, the advisory group charged with defining principles, has just

released its first draft recommendation to CMS (Centers for Medicare and Medicaid Services), and it is not known what type of system will qualify for incentives. A basic EHR package may be obsolete in the near future.

## ❖ YOU WERE WRONG, MOM. CHEATERS DO PROSPER.

Baseball owners and administrators want to rid the sport of the abiding specter of steroid use which has corrupted the sport. The current program includes a lifetime ban for players who test positive for steroids on three occasions. The weakness in that policy is that research at Umea University in Sweden established that the muscle changes from steroid use remain even after the drug is discontinued. The study affirmed something a handful of scientists, athletes and strength coaches have long believed that steroids change you forever. Citing the data collected in Senator Mitchell's report on the 52 hitters who admitted using steroids, there was a 5.4% improvement in OPS (on base percentage plus slugging) from ages 28 to 34. If baseball truly wanted to clean up the steroid problem they would impose a lifetime ban on every athlete who tested positive even once—a highly unlikely event. An added bonus for the cheating athlete is a longer professional career when compared with the non-user. Still, the overall effect on life expectancy and other organ systems remains unanswered.

## ❖ THE SKIES ARE NOT ALWAYS SO FRIENDLY.

The Obama presidency almost didn't happen. Recent information released by the National Transportation Safety Board (NTSB) related an emergency situation in Barack Obama's campaign plane in July 2008. Shortly after take-off, the pilot was aware of powerful pressure forcing the nose of the Boeing MD-81 up. By applying heavy stick force and trim, the flight officers were able to keep the aircraft from stalling—a potentially catastrophic event. At the time the FAA (Federal Aviation Administration) stated that there was no emergency and the flight was never in peril, but cockpit tapes recorded the captain declaring an emergency to air traffic controllers and requesting the longest runway at Lambert-St. Louis International Airport. Improper storage of the tail cone ladder and slide are believed to have restricted the elevator cables which run the length of the aircraft. The captain nursed the plane to the ground without incident and everyone walked away. He is no less a hero than the US Air pilot who successfully debarked his passengers in the Hudson River.

## ❖ THE BIG DIFFERENCE OF SEX FOR MONEY AND SEX FOR FREE IS THAT SEX FOR MONEY IS USUALLY A LOT CHEAPER.

The Journal of Sexual Medicine conducted a survey of 33 qualified Canadian and U.S. sex therapists and found some parameters for "good sex." Two minutes is not sufficient, three minutes may be adequate, but most satisfying time seems to be about seven to thirteen minutes. Thirty minutes is too long, and marathon or prolonged all night stuff of the movie industry is absurd. All therapists agree that couples should not keep a stopwatch in the bedroom, and 25% of therapists said there is no such thing as normalcy for sexual pleasure.

## ❖ DIDN'T I TELL YOU TO TURN OFF THE BURNER?

The crew of firefighters at the Waipahu station responded quickly to provide assistance and direction at the scene of an automobile crash. As they were wrapping up at the collision site, another emergency call came in. Holy Zippo!! The second call was for a fire at their own firehouse! Apparently the first call came in at meal time and when the team responded no one remembered to turn off the range. Damage estimate – \$25,000.

## ADDENDA

❖ Don't worry about your money at Central Pacific Financial Corp., a holding company for its bank. A call from Senator Daniel Inouye's office resulted in \$135 million TARP money infusion which had been previously denied. Who would have guessed that he has several hundred thousand dollars invested there?

❖ Physicians spend 43 minutes per day interacting with health plan business or representatives according to the Medical Group Management Association. That adds up to \$68,000 annual cost of physician time.

❖ Nevada's citizens top the nation in annual per capita beer consumption at 35 gallons. Next door is Utah with the lowest figure at 13 gallons per each.

❖ Top ticket price to the first Super Bowl in 1966 was \$12. Top non-suite single seat for Super Bowl XLIII was \$7490.

❖ I was born naked, wet and hungry. Then things got worse.

## ALOHA AND KEEP THE FAITH — rts■

*Editorial comment is strictly that of the writer.*

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