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Acute Chorioamnionitis at Term Caused by the Oral Pathogen Fusobacterium Nucleatum

Justin C. Bohrer MD; Lori E. Kamemoto MD, MPH; Pamela G. Almeida NNP; and Keith K. Ogasawara MD

Abstract
Fusobacterium nucleatum is an oral pathogen associated with preterm birth. Present is a case of acute chorioamnionitis that progressed to maternal sepsis in a term patient with intact membranes. In addition to its role in periodontal disease and preterm birth, our case demonstrates that intrauterine infection with Fusobacterium nucleatum can result in severe disease at term.

Keywords
Fusobacterium nucleatum, Chorioamnionitis, Periodontal disease, Sepsis

Introduction
Chorioamnionitis at term is a relatively rare occurrence in the presence of intact fetal membranes. Periodontal disease is a relatively common condition in women of reproductive age and has been associated with adverse pregnancy outcomes including preterm birth, fetal demise, and premature rupture of membranes. Fusobacterium nucleatum is a common oral pathogen linked to periodontal disease and has been implicated as a causal factor in preterm birth.1,2 We present a case of severe, acute chorioamnionitis caused by Fusobacterium nucleatum in a term gestation with intact fetal membranes.

Case Presentation
A 21-year-old primigravida woman at 38 weeks gestation presented to labor and delivery triage unit with complaints of fever, abdominal cramping, and low back pain. Her prenatal course had been unremarkable. Physical examination was significant for maternal tachycardia and an axillary temperature of 38 degrees Celsius. Her physical examination was unremarkable and there was no fundal tenderness. Cardiotocogram revealed fetal tachycardia of 170 beats per minute and occasional uterine contractions. A complete blood count revealed a leukocytosis of 19,500 with a left shift. Premature rupture of membranes was ruled out with a speculum examination, and an amniotic fluid index was 19.1 centimeters. An amniocentesis revealed a white blood cell count of 1090, glucose less than 3 mg/dL, gram stain 3+ white blood cells, and no organisms were visualized on gram stain. Induction of labor with Pitocin and intravenous antibiotics were ordered. The maternal condition then abruptly deteriorated to septic shock. An emergent cesarean delivery was performed under general anesthesia for fetal bradycardia after attempts at maternal and intrauterine fetal resuscitation failed. At delivery, the amniotic fluid was malodorous and hemabate was required for uterine atony. APGAR scores were 2, 4, 5, and 7 at 1, 5, 10, and 15 minutes, respectively. The umbilical artery pH was 7.08 with a base deficit of 12.0. Postoperatively, the maternal condition improved with broad spectrum antibiotics, and extubation was successful on the first postoperative day. Maternal blood cultures were negative. Anmiotic fluid cultures grew 3+ Fusobacterium nucleatum after 5 days. The diagnosis of severe acute chorioamnionitis with 3 vessel funisitis was confirmed histologically. The placenta was at the ninetieth percentile for gestational age (645g). Her postpartum course was largely unremarkable except for a right-sided mastitis 12 days postpartum that was treated with dicloxacillin. The infant was discharged after a ten-day course of intravenous antibiotics, and a two-week follow-up visit revealed a healthy and neurologically intact infant.

Discussion
Fusobacterium nucleatum is a gram negative, filamentous, and anaerobic bacterium that is part of the oral flora of many adults and is implicated in the pathogenesis of periodontal disease.1 Culture-independent techniques with 16S rRNA sequencing have been utilized to detect this difficult to cultivate organism in the amniotic fluid of women with pregnancies complicated by preterm birth.2 In fact, it is one of the most commonly isolated organisms in the amniotic fluid of women who present with preterm labor with intact membranes. In addition to its role in preterm birth, Fusobacterium nucleatum is also implicated in spontaneous premature rupture of membranes at term, and Han et al. reported a case of term stillbirth associated with Fusobacterium nucleatum chorioamnionitis in a patient with pregnancy-associated gingivitis.3,4 We present a unique case of acute chorioamnionitis at term with intact membranes.

The mode of transmission of Fusobacterium nucleatum to the intrauterine cavity in our patient is unknown. Potential routes of transmission include hematogenous spread from the oral cavity and ascending infection from the vagina. In a murine model, Han et al, demonstrated that Fusobacterium nucleatum is capable of invading the placenta via a hematogenous route and result in premature and term stillbirth.5 Ascending infection from the vagina is less likely based on previous studies showing that vaginal subspecies of Fusobacterium nucleatum are rarely isolated from amniotic fluid.6 Orogenital transmission has been implicated in a case report of a patient with clinical chorioamnionitis resulting in a preterm birth following receptive oral intercourse with a partner with significant periodontal disease.7

Our case demonstrates that the significance of intrauterine infection with Fusobacterium nucleatum is not limited to preterm birth resulting from subclinical infection, but extends beyond to include acute chorioamnionitis at term with potential adverse maternal and neonatal outcome. While most studies to date have investigated the role of periodontal disease in preterm birth, additional studies may be warranted to evaluate the relationship between chorioamnionitis at term and periodontal disease.
Fusobacterium has a known role in both periodontal disease and several adverse pregnancy outcomes, it seems prudent to recommend good oral hygiene for both the gravida and her partner.

**Conflict of Interest**

None of the authors identify any conflict of interest.

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**References**

Pilomatricoma: An Unusual Dermatologic Neoplasm

Daniel C. DeRosa DO and Kevin Lin-Hurtubise MD

Abstract

Pilomatricoma is typically an isolated benign tumor of the hair follicle matrix with very low incidence, recurrence, and initial diagnostic accuracy. This report presents a case of a pilomatricoma of the left chest that was initially ignored due to the limited extent of access to medical care in Palau, and subsequent treatment for cervical cancer. The paper helps to emphasize the importance of a vast differential diagnosis, especially in those patients from the Pacific Islands.

Keywords

Pilomatricoma, pilomatrixoma, calcifying epithelioma of Malherbe, CTNNB1

Introduction

Pilomatricomas are commonly misdiagnosed, benign neoplasms of the skin, thought to arise from hair follicles. They most frequently appear as solitary, firm nodules, exhibiting a normal to pearl white epidermis. Calcium deposits are present in well over half the lesions identified. Thus, the skin lesion is also described as a calcifying epithelioma. Some debate exists regarding accurate preoperative diagnosis of pilomatricomas. Histologically, pilomatricomas present as a well demarcated lesion, stemming from dermis and extending into the subcutaneous fat. They classically consist of islands of epithelial cells comprised of both basophilic cells with meager cytoplasm and ghost cells that have a central unstained area indicative of a lost nucleus.

Pilomatricomas are generally asymptomatic and found in the head and neck area and, upper extremities, but rarely identified on the chest, trunk, or lower extremities. They are reported to occur in people of all ages; however the distribution favors both children and the elderly.

This article describes a case of a Pacific Islander with a pilomatricoma arising from her left superior chest, and the clinical, radiographic, and pathologic features of this rare tumor.

Case Report

A 43-year-old woman from the island of Palau with a history of cervical cancer presented to the General Surgery clinic in June 2011, with a fungating left breast mass of recent onset and rapid expansion (Figure 1). At the time, the patient was diagnosed with Stage IIIIB cervical cancer and underwent chemotheray. She stated that the lesion was first detected while completing her cervical cancer management. The recent PET-CT examination identified a hyper metabolic mass in the anterior left chest wall. The patient was recommended to have the lesion evaluated with mammography. Bilateral mammography demonstrated scattered fibroglandular elements, however no dominant mass, architectural distortion, or suspicious calcification was detected in either breast. The mass identified on PET-CT was found to be outside of the breast, and a focal spot compression view of the anterior chest wall failed to completely include the lesion.

The patient then underwent ultrasound of the left chest. The patient readily identified a fungating mass in the medial subclavicular region of the left chest wall. She stated that this lesion had been rapidly expanding over the previous three to four months. Sonographic interrogation of the mass was limited due to the dense calcification, which caused large shadowing artifact. The lesion measured approximately 2-3 cm in diameter, and 1.5 cm in depth (Figure 2). The lesion was documented to have no evidence of malignancy and to not be related to the breast parenchyma. The patient was recommended for excisional biopsy.

The patient underwent punch biopsy in the General Surgery clinic. At that time, the left breast mass remained painless and not associated with any symptoms such as bone pain or nipple discharge, or with other palpable breast masses. No other areas of erythema or overlying skin changes appreciated.

The patient returned for follow up of biopsy results. Tissue exam revealed a pilomatricoma. The patient stated that the mass was unchanged since last visit. Excision of the lesion was discussed with the patient and she was amenable to this option. Given the benign nature of pilomatricoma, surgery was deferred until after placement of her brachytherapy catheters for her cervical malignancy.

After completion of her chemotherapy, patient underwent surgical excision of the lesion. Macroscopically, the mass was measured to be approximately 3.6 x 2.8 x 2.4 cm. No invasion into adjacent structures was noted. The sample was sent for pathological examination. The specimen contained a centrally located, indurated, bosselated, variably pigmented area measuring 1.0 x 0.8 x 0.3 cm. Microscopic examination revealed a localized area of friable calcified material measuring up to 1.7 cm in diameter (Figure 3). The specimen was diagnosed as a completely excised pilomatricoma, with clear margins.

Discussion

The Republic of Palau is a constitutional democracy with a population of approximately 21,000 people. Upon independence in 1994, Palau entered into a 50-year Compact of Free Association with the United States. Palau is an archipelago consisting of several hundred volcanic and limestone islands and coral atolls, few of which are inhabited. Health facilities in Palau are adequate for routine medical care, but the availability and quality of services are limited. Serious medical conditions requiring hospitalizations or evacuation to the United States or elsewhere may cost tens of thousands of dollars.1

Patients that live in the Pacific Islands often present with diseases and pathology that are in an advanced stage or are unfamiliar to practicing Western-trained physicians. The vast differential diagnosis of cutaneous lesions is an important consideration for physicians trained in the United States who are practicing in other regions of the world.
Figure 1 A and B. Erythematous lesion with an elevated border and central ulceration on left breast.
Figure 2. Ultrasound of fungating dermal mass in the medial supraclavicular region of the left chest wall. Dense calcifications causing shadowing artifact. Dermis appears to be thickened and the pectoralis fascia appears to be displaced posteriorly. The lesion appears to be approximately 2-3 cm in diameter. The depth, difficult to judge due to the posterior shadowing, is approximately 1.5 cm.

Pilomatrixomas were first described by Malherbe and Chenantais in 1880 as a benign neoplasm of sebaceous gland origin. It was not until later that the lesion was understood to be a calcifying epithelioma that arises from hair follicle matrix, hair cortex, follicular infundibulum, outer root sheath, and hair bulge. Pilomatrixoma is a term first used by Jones and Campbell in 1969, when they discovered presentations of subcutaneous lesions in a pediatric population, with similar unique histological features occurring in adults. Pilomatrixomas manifest as a benign, cutaneous, firm, solitary lesions of the face, neck, and upper extremities. The difficulty with diagnosing pilomatrixoma lies with their variant morphology and sometimes unusual appearance similar to more common lesions. The presentation of these subcutaneous nodules may resemble benign lesions such as a keratoacanthoma, ossifying hematoma, and fibroxanthoma, or malignant lesions such as squamous cell carcinoma. Diagnostic identification of this lesion is important because, although extremely rare with fewer than 20 cases described in the literature, pilomatrixomas can undergo malignant transformation into a pilomatrix carcinoma. Most pilomatrix carcinomas occur on the head and neck of middle age to elderly patients. The rate of malignant transformation is difficult to assess due to overall disease rarity and lack of specific features that can distinguish whether a malignant pilomatrixoma has arisen de novo or if it represents the malignant transformation from a preexisting pilomatrixoma.

Imaging characteristics described in this paper are not diagnostic nor are they required for diagnosis of pilomatrixoma except when the diagnosis is unclear as in our report. Ultrasound has demonstrated the highest accuracy rates between 28.9 and 46 percent. There is also literature citing some diagnostic discriminative findings on ultrasound that may distinguish pilomatrixomas from other subcutaneous tumors: heterogeneous echotexture, internal echogenic foci in scattered-dot pattern, and a hypoechoic rim or posterior shadowing. Ultrasound imaging of pilomatrixomas usually demonstrates lesions with an ovoid complex mass at the junction of the dermis and subcutaneous fat with focal thinning of the overlying dermis.

Computed tomography (CT) can also be used to study pilomatrixomas. They appear as sharply demarcated subcutaneous tumors containing micro-calcifications. The predicament, however, is the same as the clinical diagnosis. There are many lesions that share these CT characteristics, including sebaceous cysts, foreign body reaction, and metastatic bone formations. There have also been reports of the use of magnetic resonance imaging (MRI). Most demonstrate uniform, homogeneous signal on T1 weighted signal, with varying results on T1 with contrast and T2 imaging. Therefore, the nonspecific features of pilomatrixoma on MRI, do not allow for its use as a definitive diagnostic tool.

The only truly reliable means of diagnosis remains pathological evaluation. The classic histology is said to be defined by the presence of ghost or shadow cells and basophilic cells. At low power the histological pattern usually seen in pilomatrixoma is of a well-circumscribed nodulo-cystic tumor. While predominantly seen within the lower dermis, extension into the subcutaneous
tissue is not uncommon. Figure 3A demonstrates the islands of eosinophilic cells derived from basaloid proliferation. As the tumor matures, these basaloid cells degrade centrally forming the anucleated ghost, or shadow cells, due to the unstained region. The shadow cell area represents differentiation towards the hair cortex. Occasionally, there are areas of calcification within the shadow cell regions and infiltration with multinucleated cells formed at sites of rupture. Shadow cells alone, however, cannot make the diagnosis. Many other lesions that cause inflammatory reactions such as foreign body granulomas or keratin debris, may also have this characteristic finding.

Pilomatricomas are traditionally regarded as benign tumors with limited understanding of any possible transition to pilomatrical carcinoma. The clinical difficulty distinguishing pilomatricomas from more common skin lesions, combined with a patient population that does not have ideal medical access, enforces the importance of incorporating these lesions in the differential diagnosis. Treatment is surgical resection with wide margins of 1-2cm. Following excision, pilomatricoma recurrences are relatively rare, with an overall rate of 2.6%. The rarity of this lesion provides little evidence for follow-up recommendations after excision. One study’s treat-
ment population remained free of recurrence during follow up that ranged from 3 to 37 months. If the lesion were to recur, the physician should have increased suspicion of pilomatrical carcinoma, however aggressive surgical excision remains the treatment of choice. Surgical excision of this tumor is a sufficient and curative treatment, with excellent postoperative prognosis for both cosmesis and to prevent the possibility of malignant transformation.

**Abbreviations**

TAMC, Tripler Army Medical Center; PET-CT, positron emission tomography-computed tomography

**Disclosure/Disclaimer**

The views expressed herein are of the authors and do not reflect the official policy of the Department of the Army, Department of Defense, or the US Government. The authors report no conflict of interest, financial, personal, or professional, concerning the preparation of this manuscript.

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**References**

Attaining Meaningful Use of Health Information Technology in a Residency Program: Challenges and Rewards

Ravi Reddy MD

Abstract
The US Federal Government has offered financial incentives to physicians and hospitals for using health care technology in ways that may improve the quality of patient care, via the use of an electronic health record. Although many barriers exist to achieving the health care technology requirements necessary to capture these incentives, several strategies were employed by the University of Hawai’i Family Medicine Residency Program at the Physician Center at Mililani to overcome these barriers, in order to register and attest for these financial awards. The rewards are substantial, and may total up to $44,000/eligible provider over 5 years, and $63,750/eligible provider over 6 years, for Medicare and Medicaid respectively. Both programs have different incentive payment schedules for hospital facilities. This article intends to outline the process and challenges involved in meeting the specific requirements necessary to qualify for this funding, and to assist others in this endeavor, particularly (but not limited to) residency training programs, which face a unique set of challenges.

Background
The Institute of Medicine (IOM) report released in July 2006 documented 1.5 million preventable medical errors annually in the United States. One major recommendation from the IOM was to use health information technology (HIT) to help reduce these errors, and improve quality of health care.1 In February 2009, President Obama signed into law the American Recovery and Reinvestment Act (ARRA), providing stimulus funding to help accomplish this goal, via the Health Information Technology for Economic and Clinical Health (HITECH) act, codified as Title IV of the larger ARRA package.

Title IV Health Information Technology: Adoption and Use of Health Information Technology invests in the adoption and use of HIT systems by health care providers who serve Medicare and Medicaid patients. This act provides temporary bonus payments to meaningful users of certified HIT and will phase-in Medicare payment penalties for non-adopters starting in 2015 for eligible providers who have not met meaningful use by 2014.

Title IV allows Critical Access Hospitals (CAHs) to receive up to $1.5 million in total Medicare bonus payments and has goals of achieving a 90 percent adoption rate for physicians and 70 percent adoption rate for all hospitals, with a 70 percent adoption rate for acute care hospitals and a 60 percent adoption rate for CAHs.

The $19 billion HITECH program through Medicare and Medicaid provides financial incentives to health care providers and institutions for the Meaningful Use (MU) of Health Care Technology, via the use of Electronic Health Records (EHR). The goals of MU are to improve quality, safety, and efficiency while reducing health disparities, engaging patients and families, improving care coordination, improving population and public health, and ensuring adequate privacy and security protections for personal health information. Providers can apply for either the Medicare or Medicaid incentive program; however, there is a procedure whereby an eligible provider may switch incentive programs one time only.2

Payment Schedules and Requirements for Eligible Providers (does not apply to hospitals):

1. Medicare: Maximum amount attainable = $44,000/provider over 5 years ($18,000/1st year, decreasing yearly amounts thereafter)

2. Medicaid (must have at least 30% Medicaid patients, and state must be participating): Maximum amount attainable = $63,750/provider over 6 years ($21,250/1st year, subsequent annual payments of $8,500 for up to six years total)

The University of Hawai’i Family Medicine Residency Program (UHFMRP), whose clinical operations are centered around the Physician Center at Mililani (PCM) chose to have its faculty physicians apply for the Medicare incentive program, in part because at the time of registration, the State of Hawai’i was not able to enroll providers in the Medicaid program. The electronic application is available on the Center for Medicare & Medicaid Services (CMS) website (https://www.cms.gov/ehrincentiveprograms/30_Meaningful_Use.asp). In order to qualify for funding, there are core measures, menu items, and clinical quality measures, which must be met and documented by the certified EHR. For MU Stage 1, there are exclusions to the core (see Table 2) and menu (see Table 3) set that some EPs can choose in order to reach MU.

There are fifteen core measures for Eligible Professionals (EP’s) displayed in Table 2 including Computerized Provider Order Entry (CPOE), drug-drug and drug-allergy interaction checks, patient demographics, electronic prescribing, problem list, medication list, medication allergy list, body mass index (as calculated by the EHR from height and weight inputted by the provider), smoking status, clinical decision support tool,

Table 1 source: (https://www.cms.gov/ehrincentiveprograms/30_Meaningful_Use.asp)

<table>
<thead>
<tr>
<th>Table 1. Some MU acronyms to remember</th>
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<tbody>
<tr>
<td>A/I/U = Adopt, Implement or Upgrade</td>
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<tr>
<td>CAH = Critical Access Hospital</td>
</tr>
<tr>
<td>EHR = Electronic Health Record</td>
</tr>
<tr>
<td>EP = Eligible Professional</td>
</tr>
<tr>
<td>HPSA = Health Professional Shortage Area</td>
</tr>
<tr>
<td>EH = Eligible Hospital</td>
</tr>
<tr>
<td>CPOE = Computerized Provider Order Entry</td>
</tr>
<tr>
<td>CCHIT = Certification Commission for Healthcare Information Technology</td>
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2
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<th>Table 2. Core Measures for achieving Meaningful Use</th>
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<tr>
<td><strong>Core Measure</strong></td>
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<tr>
<td>Use CPOE for medication orders directly entered by any licensed healthcare professional who can enter orders into the medical record per state, local, and professional guidelines</td>
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<tr>
<td>Implement drug-drug and drug-allergy interaction checks</td>
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<tr>
<td>EP Only: Generate and transmit permissible prescriptions electronically (eRx)</td>
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<tr>
<td>Record demographics: preferred language, gender, race, ethnicity, date of birth, and date and preliminary cause of death in the event of mortality in the eligible hospital or CAH</td>
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<tr>
<td>Maintain up-to-date problem list of current and active diagnoses</td>
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<tr>
<td>Maintain active medication list</td>
</tr>
<tr>
<td>Maintain active medication allergy list</td>
</tr>
<tr>
<td>Record and chart vital signs: height, weight, blood pressure, calculate and display BMI, plot and display growth charts for children 2-20 years, including BMI</td>
</tr>
<tr>
<td>Record smoking status for patients 13 years old or older</td>
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<tr>
<td>Implement one clinical decision support rule and the ability to track compliance with the rule</td>
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<tr>
<td>Report clinical quality measures to CMS or the States</td>
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<tr>
<td>Provide patients with an electronic copy of their health information (including diagnostic test results, problem list, medication lists, medication allergies, discharge summary, procedures), upon request</td>
</tr>
<tr>
<td>Hospitals Only: Provide patients with an electronic copy of their discharge instructions at time of discharge, upon request</td>
</tr>
<tr>
<td>EPs Only: Provide clinical summaries for each office visit</td>
</tr>
<tr>
<td>Capability to exchange key clinical information (ex: problem list, medication list, medication allergies, diagnostic test results), among providers of care and patient authorized entities electronically</td>
</tr>
<tr>
<td>Protect electronic health information created or maintained by certified EHR technology through the implementation of appropriate technical capabilities</td>
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Table 2 source: ([https://www.cms.gov/ehrincentiveprograms/30_Meaningful_Use.asp](https://www.cms.gov/ehrincentiveprograms/30_Meaningful_Use.asp))

reporting clinical quality measures, providing patients with their health information, exchanging health care information, and providing security for patient information (See Table 2 for details). More specifically, for MU Stage 1, one core measure is dedicated to generating an electronic copy of the patient’s health information including diagnostic test results, problem list, medication list, medication allergies upon request. Another core measure is the provision of clinical summaries for patients personal health record via an online patient portal, secure email, electronic media such as CD or USB flash drive, or by making a printed copy available upon request.

In addition to the core measures, there are ten menu items for EPs (see Table 3). Five of the ten menu items must be met for EP’s to qualify for MU, including drug-drug formulary checks, incorporation of lab test results into the EHR, generating lists of patients with specific conditions, sending patient reminders, providing patients with electronic access to portions of their EHR, providing patient education resources, medication reconciliation, summary of patient care, transfer of immunization data to registries, and submitting electronic syndrome surveillance data to public health agencies (see Table 3 for details). One of the five menu items chosen must be a public health measure (either immunization registry or syndromic surveillance data). Finally, providers must meet six clinical quality measures (CQMs): three core or alternate core measures (see Table 4) and three measures from a list of 38 additional clinical quality measures listed in Table 5. The core CQMs include blood pressure screening, tobacco cessation intervention, and weight screening/follow up. The alternate CQM’s include adult influenza immunization, childhood obesity screening/counseling and childhood immunization status (Table 4). The additional clinical quality measures focus on chronic disease management and preventative health services, such as diabetes mellitus, hypertension, pre-natal screening, and cancer screening, but include many other items (see Table 5).
Table 3. Menu Items for achieving Meaningful Use

<table>
<thead>
<tr>
<th>Measure</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Implement drug-formulary checks</td>
<td>The EP has enabled this functionality and has access to at least one internal or external drug formulary for the entire EHR reporting period</td>
</tr>
<tr>
<td>Hospitals Only: Record advance directives for patients 65 years old or older</td>
<td>More than 50% of all unique patients 65 years old or older admitted to the eligible hospital or CAH have an indication of an advance directive status recorded</td>
</tr>
<tr>
<td>Incorporate clinical lab-test results into certified EHR technology as structured data</td>
<td>More than 40% of all clinical lab test results ordered by the EP authorized provider during the EHR reporting period whose results are either in a positive/negative or numerical format are incorporated in certified EHR technology as structured data</td>
</tr>
<tr>
<td>Generate lists of patients by specific conditions to use for quality improvement, reduction of disparities, research or outreach</td>
<td>Generate at least one report listing patients of the EP with a specific condition</td>
</tr>
<tr>
<td>EPs Only: Send reminders to patients per patient preference for preventive/follow-up care</td>
<td>More than 20% of all unique patients 65 years or older or 5 years old or younger were sent an appropriate reminder during the EHR reporting period</td>
</tr>
<tr>
<td>EPs Only: Provide patients with timely electronic access to their health information (including lab results, problem list, medication lists, medication allergies) within 4 business days of the information being available to the EP</td>
<td>More than 10% of all unique patients seen by the EP are provided timely (available to the patient within 4 business days of being updated in the certified EHR technology) electronic access to their health information subject to the EP’s discretion to withhold certain information</td>
</tr>
<tr>
<td>Use certified EHR technology to identify patient-specific education resources and provide those resources to the patient, if appropriate</td>
<td>More than 10% of all unique patients seen by the EP are provided patient-specific education resources</td>
</tr>
<tr>
<td>The EP who receives a patient from another setting of care or provider of care or believes an encounter is relevant should perform medication reconciliation</td>
<td>The EP performs medication reconciliation for more than 50% of transitions of care in which the patient is transitioned into the care of the EP</td>
</tr>
<tr>
<td>The EP who receives a patient from another setting of care or provider of care or refers their patient to another provider of care should provide a summary of care record for each transition of care or referral</td>
<td>The EP who transitions or refers their patient to another setting of care or provider of care provides a summary of care record for more than 50% of transitions of care and referrals</td>
</tr>
<tr>
<td>Capability to submit electronic data to immunization registries or Immunization Information Systems and actual submission in accordance with applicable law and practice (counts as public health measure)</td>
<td>Performed at least one test of the certified EHR technology’s capacity to submit electronic data to immunization registries and follow-up submission if the test is successful (unless none of the immunization registries to which the EP submits such information have the capacity to receive such information electronically)</td>
</tr>
<tr>
<td>Hospitals Only: Capability to submit electronic data on reportable (as required by state or local law) lab results to public health agencies and actual submission in accordance with applicable law and practice</td>
<td>Performed at least one test of certified EHR technology’s capacity to provide submission of reportable lab results to public health agencies and follow-up submission if the test is successful (unless none of the public health agencies to which the EP, eligible hospital or CAH submits such information have the capacity to receive such information electronically)</td>
</tr>
<tr>
<td>Capability to submit electronic syndromic surveillance data to public health agencies and actual submission in accordance with applicable law and practice (counts as public health measure)</td>
<td>Performed at least one test of certified EHR technology’s capacity to provide electronic syndromic surveillance data to public health agencies and follow-up submission if the test is successful (unless none of the public health agencies to which the EP, eligible hospital or CAH submits such information have the capacity to receive such information electronically)</td>
</tr>
</tbody>
</table>

Table 3 source: (https://www.cms.gov/ehrincentiveprograms/30_Meaningful_Use.asp)

Table 4. Eligible Professionals–Core & Alternate Set CQMs*

<table>
<thead>
<tr>
<th>Core CQM</th>
<th>Clinical Quality Measure Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NQF Measure Number &amp; PQRI Implementation Number</td>
<td>Clinical Quality Measure Title</td>
</tr>
<tr>
<td>NQF 0013</td>
<td>Hypertension: Blood Pressure Measurement</td>
</tr>
<tr>
<td>NQF 0028</td>
<td>Preventive Care and Screening Measure Pair: (a) Tobacco Use Assessment, (b) Tobacco Cessation Intervention</td>
</tr>
<tr>
<td>NQF 0421</td>
<td>Adult Weight Screening and Follow-up</td>
</tr>
<tr>
<td>PQRI 129</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alternate Core Set CQMs– From the Center for Medicare Services Website</th>
<th>Clinical Quality Measure Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NQF Measure Number &amp; PQRI Implementation Number</td>
<td>Clinical Quality Measure Title</td>
</tr>
<tr>
<td>NQF 0024</td>
<td>Weight Assessment and Counseling for Children and Adolescents</td>
</tr>
<tr>
<td>NQF 0041</td>
<td>Preventive Care and Screening: Influenza Immunization for Patients 50 Years Old or Older</td>
</tr>
<tr>
<td>PQRI 110</td>
<td></td>
</tr>
<tr>
<td>NQF 0038</td>
<td>Childhood Immunization Status</td>
</tr>
</tbody>
</table>

* Must also meet 6 total Clinical Quality Measures (3 core or alternate core, and 3 out of 38 from alternate set): Eligible Professionals, eligible hospitals and CAHs seeking to demonstrate Meaningful Use in 2012 are required to electronically submit aggregate CQM numerator, denominator, and exclusion data to CMS or the States.

Table 4 source: (https://www.cms.gov/ehrincentiveprograms/30_Meaningful_Use.asp)
### Table 5. Additional Set CQM–EPs must complete 3 of 38

<table>
<thead>
<tr>
<th>Category</th>
<th>Additional Set CQM–EPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes: Hemoglobin A1c Poor Control</td>
<td>Diabetes: Hemoglobin A1c Poor Control</td>
</tr>
<tr>
<td>Diabetes: Low Density Lipoprotein (LDL) Management and Control</td>
<td>Diabetes: Low Density Lipoprotein (LDL) Management and Control</td>
</tr>
<tr>
<td>Diabetes: Blood Pressure Management</td>
<td>Diabetes: Blood Pressure Management</td>
</tr>
<tr>
<td>Heart Failure (HF): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy for Left Ventricular Systolic Dysfunction (LVSD)</td>
<td>Heart Failure (HF): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy for Left Ventricular Systolic Dysfunction (LVSD)</td>
</tr>
<tr>
<td>Coronary Artery Disease (CAD): Beta-Blocker Therapy for CAD Patients with Prior Myocardial Infarction (MI)</td>
<td>Coronary Artery Disease (CAD): Beta-Blocker Therapy for CAD Patients with Prior Myocardial Infarction (MI)</td>
</tr>
<tr>
<td>Pneumonia Vaccination Status for Older Adults</td>
<td>Pneumonia Vaccination Status for Older Adults</td>
</tr>
<tr>
<td>Breast Cancer Screening</td>
<td>Breast Cancer Screening</td>
</tr>
<tr>
<td>Colorectal Cancer Screening</td>
<td>Colorectal Cancer Screening</td>
</tr>
<tr>
<td>Coronary Artery Disease (CAD): Oral AntiplateletTherapy Prescribed for Patients with CAD</td>
<td>Coronary Artery Disease (CAD): Oral AntiplateletTherapy Prescribed for Patients with CAD</td>
</tr>
<tr>
<td>Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)</td>
<td>Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)</td>
</tr>
<tr>
<td>Anti-depressant medication management: (a) Effective Acute Phase Treatment, (b)Effective Continuation Phase Treatment</td>
<td>Anti-depressant medication management: (a) Effective Acute Phase Treatment, (b)Effective Continuation Phase Treatment</td>
</tr>
<tr>
<td>Diabetic Retinopathy: Documentation of Presence or Absence of Macular Edema and Level of Severity of Retinopathy</td>
<td>Diabetic Retinopathy: Documentation of Presence or Absence of Macular Edema and Level of Severity of Retinopathy</td>
</tr>
<tr>
<td>Diabetic Retinopathy: Communication with the Physician Managing Ongoing Diabetes Care</td>
<td>Diabetic Retinopathy: Communication with the Physician Managing Ongoing Diabetes Care</td>
</tr>
<tr>
<td>Asthma Pharmacologic Therapy</td>
<td>Asthma Pharmacologic Therapy</td>
</tr>
<tr>
<td>Asthma Assessment</td>
<td>Asthma Assessment</td>
</tr>
<tr>
<td>Appropriate Testing for Children with Pharyngitis</td>
<td>Appropriate Testing for Children with Pharyngitis</td>
</tr>
<tr>
<td>Oncology Colon Cancer: Chemotherapy for Stage III Colon Cancer Patients</td>
<td>Oncology Colon Cancer: Chemotherapy for Stage III Colon Cancer Patients</td>
</tr>
<tr>
<td>Prostate Cancer: Avoidance of Overuse of Bone Scan for Staging Low Risk Prostate Cancer Patients</td>
<td>Prostate Cancer: Avoidance of Overuse of Bone Scan for Staging Low Risk Prostate Cancer Patients</td>
</tr>
<tr>
<td>Smoking and Tobacco Use Cessation, Medical Assistance: (a) Advising Smokers and Tobacco Users to Quit, (b) Discussing Smoking and Tobacco Use Cessation Medications, (c) Discussing Smoking and Tobacco Use Cessation Strategies</td>
<td>Smoking and Tobacco Use Cessation, Medical Assistance: (a) Advising Smokers and Tobacco Users to Quit, (b) Discussing Smoking and Tobacco Use Cessation Medications, (c) Discussing Smoking and Tobacco Use Cessation Strategies</td>
</tr>
<tr>
<td>Diabetes: Eye Exam</td>
<td>Diabetes: Eye Exam</td>
</tr>
<tr>
<td>Diabetes: Urine Screening</td>
<td>Diabetes: Urine Screening</td>
</tr>
<tr>
<td>Diabetes: Foot Exam</td>
<td>Diabetes: Foot Exam</td>
</tr>
<tr>
<td>Coronary Artery Disease (CAD): Drug Therapy for Lowering LDL-Cholesterol</td>
<td>Coronary Artery Disease (CAD): Drug Therapy for Lowering LDL-Cholesterol</td>
</tr>
<tr>
<td>Heart Failure (HF): WarfarinTherapy Patients with AtrialFibrillation</td>
<td>Heart Failure (HF): WarfarinTherapy Patients with AtrialFibrillation</td>
</tr>
<tr>
<td>Ischemic Vascular Disease (IVD): Blood Pressure Management</td>
<td>Ischemic Vascular Disease (IVD): Blood Pressure Management</td>
</tr>
<tr>
<td>Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antithrombotic</td>
<td>Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antithrombotic</td>
</tr>
<tr>
<td>Initiation and Engagement of Alcohol and Other Drug Dependence Treatment: (a) Initiation, (b) Engagement</td>
<td>Initiation and Engagement of Alcohol and Other Drug Dependence Treatment: (a) Initiation, (b) Engagement</td>
</tr>
<tr>
<td>Prenatal Care: Screening for Human Immunodeficiency Virus (HIV)</td>
<td>Prenatal Care: Screening for Human Immunodeficiency Virus (HIV)</td>
</tr>
<tr>
<td>Prenatal Care: Anti-D Immune Globulin</td>
<td>Prenatal Care: Anti-D Immune Globulin</td>
</tr>
<tr>
<td>Controlling High Blood Pressure</td>
<td>Controlling High Blood Pressure</td>
</tr>
<tr>
<td>Cervical Cancer Screening</td>
<td>Cervical Cancer Screening</td>
</tr>
<tr>
<td>Chlamydia Screening for Women</td>
<td>Chlamydia Screening for Women</td>
</tr>
<tr>
<td>Use of Appropriate Medications for Asthma</td>
<td>Use of Appropriate Medications for Asthma</td>
</tr>
<tr>
<td>Low Back Pain: Use of Imaging Studies</td>
<td>Low Back Pain: Use of Imaging Studies</td>
</tr>
<tr>
<td>Ischemic Vascular Disease (IVD): Complete Lipid Panel and LDL Control</td>
<td>Ischemic Vascular Disease (IVD): Complete Lipid Panel and LDL Control</td>
</tr>
<tr>
<td>Diabetes: Hemoglobin A1c Control (&lt;8.0%)</td>
<td>Diabetes: Hemoglobin A1c Control (&lt;8.0%)</td>
</tr>
</tbody>
</table>

**Challenges**

Although meeting the aforementioned MU criteria appears to be a basic achievement for any clinical practice with an EHR, in a residency training program, there are several factors which make it more difficult to accomplish.

First, in a residency-based clinic, there are multiple, transient providers at various levels of experience (including residents in training), often leading to incomplete, fragmented charts. Since there is no economic incentive for residents, many of whom will graduate before the financial rewards result in program improvement, there may be less motivation to comply with efforts to achieve MU criteria. It is also difficult to reach residents after they graduate to complete unfinished charts, exacerbating potential non-compliance with MU. Furthermore, since
residents are apprentice physicians still learning their chosen profession; achieving MU criteria may be more difficult because they are learning patient care and the EHR simultaneously, and documentation may suffer as a result of this “learning curve.” Residents also tend to chart more slowly, leading to a longer chart turnaround time, resulting in more incomplete charts.

Second, residency-based clinics have multiple, part-time faculty providers with limited clinical practice time. This may lead to decreased efficiency with EHR documentation from faculty physicians because their patient volume is lower than that of physicians in individual or group practice settings. Also, some faculty members tend to be delinquent with their own charting or signing off on resident charts, due to involvement with research projects or teaching duties.

Third, the limited funding sources available to most residency programs may cause financial difficulties in upgrading the EHR to achieve CCHIT certification, and upgrading hardware/workstations to increase charting efficiency.

Fourth, medical assistant (MA)/physician ratios are usually lower in residency programs. With less staffing, MA’s are less able to help complete portions of charts (medication reconciliation, demographics etc.) to assist the provider in meeting MU criteria.

Fifth, another obstacle that may prevent a practice from achieving MU compliance is deficiencies in charting. At PCM, some of the common deficiencies included incomplete charts (provider charts or resident charts unsigned by faculty preceptor), incomplete problem lists, unspecified smoking status, incompletely or partially filled medication lists, absent BMI data, unlisted preferred language, and a lack of race/ethnicity information in the charts.

**Action Steps to Achieve Compliance with MU**

In order to achieve compliance with the MU requirements, there are several steps to consider, given the many challenges involved.

First, feasibility of applying for MU must be determined. It is important to note that in order to qualify, EHR use is required, and should be in use for some time for charts to be adequately populated. UHFMRP physicians at PCM had been using an EHR (Practice Partner) for nearly two years prior to application for MU, so documentation was nearly “paperless” at the time of application. However, the EHR software needed to be upgraded to a version compliant with the CCHIT requirements.

Second, hiring a consultant is recommended. For PCM, it was helpful to have an independent person evaluate health care delivery for systematic internal deficiencies, and work on rectifying them, without being belabored by multiple other clinical tasks. PCM is a hospital-owned entity, so Wahiawa General Hospital (WGH) hired a consultant to help with this process. The office manager, lead medical assistant (MA), front desk representative, and medical director met every two weeks with the consultant, who examined charts and clinic logistics for areas of improvement in order to meet MU criteria. An additional helpful local state-level resource for physicians implementing EHRs is the Hawai‘i Pacific Regional Extension Center (HPREC) (http://www.hawaiihie.org/rec). HPREC is the designated regional extension center of the Office of the National Coordinator for Health Information Technology for the State of Hawai‘i (http://healthit.hhs.gov/portal/server.pt/community/healthit_lhs_gov_rec_program/1495).

Third, it is important for providers to consider upgrading existing software, hardware, and workstations. Functional workstation in all exam rooms is a must, in order to encourage efficient workflow. PCM replaced old computers (laptops on stands in exam rooms, and desktop computers at the nursing station and preceptor room) with new, standardized models, as many of the old computers were not adequately functioning.

Fourth, it is important to encourage “real time” charting. This method is more efficient and accurate; however, it requires practice to accomplish charting during the encounter while still ensuring that the visit is “personal” with the patient. During resident and faculty conferences, this point was stressed by both the medical director and residency program director, who also modeled this behavior with their own patients. Workstations in exam rooms assisted this process.

Fifth, it may be useful to publish/distribute lists of incomplete notes/unsigned charts, so providers are aware of their deficiencies. At PCM, the office manager published and distributed such lists twice monthly, and the medical director contacted providers who were not timely in their documentation.

Sixth, it is helpful to “Flag” patient charts as needed (ie, with “Note,” “To Do,” etc) so individual charts are marked to complete deficiencies. At PCM, the Front Desk staff, MA’s, office manager, and providers all used this functionality of the EHR to post update reminders in charts on deficiencies in a number of areas such as demographics, treatment plans, additional medications, etc.

Seventh, it is important to encourage the inclusion of the patient’s personal medical doctor (PMD) on the chart. This is often more difficult in a residency program due to multiple, transient providers, but may add some accountability to chart completion. Attempts at enforcing this were not very successful for UHFMRP at PCM due to the multiple resident providers, and, perhaps, a reluctance on the part of the providers to take ownership of patient care.

Eighth, it is recommended that Team Based Care is utilized, as it can assist with chart completion. For example, MA (or medical/pharmacy students) can be helpful with this task. Although medication reconciliation (confirmation/correction of medication list with patient) is a task often assigned to MA’s, it was difficult to accomplish at PCM due to a low MA/provider ratio.

Ninth, another MU-related MA function may be to identify overdue health maintenance needs (ie, mammogram, flu shot, colon cancer screening), and alert the patient and physician. This MA function was partially successful at PCM when the clinic was not too busy, but was difficult to accomplish during periods of high patient volume.

Tenth, creating and using a secure portal with online access
to patient records (patient, provider, consultant) can be useful too. The EHR at PCM had this functionality, but did not utilize it as well as hoped, although some patients did register for this access.

Eleventh, it may be helpful to join a research network to help organize EHR data. PCM joined the Practice Partner Research Network PPRNet and some PCM members met PPRNet representatives at a User’s Group Meeting, where they learned to use the EHR more effectively, and agreed to share anonymous patient data. A research group at Medical University of South Carolina (MUSC) uses PPRNet data for quality of health care research projects. In return, PPRNet gives PCM quarterly reports on various parameters to improve patient care and reporting Quality Improvement (QI) projects. UHFMRP residents have a research requirement, and QI projects fit in nicely with this, while helping populate charts and improve patient care. Residents have also completed, or are working on projects on diabetic care, colon cancer screening, childhood immunization compliance, and others which are assisted by PPRNet data extraction and compilation. In addition to improving quality of patient care, these projects help meet MU requirements.

**Additional Steps for Achieving Meaningful Use Registration**

In order to apply for MU funds, one must first register with CMS via a computerized process. It is helpful to register faculty with a consultant’s assistance before the attestation step, because problems may occur. PCM faculty encountered some problems in this area. For example, some faculty members at PCM were not listed as being affiliated with WGH by Medicare, Provider Enrollment, Chain and Ownership System (PECOS); also, registration was not completed by other faculty members.

Necessary items for registration include:

1. A National Provider Identifier (NPI): All eligible professionals, eligible hospitals, and critical access hospitals (CAHs) must have a National Provider Identifier (NPI) to participate in the Medicare and Medicaid EHR Incentive Programs.
2. An enrollment record in the Provider Enrollment, Chain and Ownership System (PECOS): All eligible hospitals and Medicare eligible professionals must have an enrollment record in PECOS to participate in the EHR Incentive Programs. (Note: Eligible professionals who are only participating in the Medicaid EHR Incentive Program are not required to be enrolled in PECOS). If a provider does not have an enrollment record in PECOS, he/she should still register for the Medicare and Medicaid EHR Incentive Programs.
4. Payee Tax Identification Number (if reassigning benefits).
5. Payee National Provider Identifier (NPI) (if reassigning benefits).

**Attestation**

Once all of the above criteria are met, the next step is attestation. The first year of participation is verified by “attestation” (self-inputted data); after that, annual data must be submitted to CMS to qualify for payments. In order for providers to attest for the Medicare EHR Incentive Program in the first year of participation, MU criteria must be met for a consecutive 90-day reporting period. If initial attestation fails, a different 90-day reporting period may be selected that may partially overlap with a previously reported 90-day period. To attest for the Medicare EHR Incentive Program in subsequent years, meaningful use must be met for a full year.

Please note the reporting period for eligible professionals must fall within the calendar year, while the reporting period for eligible hospitals and critical access hospitals must fall during the Federal fiscal year. April 18, 2011, was the earliest an eligible professional, eligible hospital or critical access hospital could attest that they had demonstrated meaningful use of certified EHR technology under the Medicare EHR Incentive Program. Under the Medicaid EHR Incentive Program, providers can attest that they have adopted, implemented, or upgraded certified EHR technology in their first year of participation to receive an incentive payment. Medicaid EHR Incentive Program participants should check with their state to find out when they can begin participation.

**Benefits**

The primary benefit of the incentive program is the substantial financial rewards associated with the program (in the case of PCM, up to $44,000/5yrs/provider for Medicare). Currently, all UHFMRP faculty have registered for MU, and will soon attest to meeting MU criteria. It is important to note that each registering and attesting provider does not have to be full-time, so a faculty with many full or part-time providers will benefit substantially, as each provider is eligible for the incentive payment. Eligible providers may only qualify for incentive payments at a single site. Accordingly, it is important for each provider to determine their primary site and only register as an EP at that single location.

Additionally, upgrading computer systems at PCM to attain MU has resulted in the use of more secure and efficient EHR software. Also, during the process of preparation for attestation, there has been improvement in completed notes, problem lists, medication lists, and other clinically important documentation tasks that have resulted in better medical records. Communication with other providers via electronic exchange of healthcare information is expected to occur in the near future, as more EHR’s are able to “communicate” with each other. Similar improvements across the healthcare industry are likely to result in improved patient care, improved efficiency, and reduced costs.

**Conclusion**

Although there are many challenges involved in meeting MU criteria (particularly in a residency program clinic), the benefits are substantial, and will likely translate into improved health
outcomes for the patient population served. Many of the MU requirements are very basic tenants of good medical practice, including proper documentation, good communication, and error prevention. Nevertheless, implementation can be a challenge to successfully incorporate into a busy practice setting. Hopefully, the addition of well-implemented health care technology will make these challenges easier to overcome by a growing number of providers in the near future. At the time of this writing PCM is in the process of attesting for MU.

**Conflict of Interest**
The author does not identify any conflict of interest.

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*References*
Developing a Novel Doctorate in Global and Indigenous Health Leadership

Deon V. Canyon PhD, MPH, DBA

Summary
This Public Health Hotline article describes the current efforts of the Office of Public Health in the John A. Burns School of Medicine, University of Hawai‘i at Manoa, to research and develop a new doctorate in global and indigenous health leadership. It reviews the history of the Doctor of Public Health (DrPH) program, structural limitations, imperatives for content, and identifies an appropriate delivery model.

History of the DrPH Program
The formal organization of academic public health programs commenced shortly after the turn of the 20th Century with the DrPH being offered in the United States by the American Public Health Association (APHA). The Harvard School of Medicine initiated their DrPH program in 1909 and produced the first DrPH graduates in 1911. Medical graduates were required to spend a year producing a research thesis while those without a medical degree were required to study relevant classes for four years before completing a thesis in one year of research. In what was an important step for the DrPH, the General Education Board of the Rockefeller Foundation delineated a foundation for schools of public health and their degree programs. To this end, public health workers were classified as executives (commissioners and directors of boards of health), technical experts (eg, statisticians, bacteriologists, etc), and field workers (eg, nurses, food inspectors). Regardless of entry criteria, the DrPH was designated for executive administrative positions in public health. In 1921, the APHA voiced its concern over the degree (DrPH) program, structural limitations, imperatives for content, and identifies an appropriate delivery model.

Doctoral Requirements for a School of Global and Community Health
The Office of Public Health Studies (OPHS) in the John A. Burns School of Medicine is an accredited public health program, and has aspirations to reacquire School status from the national Council on Education for Public Health accreditation body. One of the requirements for accreditation is that the “school shall offer at least three doctoral degree programs that are relevant to any of the five areas of basic public health knowledge.”

To be accredited, a school of public health requires sufficient faculty (five full-time faculty per doctorate), adequate faculty expertise, and availability of advanced-level courses; in addition, faculty must be active in research. The doctoral programs may be professional, such as the DrPH, or academic, such as the PhD, and interdisciplinary programs that are based in the school of public health may also satisfy this expectation.

Currently, the OPHS has a PhD in the epidemiology (EPI) discipline and a DrPH in the social and behavioral health sciences (SBHS) discipline. Since current MPH students typically apply to EPI, SBHS and health policy and management (HPM), the need now exists for a DrPH in the HPM discipline. In addition to these three disciplines there are two other growth areas that are generating significant interest among public health students. They are global health and indigenous health. While these areas can be catered to in generic EPI, SBHS, or HPM doctorate programs, their recognition for marketing purposes and the need to promote research capacity building in indigenous populations is important and cannot be neglected. Thus the title of the DrPH needs to reflect their inclusion despite it being placed in the HPM discipline. The next sections reflect Google. It shows how the DrPH was the original public health qualification which was replaced in popularity by the MPH after the 1950s. Despite the continued decline in the use of the phrase, “Doctor of Public Health”, use of the actual label of the degree (DrPH) in books rose sharply from the 1970s. Use of “MPH” also rose in a similar manner to the red line, but was an order of magnitude higher and thus cannot be displayed in Figure 1. Use of the alternative term, DrPH was almost nonexistent and is not shown in this figure. Actual numbers of DrPH graduates in the United States rose from 80 in 1985 to 129 in 2006 indicating considerable growth and interest in the degree (ASPH annual data reports).
on the importance of global health and indigenous health. Furthermore, the Institute of Medicine made a well-accepted statement that the DrPH “is offered for advanced training in public health leadership.”9 Thus the title of the DrPH needs to reflect this and include the word ‘leadership’.

Global Health
Health disparities are receiving progressively more attention from funding agencies and the media which is fueling a dynamic expansion in university and government engagement in global health.10-12 Almost half a billion indigenous people across the Earth have a lower than average standard of health.13 Associated conditions range from poverty, malnutrition, overcrowding and poor hygiene to environmental contamination and infection. Often, a lack of health promotion, inadequate clinical care and poor disease prevention services exacerbate this situation. As indigenous people make the transition from traditional to transitional and modern lifestyles, they rapidly acquire related diseases, such as obesity, cardiovascular disease, and type 2 diabetes.14 The misuse of alcohol and drugs confounds these conditions leading to a plethora of physical, social, and mental disorders. Remedies for these serious and complex disparities, which are often caused by government denial and neglect, require increased awareness, recognition, and international political commitment.13

Many public health professionals have an interest in health challenges that originate from or perpetuate in low to middle income, developing nations. The Global Health and Population Studies division under the OPHS will leverage its position to attract doctoral researchers who are interested in these wide-ranging and critically urgent public health issues. After exposure to global health training, it is common to see students engaging in teaching, practice, administration, or research in international settings.

Indigenous Health
The dominant mode of health research on indigenous populations is the external, investigator-driven descriptive survey and epidemiological study. There are few examples of best-practice, collaborative health research that is strongly centered on indigenous communities, that harness external expertise while balancing key local power players, address strategic research priorities, deliver health gains through improved practice or policy, and enhance community capacity and leadership. Taking the participation of indigenous investigators beyond mere gate-keeping or junior partnership to full partnership or principal investigator status is fundamentally important to define appropriate and locally relevant research problems, identify solutions, and translate, implement and evaluate public health research. A key strategy is the provision of doctoral training to indigenous people so that they are empowered to drive their own agenda and become increasingly involved in overcoming these challenges. The new, interdisciplinary division of Indigenous Health under the OPHS will use the new DrPH program to develop capacity and promote research training on behalf of indigenous populations throughout the American territories in the Pacific.

Identifying the Target Student Population
The current PhD in EPI and DrPH in SBHS attract students that often come straight out of the MPH program. While most of them gain employment in health-related organizations at some point during their candidacy, they possess limited experience in public health, policy development, management and leadership. While this strategy provides advanced training for potential, aspiring public health leaders, it leaves existing managers and leaders underserved. To complement the existing approach, a new tactic is required to target the executive market. Thus the DrPH in Global and Indigenous Health Leadership is designed
to prepare mid-career professionals for senior-level positions in organizations working to improve the public’s health. Specifically, the degree seeks to attract diverse individuals from the United States and other countries who have managerial and leadership responsibilities in their communities, organizations and/or institutions. The program will be of most benefit to health directors, managers in government departments, health agencies or foundations, leaders within the nonprofit and non-governmental sector, program managers, and others working in nontraditional settings that have a significant impact on the health of the public.

**Identifying an Appropriate DrPH Structure**

In 1988, the Institute of Medicine published a report entitled, The Future of Public Health, which claimed that public health schools were becoming increasingly isolated from public health practice, and that the governmental public health infrastructure was in disarray. This disconnect resulted in fewer graduates being trained with the practical skills required to work in health agencies. The diminishing focus on the practice of public health and increasing focus on academic pursuit was said to have had the effect of rendering DrPH degrees more similar to PhD programs. Much has changed since this time and the Association of Schools of Public Health (ASPH) has worked tirelessly to improve standards. However, in what appears to be a reaction to the IOM report, many schools have adopted a prescriptive approach to curriculum design that devalues the ASPH’s efforts to maintain a minimum standard of competencies for public health practitioners. For instance, most schools offer MPH degrees with five core courses, a major with a few more core courses and some offer minors requiring a couple more core courses. This leaves almost no room to add attractive electives and tailor the MPH to suit “interesting” jobs.

While the DrPH degree was the primary postgraduate public health degree for the first half of the 20th Century, times changed and in 2003 the IOM felt the need to clarify that the “basic public health degree is the master of public health (MPH), while the doctor of public health (DrPH) is offered for advanced training in public health leadership.” The ASPH was in agreement that the DrPH should prepare graduates for evidence-based leadership and practice-based research roles. They stated that the DrPH curriculum should serve to integrate the five core areas of public health, emphasize work experience relevant to the degree, and address learning methods in the context of public health.
health practice. “The DrPH should represent an advanced competency in public health practice and leadership skills, among others.” Figure 2 depicts the ASPH DrPH core competency model published in 2009. The model was offered as a resource and guide with the aim of improving the “quality and accountability of graduate public health education and training, not as a prescriptive model.” Since the ASPH does not prescribe how students achieve the competencies, the implementation of this model varies according to each school’s mission and goals for their DrPH program.

Nevertheless, the ASPH recommends that all DrPH programs contain two key structural elements to ensure minimum standards of professional experience and research capacity.18

1) Provide opportunities for students to collaborate with experienced public health practitioners through some form of practical attachment so that they can observe and develop advocacy and leadership skills

2) Require a written research thesis/dissertation that addresses, generates, and/or interprets and evaluates knowledge applicable to practice

The research training aspect is required to avoid esoteric and overly theoretical topics and focus specifically on practice-oriented research. This includes “not only the science implicit in academic public health practice, but its application through research, teaching, and service (the art of practice), that builds skill in adapting things in the natural world to improve human life.”19 In providing these guidelines, the ASPH does not stifle the wide variety of forms in which DrPH education is offered, but simply sets minimum standards. The competency developers intentionally created a non-discipline-specific model so that the competencies can be broadly applied across disciplines. This is a wonderful departure from Roemer’s recommendation for a five year, course-based and field-based doctoral program in 1986 which focuses on producing administrators, but which fails to appreciate market needs.20 Roemer’s program is better suited for a bachelor-masters sequence with no intention of producing research-capable graduates or administrators that are capable of driving research agendas.

Bearing the target student population in mind, the most appropriate structure for the DrPH in Global and Indigenous Health Leadership is one that is more experiential and research focused rather than classroom focused. The competencies will be imparted in a series of courses that are designed to maximize exposure to external, expert public health practitioners while the research will consist of a significant study on a topic that is of importance to the practice of health policy and management. The duration of the program is also of considerable importance to the targeted student group. Mid-career health professionals are busy people with little additional time available for large pursuits, so the degree must be very flexible and as short as possible. The emerging international standard of three years for completion of the DrPH is required.

Identifying an Appropriate Delivery Model

Given that the students targeted by this DrPH will be, for the most part, working full-time and will have to complete their studies by allocating short blocks of time, a flexible, distance education approach is required to make the degree attractive and realistic. One case that has succeeded in catering to this particular population is notable. The Gillings School of Global Public Health at the University of North Carolina at Chapel Hill (UNC) has developed the world’s first executive, three-year, cohort-based, online DrPH. Students remain where they are, working full-time as they complete their degrees, and are only required to make three brief residential visits. Technology and internet connections, even in many developing countries, are now advanced enough to enable live video, audio, and data sharing between instructors and participants. The success of this model has been documented by program evaluations during the past three years and via demonstrated progress of students in the program. Building upon this innovative model, UNC developed the International Network for Doctoral Training in Health Leadership (NETDOC) to accelerate the pace and reach of urgently needed doctoral-level leadership training for senior health professionals around the world by creating an international network of partner programs (http://www.sph.unc.edu/docglobal/).

NETDOC is a global, collaborative network of educational institutions that offer or intend to offer professional distance doctoral program in health leadership.21 Its members are committed to sharing objectives, substance and expertise to maximize access to and the quality of doctoral health leadership education worldwide. The urgent call by governments and health authorities worldwide for such an effort has been previously described.21 The OPHS at the University of Hawai‘i is a member of NETDOC and embraces its philosophy.

Based on a review of these and several other DrPH programs, including a particularly minimalist one offered by the London School of Hygiene and Tropical Medicine, and a particularly flexible one offered by James Cook University in Australia, the DrPH in Global and Indigenous Health Leadership will adopt a design that provides mid-career health professionals the opportunity to study externally while undertaking a number of experiential courses and completing a research dissertation. As a prerequisite, students are required to have the five core competencies required in accredited MPH programs (or equivalent). Core requirements include a two-year dissertation, two 3-credit, in-house summer seminars in block mode, two 3-credit seminars in distance mode, two 6-credit practica in distance mode (selected from several electives and tailored towards career interests), and a 2-credit methods course.

The process of formulating the new DrPH in Global and Indigenous Health Leadership involved scanning for best practices, focusing on specific market needs, aligning key players, assessing resources and inspiring those who will be expected to play a role in supporting the program. Since many other DrPH programs went through a similar developmental process that drew on approaches from other programs to match particular...
markets, the result is a lot of very distinct degrees. This is not a problem according to the ASPH DrPH guidelines, but will it be a problem for NETDOC. It is difficult to imagine how this international effort will progress towards its goal of having a shared curriculum structure and shared delivery platforms when so much variety exists.

Summary
The DrPH is a professional doctorate designed to offer specialized training for the rising number of graduates from health-related masters degrees who recognize their need for advanced knowledge and practical skills to succeed in the increasingly complex health policy and management environment. The DrPH in Global and Indigenous Health Leadership will provide a vehicle for this need and takes it to another level through the inclusion of global health and indigenous health perspectives.

Conflict of Interest
The author does not identify any conflict of interest.

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References
Department of Communication Sciences and Disorders at the University of Hawai‘i John A. Burns School of Medicine

Henry L. Lew MD, PhD; Janelle Hiu MA; Erin Shumway BA; Kimi Kwock MS; Aaron Ziegler ABD; and Roy Magnusson MD

Introduction
Movies such as “the Kings’ Speech” and “Children of a Lesser God” remind us of the speech and hearing problems that may exist in the privileged as well as underprivileged populations. However, stuttering and deafness represent only a small portion of the overall spectrum of communication disorders. Over the past several decades, the field of Communication Sciences and Disorders (CSD) has developed and evolved to meet the needs of clients/patients with an array of communication problems. By definition, CSD is a scientific discipline that encompasses the study, diagnosis, and treatment of speech, language, voice, swallowing, and hearing disorders. Inherently, it is comprised of two related and inseparable fields: speech-language pathology and audiology. The former involves evidence-based diagnosis and treatment of disorders that affect a person’s ability to communicate or swallow. The latter focuses on the diagnosis and treatment of human hearing and balance disorders. With the understanding that many of the diagnosed conditions are irreversible, a main goal is to restore and maximize communication function through rehabilitation.

Populations at Risk
With noise-induced hearing loss and hearing problems related to aging, individuals with hearing disorders continue to increase. According to the American Speech-Language and Hearing Association (www.ASHA.org),1 approximately 28 million Americans have a hearing impairment. For children under the age of 18, approximately 17 in 1,000 are affected by hearing disorders. As people age, the incidence of hearing disorders gradually increases (314 in 1,000 people over age 65). It is estimated that 40% to 50% of the American population over the age 75 are hearing impaired.

While various forms of aphasia, dysarthria, dysphagia, and cognitive-communication impairments occur from stroke and traumatic brain injury in adults, voice disorders are common in both adults and children. Many children with language, articulation, or fluency disorders are also seen in the CSD clinic. Language disorders include any problem that interferes in the expression or comprehension of spoken, written, or other symbolic systems such as gestures and sign language. Articulation disorders affect the way speech sounds are formed and used, and can include sound substitutions, omissions, and distortions. Fluency disorders, commonly known as stuttering, affect the flow, or rhythm, of speech.

On the medical side of the field, swallowing disorders—or dysphagia—include problems affecting the movement of food from mouth to stomach. Such problems have grave consequences including pneumonia, malnutrition, and dehydration. Voice disorders affect the way the voice sounds or feels, and can include inappropriate pitch, volume, resonance, duration, quality, or endurance. In addition, as needed, speech language pathologists work with individuals on accent modification and communication skills improvement. Hearing-related disorders affect a person’s ability to hear speech, and monitor one’s speech. For all of the aforementioned disorders, individuals require a comprehensive evaluation before initiating treatment.

The Communication Sciences & Disorders (CSD) Department at the University of Hawai‘i
In the past, the program at University of Hawai‘i John A. Burns School of Medicine (UH-JABSOM) trained both speech-language pathology and audiology graduate students at the Masters level.2 However, starting January 2012, ASHA, the professional, scientific, and credentialing association for audiologists and speech-language pathologists in the United States, mandates that all future audiologists must have a doctoral degree (PhD or AuD), and complete a minimum of 1,820 hours of supervised clinical practicum sufficient in depth and breadth to achieve the knowledge and skills of becoming an audiologist. To meet this requirement, the department is contacting several model programs on the mainland. Before the collaboration agreement is formalized officially, the CSD department continues to offer a masters (MS) level training program in speech-language pathology. In the interim, faculty at the CSD Department will continue to implement the current curriculum that includes material on comprehensive audiology assessments and hearing aid evaluations.

Students enrolled in the field of speech-language pathology are required to earn a Masters degree as well as a Certificate of Clinical Competence (CCC) following a clinical fellowship year to be licensed to practice in Hawai‘i. Currently, there are 23 speech-language pathology students enrolled in the UH-JABSOM CSD Department. Students are required by ASHA to complete 375 hours of direct client contact in addition to their classroom training.
The University of Hawai‘i Speech and Hearing Clinic (UHSHC)

The UHSHC provides outpatient speech, language, voice, swallowing, and hearing services to enable individuals to communicate effectively in the community. The speech and language services offered at UHSHC include comprehensive evaluations, individual and group therapy, and augmentative and alternative communication (for individuals with limited or no verbalizations).

UHSHC is a clinical training facility at JABSOM that allows graduate students in the Communication Sciences and Disorders (CSD) Program to gain hands-on clinical experience with clients needing speech, language, voice, swallowing, or hearing services. All students providing therapy to clients are supervised by faculty and staff who have their Certificate of Clinical Competence (CCC) and are certified by ASHA. After completing 3 semesters of clinical training at UHSHC, students are placed at externship sites to gain further experience with a variety of disorders. The sites include Tripler Army Medical Center, the Department of Education, Rehabilitation Hospital of the Pacific, Queens Medical Center, Kapi‘olani Medical Center for Women and Children, and Scottish Rite Preschool.

The UHSHC was previously located at the University of Hawai‘i Manoa campus on Lower Campus Road. In March 2012, the CSD Department moved to a new facility, situated in a professional building (677 Ala Moana Blvd, aka Gold Bond Building), adjacent to the John A. Burns School of Medicine to strengthen and improve the clinical and educational services.

The Shortage of Speech-Language Pathologists in the State of Hawai‘i

According to an unpublished study conducted in 2010 by the University of Hawai‘i CSD Department’s graduate students (Kwock et al, Distribution and Practice Patterns of Speech-Language Pathologists and Audiologists in the State of Hawai‘i, unpublished) the number of working SLPs per capita by island are as follows:

<table>
<thead>
<tr>
<th>Island</th>
<th>Number of Working SLPs per Capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaua‘i</td>
<td>1:4,816.3</td>
</tr>
<tr>
<td>O‘ahu</td>
<td>1:5,834.3</td>
</tr>
<tr>
<td>Molokai</td>
<td>1:7,402</td>
</tr>
<tr>
<td>Hawai‘i</td>
<td>1:10,623.1</td>
</tr>
<tr>
<td>Maui</td>
<td>1:6,919.6</td>
</tr>
<tr>
<td>Lana‘i</td>
<td>0:3,189</td>
</tr>
</tbody>
</table>

A study by Davies & Enderby (1989) indicates the speech-language pathologist per population ratio should approach 1:3,846. Accordingly, the ratios found by Kwock and colleagues suggest that the State of Hawai‘i is underserved by speech-language pathologists.

Conclusion

Communication disorders encompass a spectrum of disabling conditions that can be treated by trained professionals. The CSD Department at the University of Hawai‘i, John A. Burns School of Medicine, which has been newly organized with proactive leadership, faculty, and staff, is the only program in the Asia-Pacific region accredited by the American Speech-Language-Hearing Association (ASHA). The faculty of the CSD Department has established a robust curriculum that provides an active program of both classroom and clinical teaching in speech and hearing disorders. By early 2013, the Department will be adding an active audiology component to its training and service programs. Ultimately, the program’s goal is to graduate qualified speech-language pathologists and audiologists to serve Hawai‘i’s population and beyond.

Contact Information

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University of Hawai‘i Speech And Hearing Clinic (UHSHC)
Ph: (808) 692-1580

Website: http://manoa.hawaii.edu/csd/

References

1. American Speech-Language and Hearing Association (www.ASHA.org)
2. University of Hawai‘i at Manoa, CSD Website (http://manoa.hawaii.edu/csd/)
## Upcoming CME Events

Interested in having your upcoming CME Conference listed? Please contact Brenda Wong at (808) 536-7702 x103 for information.

<table>
<thead>
<tr>
<th>Date</th>
<th>Sponsor</th>
<th>Location</th>
<th>Meeting Topic</th>
<th>Contact</th>
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<tr>
<td><strong>October 2012</strong></td>
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<tr>
<td>10/3-10/6</td>
<td>UC Davis Health System</td>
<td>Hilton Waikoloa Village, Kohola, Big Island, Hawai‘i</td>
<td>32nd Annual Current Concepts in Primary Care Cardiology</td>
<td><a href="http://www.ucdmc.ucdavis.edu/cme/conferences">www.ucdmc.ucdavis.edu/cme/conferences</a></td>
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<tr>
<td>10/7-10/11</td>
<td>CMX Travel</td>
<td>Kailua-Kona, Big Island</td>
<td>Ironman Sports Medicine Conference</td>
<td><a href="http://www.cmxtravel.com">www.cmxtravel.com</a></td>
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<tr>
<td>10/13</td>
<td>American Diabetes Association</td>
<td>Queen’s Conference Center</td>
<td>10th Annual Professional Education Symposium - Our Kupuna: Diabetes Issues in the Elderly</td>
<td>Email: <a href="mailto:lduenas@diabetes.org">lduenas@diabetes.org</a></td>
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<tr>
<td>10/22-10/26</td>
<td>Continuing Education Company</td>
<td>Sheraton Maui Resort &amp; Spa</td>
<td>2nd Annual Primary Care Fall CME Conference: Maui</td>
<td><a href="http://www.cmemeeting.org">www.cmemeeting.org</a></td>
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<td>10/28-11/2</td>
<td>UC San Francisco School of Medicine</td>
<td>Fairmont Kea Lani, Maui</td>
<td>Abdominal, Thoracic &amp; Women’s Imaging in Maui</td>
<td><a href="http://www.cme.ucsf.edu/cme">www.cme.ucsf.edu/cme</a></td>
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<td><strong>November 2012</strong></td>
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<td><strong>January 2013</strong></td>
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<tr>
<td>1/6-1/11</td>
<td>UC San Francisco School of Medicine</td>
<td>Fairmont Orchid, Kohala, Big Island</td>
<td>A Practical Approach to Breast Imaging</td>
<td><a href="http://www.cme.ucsf.edu/cme">www.cme.ucsf.edu/cme</a></td>
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<td>1/13-1/16</td>
<td>Vindico Medical Education, Orthopedics Today, Int’l Congress for Joint Reconstruction</td>
<td>Fairmont Orchid, Kohala, Big Island</td>
<td>Orthopedics Today Hawai‘i 2013</td>
<td><a href="http://www.othawaii.com">www.othawaii.com</a></td>
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<tr>
<td>1/13-1/18</td>
<td>UC San Francisco School of Medicine</td>
<td>Fairmont Orchid, Kohala, Big Island</td>
<td>Practical Body Imaging in Paradise</td>
<td><a href="http://www.cme.ucsf.edu/cme">www.cme.ucsf.edu/cme</a></td>
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<td>1/20-1/24</td>
<td>UC Davis Health System</td>
<td>Sheraton Maui</td>
<td>D. Eugene Strandness Jr. Symposium: Diagnostic &amp; Therapeutic Approaches to Vascular Disease</td>
<td><a href="http://www.strandness-symposium.com">www.strandness-symposium.com</a></td>
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<tr>
<td>1/20-1/24</td>
<td>Mayo Clinic</td>
<td>Maui</td>
<td>Tutorials in Diagnostic Radiology</td>
<td><a href="http://www.mayo.edu/cme">www.mayo.edu/cme</a></td>
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<tr>
<td>1/28-2/1</td>
<td>Mayo Clinic</td>
<td>Fairmont Kea Lani, Maui</td>
<td>Anesthesias &amp; the Heart: A Cardiology Update</td>
<td><a href="http://www.mayo.edu/cme">www.mayo.edu/cme</a></td>
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<tr>
<td><strong>February 2013</strong></td>
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<tr>
<td>2/2-2/8</td>
<td>UC San Francisco School of Medicine</td>
<td>Grand Hyatt Regency, Koloa, Kaua‘i</td>
<td>20th UCSF International Symposium in Oral &amp; Maxillofacial Surgery</td>
<td><a href="http://www.cme.ucsf.edu/cme">www.cme.ucsf.edu/cme</a></td>
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<td>2/4-2/8</td>
<td>Mayo Clinic</td>
<td>Grand Hyatt Kaua‘i</td>
<td>Hawai‘i Heart 2013: Echocardiography &amp; Multimodality Imaging, Case Based Clinical Decision Making</td>
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<td>2/10-2/15</td>
<td>Mayo Clinic</td>
<td>Wailea Beach Marriott, Waikoloa</td>
<td>Interactive Surgery Symposium</td>
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<td>2/10-2/15</td>
<td>UC San Francisco School of Medicine</td>
<td>Fairmont Orchid, Kohala, Big Island</td>
<td>Current Concept in Neurological &amp; Musculoskeletal Imaging</td>
<td><a href="http://www.cme.ucsf.edu/cme">www.cme.ucsf.edu/cme</a></td>
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<tr>
<td>2/13</td>
<td>UC San Francisco School of Medicine</td>
<td>JW Marriott Ihilani Resort, O‘ahu</td>
<td>High Risk Emergency Medicine Hawai‘i 2013</td>
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<td>2/16-2/19</td>
<td>UC San Francisco School of Medicine</td>
<td>Moana Surfrider Hotel, O‘ahu</td>
<td>Pacific Rim Otolaryngology Head &amp; Neck Surgery Update Conference</td>
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<tr>
<td>2/16-2/19</td>
<td>UC San Francisco School of Medicine</td>
<td>Moana Surfrider Hotel, O‘ahu</td>
<td>American College of Surgeons Thyroid &amp; Parathyroid Ultrasonic Skills-Oriented Course</td>
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<td>2/17-2/22</td>
<td>UC San Francisco School of Medicine</td>
<td>Sheraton Maui</td>
<td>Infectious Diseases in Clinical Practice: Update on Inpatient &amp; Outpatient Infectious Diseases</td>
<td><a href="http://www.cme.ucsf.edu/cme">www.cme.ucsf.edu/cme</a></td>
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<tr>
<td>2/18-2/22</td>
<td>Continuing Education Company</td>
<td>Westin Maui, Kaanapali</td>
<td>Primary Care Winter CME Conference</td>
<td>Web: <a href="http://www.cmemeeting.org">www.cmemeeting.org</a></td>
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</table>
Qi emphasized that the study was not designed to identify reasons for the variation in heart disease risk.

**AMERICA. GET OFF YOUR FAT A---!**

The Centers for Disease Control and Prevention (CDC) published the 2011 data on the fat United States of America. By defining obesity as a body mass index (BMI) of 30 or greater, Colorado is the least porky with 20.6% adult obesity. Second at 21.8% is Hawai‘i with Massachusetts, New Jersey and California filling out the top 5. This is not to suggest these states are lean, but merely a little less likely to sound the elevator buzzer. With a few exceptions (Indiana and Michigan), the really round numbers are down south with Mississippi and Louisiana having more than one third obese adults. The truly alarming statistic is that no state had an obesity rate above 15% in 1985. How did we get so fat in less than 30 years? The obvious changes are less physical activity, tasty fast food at every corner, and especially much more sitting time with computers, television, and automobiles.

**FAST FOOD MAKES YOU LAZY AND INDOLENT, OR DOES IT?**

Day in and day out, 100-year-old Catherine Reddoch walks 1.5 miles from her home in Matamata on New Zealand’s North island to get lunch. For the last 20 years she has been walking with her zimmer to the same McDonald’s for her complimentary cheeseburger and hot chocolate. No variations, please. Forget the salad and forget the relish. The 3 mile round trip takes about an hour each way.

**PEOPLE WHO LIVE IN GLASS HOUSES BETTER PULL DOWN THE BLINDS.**

Congress recently passed the Federal Aviation Administration (FAA) Reauthorization Act that the President is expected to sign. Included in the bill is a provision to develop regulations for the testing and licensing of commercial drones by 2015. This stipulation in the law is the outcome of pressure from some lawmakers and the defense sector. Drones are used for military applications to seek and destroy targets, chiefly al Qaeda, but far more drones are used for surveillance. The domestic use raises legitimate questions about privacy and snooping by both government agencies and private entities. Steven Aftergood (a built-in monicker) heads the Project on Government Secrecy for the American Federation of Scientists. He foresees serious problems on the horizon. Some experts claim that the commercial use in American airspace could be worth hundreds of millions of dollars, and that as many as 30,000 drones might be airborne by 2020.

**IT PAYS TO ADVERTISE.**

In Vermont, inmates working in the print shop of the correctional facility designed a state police crest. They managed to sneak a prank image of a pig into the image that was emblazoned on 30 police cruisers.

**ADDENDA**

- Eyelashes recycle about every three months.
- In 1997 one-third of American homes had a computer.
- A vegetarian is a person who won’t eat anything that can have children.
- If Dracula can’t see himself in a mirror, how come his hair is so neatly combed?
- When your gecko is broken you have a reptile dysfunction.
- In Chicago murder is up 35%. Police are asking tourists to bring their own chalk and yellow tape.

**ALOHA AND KEEP THE FAITH rts**

(Editorial comment is strictly that of the writer.)