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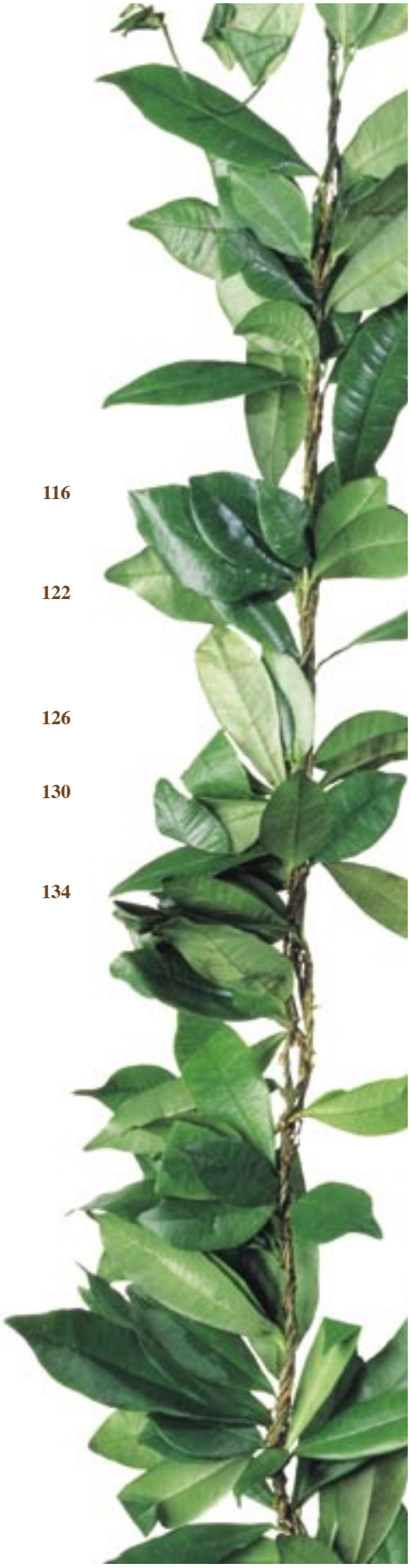

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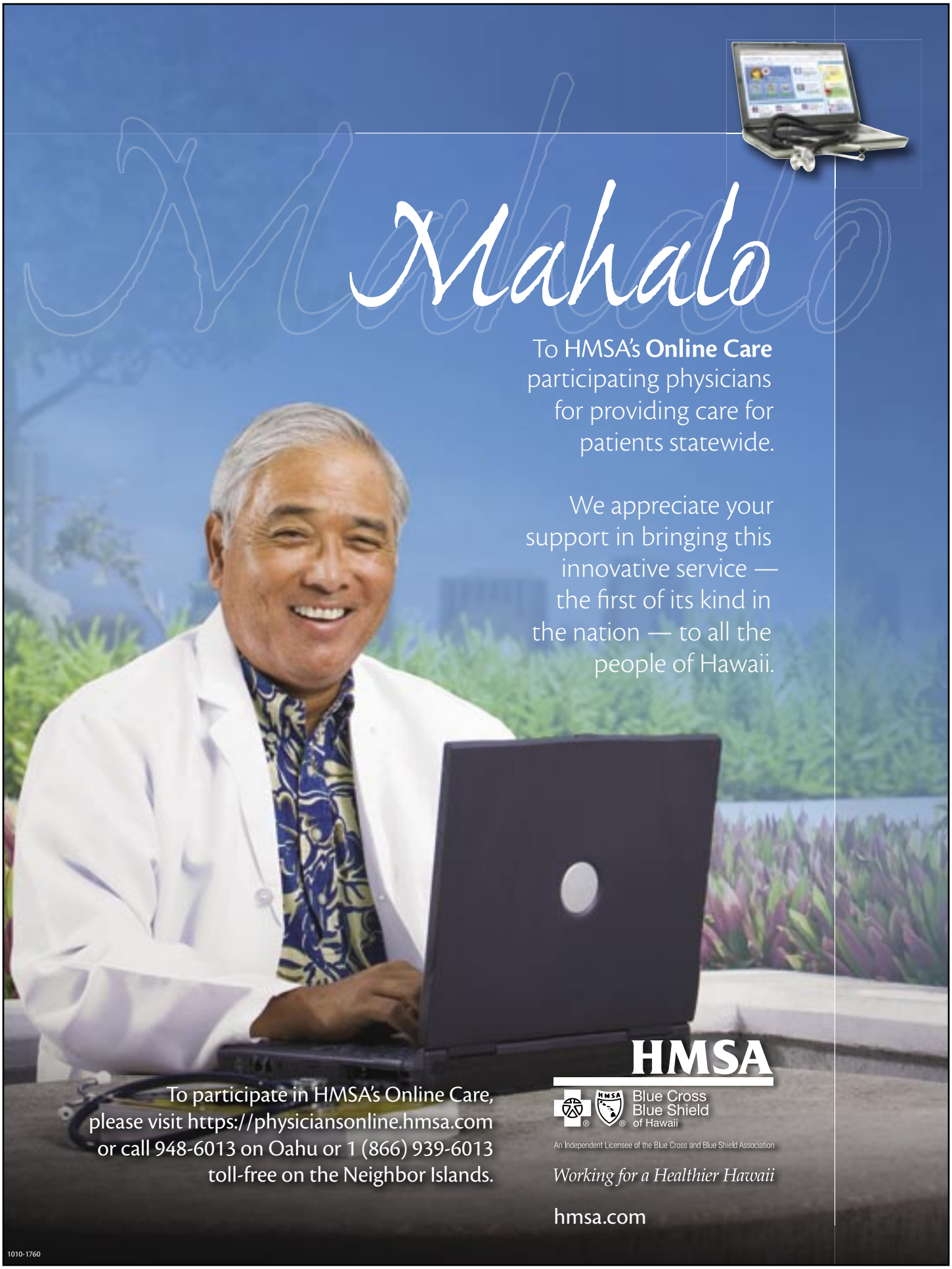
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The Journal's aim is to provide new, scientific information in a scholarly manner, with a focus on the unique, multicultural and environmental aspects of the Hawaiian Islands and Pacific Rim region.

Cross-Cultural Health Care Conference: Collaborative and Multidisciplinary Interventions – February 11-12, 2010

The University of Hawai'i at Manoa's Department of Surgery held its inaugural conference – *Cross-Cultural Health Care: Collaborative and Multidisciplinary Interventions* at the Hyatt Regency Waikiki, on O'ahu, Hawai'i, on February 11-12, 2010. Reflecting the approach needed to provide optimal care to diverse patient populations, the title captures the complexity of the matter of "culture" in healthcare by providing the perspective not only of medicine, but psychology and public health. The partnership of these three fields has produced a conference that showcases a multi-level and systemic perspective that focuses not only on the individual provider level, but also on the role of organizational change and policy.

The conference also exemplified the openness and generosity of those who work in the area of cross-cultural health care – whether as providers, researchers, trainers, and administrators. All of the speakers have donated their time with only the hope of sharing their knowledge as their return on investment. Over the past year, countless hours were spent on sharing ideas and resources as well as providing inspiration and moral support.

Visit the conference Website at cchc-conference.com
to see a full list of presenters and presentation descriptions.

Special thanks go out to our conference supporters who have not only provided monetary, but in-kind donations: American College of Surgeons – Hawai'i Chapter, Society for Community Research and Action – Western Region, the University of Hawai'i at Manoa's Department of Psychology and Office of Public Health Studies in the John A. Burns School of Medicine. We would like to send an extra special thank you to our volunteers who had donated numerous hours assisting with both the planning and staging of the conference. Without them, this conference would not have become a reality.

We hope that this is a beginning; the start of many future collaborations as we brainstorm, plan, and implement ways to help improve the health and health care delivery system in Hawai'i and beyond.

Mahalo nui loa.

Danny M. Takanishi, Jr. MD, FACS
Co-Chair, Conference Planning Committee

Maria B.J. Chun PhD, CHC
Co-Chair, Conference Planning Committee

SELECTED ABSTRACTS

Utilizing Peace Corps Volunteers in International Community Health

Shawn S. Barnes MA and Christian Small

Abstract

Initiating and carrying out a community health program in an unfamiliar language and culture can be a daunting task for any globally-minded health care professional. This report focuses on an underutilized resource for international community health: American Peace Corps volunteers, and presents an example of how Peace Corps volunteers were integral in the success of a JABSOM student-led eye screening project of over 1,000 people in rural Samoa. The Peace Corps is a non-military, government-sponsored service organization. At present, there are nearly 8,000 Peace Corps volunteers serving in 76 low- and middle-income countries around the world. Of those who are currently serving, 94% hold at least an undergraduate degree and 21% are specifically trained to work in public health. Many volunteers serve in rural areas and all receive two months of intensive language and cultural training in their host countries; they also live at the financial level of those they serve. This represents a significant resource of educated, culturally and linguistically competent, and generally idealistic people who are willing to assist in community health projects.

Evaluating the Impact of the Hawai'i Quentin Burdick Rural Health Interdisciplinary Program

Jane J. Chung-Do MPH; Jan Shoultz DrPH; and Deborah Goebert DrPH

Abstract

Rural residents in Hawai'i face a shortage of qualified health professionals who are trained to meet health needs using cultural and place appropriate approaches. The Hawai'i Quentin Burdick (QB) Rural Health Interdisciplinary Program recruited University of Hawai'i

(UH) students in health-related fields to participate in a summer practicum where they lived and worked on the rural islands of Moloka'i, Lana'i, Kaua'i, and Hawai'i. This study evaluated the impact of the Hawai'i Quentin Burdick Program on students' competencies related to working in rural communities, along with their desire to work in rural communities in the future. A survey was administered to 2008 and 2009 Quentin Burdick students before and after their summer practicum. Independent samples t-test and a bivariate correlation were conducted on the quantitative data. Qualitative comments provided by the participants were grouped into themes.

Students' competencies significantly increased after the summer practicum, along with their desire to work in a rural area in the future. Reporting high level of competencies was positively related to increased desire to work in rural settings in the future ($r = 0.36$, $p < 0.029$). Students perceived the experience as a valuable introduction to cultural and health issues in rural communities. The experiences in the QB Program provided an effective way to train future health professionals to address Hawai'i's rural health issues and to decrease the disparities experienced in rural communities. Experiential training programs should be supported to provide opportunities for students to continue developing their interests and competencies.

Hawai'i's Language Access Law

Serafin Colmenares, Jr. PhD

Abstract

Hawai'i's language access law was passed in 2006 to affirmatively address, on account of national origin, the language needs of limited English proficient (LEP) persons to ensure equal access to state services, programs and activities. The law applies to all state agencies as well as covered entities (organizations that receive state funding).

State agencies and covered entities are required to: (1) assess the need for providing language services and take reasonable steps to ensure meaningful access to state-funded services, programs and activities by LEP persons; (2) provide oral language services in a timely and competent manner; (3) offer written translations of vital documents into the primary language of LEP persons who constitute 5% or 1,000 of the population eligible to be served or likely to be affected or encountered, or notice of the right to receive oral interpretation of vital documents if said population is less than 50; and (4) establish a language access plan.

The law also established the Office of Language Access (OLA) to provide oversight and central coordination of state agencies, as well as technical assistance to state agencies and covered entities in their implementation of language access requirements.

To date, all 25 state agencies and almost 60 covered entities have established and implemented their language access plans, but monitoring results indicate that most state agencies are in partial compliance. While lack of resources is a major obstacle to full compliance, the absence of an enforcement authority on the part of the law and the OLA is also an important factor.

Spirituality and Traumatic Experiences in Culturally-Diverse College Students

Qijuan Fang MA; Sara Horner; and Elaine Heiby PhD

Abstract

This study aims to examine the relationships among traumatic history, spirituality, coping, and how they relate to culture. A sample of 274 undergraduate students at the University of Hawai'i at Manoa participated in this study. A questionnaire packet was administered to the students, which includes demographic questions and questionnaires assessing traumatic life events, spirituality, and coping strategies.

It was found that of the traumatic experiences given by this college population, natural disaster, sudden death of a friend or loved one, and life threatening or disabling events to a loved one were experienced most frequently (65.9%, 58.6%, and 44.5%, respectively). The most stressful traumatic events were sudden death of friend or loved one (24.4%), life-threatening/disabling event to loved one (10.4%), and family violence or being physically punished (9%). Spirituality was found to range from medium to strong in this sample. Christians were found to be more likely to increase their spirituality after experiencing traumatic events when compared to atheist and agnostics (30.8 % for Christians vs. 8.9% for atheists and agnostics). When focusing on cultural differences, Native Hawaiian students scored the highest on spirituality and had most believers of higher powers (82.1%). Male students favored using problem-focused coping strategies, and their female counterparts favored emotion-focused coping strategies. Spirituality was found to be positively related to coping strategies ($r = .41$, $p < .01$) and negatively related to maladaptive coping strategies ($r = -.17$, $p < .01$), indicating the positive role spirituality may play in coping with traumatic events.

See authors' affiliations of these selected abstracts on p. 132.

Assessing Cultural Identity: The Community Genogram

Dale R. Fryxell PhD

Abstract

A number of multi-purpose tools have been developed to diagram social networks including the family genogram, ecomaps, timelines, and community genograms. Community genograms provide a positive, strengths-based, easy to use, visual, and collaborative method for identifying a person's social networks and resources. The community genogram can be used to identify important dimensions of client constructions of: self, family, community, self-in-relation, developmental/contextual history, acculturation/assimilation, and use of community resources. Community genograms are an especially useful tool for determining the cultural identity of an individual by examining how they spend their time and who they interact with. "Our personal experiences within our communities are as unique as our fingerprints."[1] To construct a community genogram, a large piece of paper is used to represent an individual's community – either past, present, or future. On this paper a person draws, using symbols or pictures, the various individuals, groups, and organizations that they interact with. These symbols can represent the individual's work, school, peers, neighborhood, spiritual, and other groups with which they interact. The community genogram can also be used as a tool to identify and track developmental changes over time. Lines of various thicknesses, representing the importance of the individual or group, can then be added between the individual's symbol and each of his or her social network members and groups. The final step in the community genogram process involves having a person relate stories or experiences that they have had with each individual or group and what types of support they provide and receive.

Reference

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Ethnicity & Trauma Outcomes

Jerris R. Hedges MD

Abstract

Controversy exists regarding a potential association between trauma outcomes and ethnicity. Multiple potential reasons may explain such an association if found. These include genetic differences, cultural/life-style differences, occupational differences, socioeconomic differences, and provider and institutional biases. These factors along with geographic factors may affect access to care. National studies indicate White Non-Hispanics have greater access to rehabilitation facilities than Blacks and Hispanics despite similar injuries; Asians and Blacks tend to have higher mortality after traumatic brain injury; Hispanics tend to have higher mortality after motor vehicle crashes; and severely injured Asians tend to disproportionately die at trauma centers. Insurance status and presentation in shock are much stronger predictors of death than ethnicity. Racial-ethnic differences in trauma outcomes do occur, but appear to be complex. Blaming institutional or provider bias is convenient, but likely incorrect. Systems of trauma care focusing upon injury mechanism and pathophysiology that over-ride socioeconomic factors and also enhance communication and cross-cultural understanding should improve outcomes.

Developing Evidence-based Practice in Substance Use Prevention: Rural Native Hawaiian Youth & Communities

Susana Helm PhD and Scott Okamoto PhD

Abstract

Of grave concern across communities in Hawai'i is the lack of evidence-based practice in substance use prevention targeting Hawaiian youth. Although national registries are recommended to communities for identifying rigorously developed and tested practices, a paucity of options exist for indigenous Hawaiian communities. Therefore, it is necessary for these communities to develop their own contextually-relevant evidence-based practice. The presentation 1) reviewed the National Registry of Evidence-based Programs and Practices, and 2) outlined a NIDA-funded project developing a science-based intervention on Hawai'i Island. The project is a collaboration among community leaders on Hawai'i Island and the research team on O'ahu.

Promoting Social Competence and Resilience among Native Hawaiian Youth (PSCR) focuses on rural middle school-aged adolescents by using an eco-developmental approach to etiology and risk and protective factors. PSCR is in the intervention development phase. First, focus group interviews with youth indicated a variety of situations in which drugs – alcohol, tobacco, marijuana, and other drugs – had been offered.[1] These data were used to develop the Hawai'i Youth Drug Offer Survey (HYDOS) to determine frequency of exposure to

drug offers, and difficulty in refusing drugs in these situations.[2] Next, focus groups were held in which youth brainstormed socio-culturally competent refusal strategies to the frequent and difficult drug offers,[3] and then described pros and cons as well as rationales for these refusals. Finally, community stakeholders will validate socio-culturally competent refusal strategies and corresponding drug offer scenarios to be included in the piloted intervention (Phase II research).

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What is Cultural Competency?

Desiree Lie MD, MSED

Abstract

Cultural competency refers to attitudes, knowledge and skills to respond effectively to culturally and linguistically diverse patient encounters. It can be defined by individual skills and by specific standards met by institutions. Training is driven by dual goals – eliminate health disparities and reduce medical errors and their consequences through improved communication. Legislative actions at federal and state levels and accrediting standards for health professions training now include mandated cultural competency objectives. These objectives cover domains addressing bias and stereotyping, community-based strategies, health disparities, specific skills and the culture of medicine and reflection.[1] To be effective, curricula need to be developmentally appropriate and demonstrate reproducible outcomes. One example of influencing or changing attitudes is the use of the Kleinman questions[2] to elicit patients' health beliefs in medical interviewing. A feasible measure to demonstrate learning would be a retro pre/post assessment of attitudes toward patient-centeredness using the Health Beliefs and Attitudes Scale.[3] Another example is the use of an interactive web module to teach knowledge for working effectively with interpreters, followed by practice with feedback with standardized interpreters and patients.[4] Developmental skills can be longitudinally tracked through standardized clinical practice examination stations with validated behavior scales, supported by direct observation of performance in practice. Linking training outcomes to patient clinical and satisfaction measures remains difficult to achieve. It is uncertain what effort is needed to maintain skills over time and successful demonstration remediation programs are needed. Evidence is needed for the long-term impact of CME mandates.

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Assessment of Cultural Competency Training Using the TACCT

Desiree Lie MD, MSED

Abstract

The goals of the Tool for Assessing Cultural Competency Training (TACCT) workshop were to first, describe the TACCT and its uses in curriculum assessment; use the TACCT to design curricula for participants' own programs; and critique the TACCT and identify its limitations. The activities were comprised of an overview of the TACCT that included psychometric properties and its evolution to 42 objectives and 6 domains (health disparities, bias/stereotyping, cross-cultural skills, community strategies, working with interpreters and culture of medicine) using data from 7 US schools. Second, participants formed groups of 2 to 4 each according to the TACCT domains they wished to address. A scribe was appointed and groups discussed the following: 1) Which objectives of that domain would be helpful to include in their own program; 2) The best curricular method (example, web-based, reflection, immersion), for their particular learners; 3) The appropriate assessment method for that domain for a) the learner and b) the curriculum; 4) Potential obstacles and solutions to implementing the curriculum and its assessment. Third, the groups reconvened in a large group, and each scribe summarized the groups' findings in 2 to 3 minutes. Large group discussion focused on how helpful (or not) the domains and objectives were in curriculum planning, and how each participant might use it at their own program. The workshop ended with participants writing one thing they found helpful and one thing they would change about the workshop.

Reference

Lie D, Boker J, Crandall S, DeGannes CN, Elliott D, Henderson P. Kodjo C, and Seng L. Faculty and medical student perceptions of cultural competence instruction: a study in seven schools using the Tool for Assessing Cultural Competence Training (TACCT). *Medical Education Online.* 2008: 13(11).

Cultural Competency and Health Equity in Hawai'i

David M.K.I. Liu MD, PhD, JD

Abstract

The Office of Health Equity (OHE) is tasked with improving the capacity of the Hawai'i State Department of Health to provide leadership in the areas of health equity and cultural competency in Hawai'i. To do this, OHE has developed a set of principles for the operations of the DOH, including valuing diversity, having the capacity for cultural self–assessment, being conscious of the "dynamics" inherent when cultures interact, institutionalizing cultural knowledge, and developing adaptations to service delivery reflecting an understanding of diversity between and within cultures. At the same time, OHE recognizes that achieving cultural competency, while difficult and laudable in and of itself, will not bring health equity. Along with cultural competency, OHE must address issues of the maldistribution of power and resources, along with racism, other forms of discrimination and historical injustice. OHE's policies towards the adoption of the Culturally and Linguistically Appropriate Standards (CLAS) standards are first reviewed. To examine the effectiveness of the implementation of the CLAS standards in Hawai'i, OHE subsequently described a brief survey of institutional health providers in Hawai'i. This brief, five respondent survey revealed a spectrum of response, from lack of knowledge of the existence of the CLAS standards to operationalization of some, but not all the standards. Overall, while entities seem to be attempting to meet some of the CLAS standards, further efforts are needed to research cultural constructions of health, diversify the health workforce at all levels, and address the variables of health equity. It is only by contextualizing cultural competency within the larger movement for health equity that culturally appropriate care can contribute to reducing health inequities.

Assessment & Evaluation Resources

Marlene P. Lowe PhD and Monica Stitt-Bergh PhD

Abstract

The University of Hawai'i Manoa Assessment Office (AO) supports faculty and staff members engaging in assessment and evaluation through workshops, consultations, and events. Drawing on their experience with educational program evaluation, the presenters provided three tips for evaluation success. Tip #1: Outcomes Approach: Start at the end. The presenters suggested starting with the program's desired outcomes when planning a program and its evaluation. This prevents evaluation from becoming an unimportant "add-on," which can easily happen when program staff start with activities they want to do (e.g., workshops for an anti-smoking campaign) or an evaluation instrument (e.g., a survey). By first establishing outcomes and then determining interventions and evaluation methods, staff can ensure that the program is structured to achieve its outcomes. Tip #2: Stakeholder Involvement: Seek understanding. Stakeholder involvement increases buy-in, program commitment, and program success. Involvement starts with listening, understanding, and developing relationships, all the while attending to cultural traditions and customs. By engaging stakeholders, program staff can create an intervention and evaluation that are meaningful to the stakeholders. Tip #3: Methods/Instruments: Select Wisely. Don't get "set up" by a group or vendor touting a slick method or instrument. Instead, carefully consider whether the method or instrument will provide the program with credible, useful, and actionable information. Consider its potential unintended consequences. A method shown to be reliable and valid in one setting may not be reliable or valid in a different setting. The presenters also listed local evaluators, national resources, and resources specific to evaluation and indigenous populations.

Cultural Humility and Social Justice in Medical Education

Gregory G. Maskarinec PhD

Abstract

"Culture" is frequently confused with ethnicity or sets of fixed attributes, rules or beliefs, or defined so inclusively that it embraces all human activity.[1] Our Family Medicine residency program has found it useful to define culture more precisely as a tool-box of descriptive and prescriptive models, and to recognize that our contemporary culture of medicine itself consists of sets of models, including 1) models by which illness is diagnosed; 2) models that synthesize narratives of complaints into meaningful syndromes; 3) models of rhetorical devices that authorize practical therapeutic actions and ways by which their efficacy is evaluated; 4) models defining healing careers; 5) models establishing interpersonal engagements that constitute modes of clinical interaction; and 6) models of therapeutic choices,[2] all different from models that give meaning and context for the patient. Consequently, every patient-doctor encounter is a cross-cultural event.

However, a physician's overemphasis on culture may obscure the effects of poverty, discrimination, inequitable resource distribution, and endemic structural violence, masking social structures that preserve inequity, injustice, and human misery. Historical, social, religious, educational and intellectual constraints limit understanding of each patient's specific needs, while efforts to privilege the patient as cultural expert are compromised by the patient's distress, displacement, and suffering. We therefore advocate a shift in medical education toward a patient-centered appreciation of social justice that addresses the social, economic, and political determinants of health. Recognizing the universal right to health may be the most effective way to prepare future doctors to treat patients with appropriate respect for their cultural diversity.

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Culture As Shared Meaning: Activities, Networks, and Program Implications

Clifford R. O'Donnell PhD

Abstract

People with common experiences, who live, work, and communicate with one another, develop shared meanings that evolve and change through their history, activities, and interactions. These shared meanings can be used to define cultures.[1-2] By participating together in their activities, people also form social networks. Social networks and activities are two sides of the same coin: people in our networks are those who we engage in our activities and those who participate in our activities are part of our social network. Many members of a social network may not have contact or even know each other, as when family and work members of one's social network do not interact with each other. Therefore, shared meaning may not be high among all members of a social network. Shared meaning is more likely to be high among members who participate in common activities.

Networks and activities can be assessed and used to develop a strategy for change in communities.[3] In many communities, networks and activities vary by age, gender, education, income, religion, ethnicity, organizations, etc. Therefore, their shared meanings are likely to vary accordingly. In communities where, for example, conflict exists among different groups, programs of prevention and intervention can first assess the networks and activities of these groups and then create or change activities to increase the shared meaning among participants. Effective programs are those that change activities and networks, and thereby maintain effectiveness.

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A Tool to Assess Sociocultural Issues Across Diverse Client Populations

Ann-Marie Yamada PhD

Abstract

Sociocultural issues (such as social support, family involvement in decision making, and stability of one's environment) influence the relationship between clinicians and patients, the satisfaction patients experience with behavioral health services and patients' overall quality of life. A thorough assessment of sociocultural issues becomes a foundation on which practitioners can examine the relevance of their interventions for the diverse groups they encounter in everyday practice—a necessary step when designing culturally relevant, empirically supported practices. In order to tailor interventions to individual patients, it follows that providers must be able to elicit the patient's perspective and to gather information from patients on social context and key sociocultural issues that will be relevant to providing quality care.

The Cultural Awareness, Skill, & Knowledge (C-ASK) Interview Tool was designed to help practitioners gain awareness of the cultural background and social issues of their patients. The tool was developed and tested initially in a diverse urban community mental health setting. Practitioners were generally pleased with the tool and reported intention to use it as part of their routine care. Agency supervisors, team leaders, and trainers can also be introduced to various applications and training strategies for using the assessment tool as part of culturally relevant clinical service delivery.

END OF ABSTRACTS

Pilot Study on the Safety and Tolerability of Extended Release Niacin for HIV-infected Patients with Hypertriglyceridemia

Scott A. Souza PharmD; Dominic C. Chow MD, MPH; Erica J. Walsh BA; Ford Shippey III MD, MS; and Cecilia Shikuma MD

Abstract

Background: *To determine the safety and tolerability of extended release niacin (ERN) in HIV-infected patients.*

Methods: *This was a pilot, open-label, 36 week study evaluating the safety and tolerability of ERN in HIV-infected patients with hypertriglyceridemia. Subjects with cardiovascular disease, diabetes or liver disease were excluded. Subjects with persistent elevation of triglyceride (TG) >200 after 8 weeks on American Heart Association Step One and Two Diets were started on ERN 500mg once daily, with continuation of the diet and exercise recommendations until the end of the study. ERN was increased by 500mg every 4 weeks, to a maximum of 1500mg/day, depending on subject tolerability. Safety and tolerability of ERN were assessed.*

Results: *Ten subjects enrolled received ERN. Dose titration and maintenance to 1500mg/day were achieved in all 10 subjects. No subject required dose adjustment. Mild flushing was experienced in 8 subjects. Asymptomatic hypophosphotemia was noted in 4 subjects; all resolved with oral phosphate supplementation. Median TG was reduced by 254 mg/dL ($p<0.05$). Non-significant changes were noted in liver enzymes, HDL, LDL, and total cholesterol. Fasting insulin and glucose levels did not change with treatment.*

Conclusion: *In this pilot study, ERN was well-tolerated and resulted in reduction of TG. Although the results of this study are promising, the study is limited in the small number of subjects. Further investigation is warranted.*

Introduction

Abnormalities of lipid metabolism are common complications of human immunodeficiency virus (HIV) disease and HIV therapy. Elevations in triglycerides (TG), low density lipoprotein (LDL), and total cholesterol are commonly seen in practice, particularly with the use of protease inhibitors (PIs). In a prospective study of 221 HIV-infected individuals followed for a median of 5 years, the incidence of new-onset hypercholesterolemia and hypertriglyceridemia (HT) was 24% and 19%, respectively.[1] The treatment of dyslipidemia in HIV-infected individuals is challenging. Results from the AIDS Clinical Trials Group study A5087 found monotherapy with either pravastatin or fenofibrate for dyslipidemia safe but unlikely to achieve the National Cholesterol Education Program (NCEP) ATP III goals of the participants.[2] Combination therapy of pravastatin and fenofibrate appeared safe but did not achieve NCEP lipid goals.

Niacin is a first line treatment for HT and hypercholesterolemia. Niacin inhibits the release of free fatty acids from adipose tissue, and increases lipoprotein lipase activity, which results in the increased removal of chylomicrons and TG.[3] As a result, a smaller quantity of free fatty acids is transported to the liver. The liver, in turn, esterifies fewer fatty acids as triglycerides in very-low-density lipoprotein (VLDL). The decreased production of VLDL leads to decreased generation of low-density lipoprotein (LDL). In addition, niacin enhances reverse cholesterol transport, resulting in increased concentrations of high-density lipoprotein (HDL). The benefits of niacin are that it can decrease total cholesterol by 10% and TG by 20-50%, while increasing HDL by 15-35%.[4,5] LDL can be reduced by 10-25%.[4] The effects of niacin on hormone sensitive lipase may concomitantly inhibit fat redistribution from peripheral to central adipose tissue.[6] Niacin's benefit in preventing CAD has been verified in clinical trials.[4]

The concern of worsening glucose intolerance, flushing, and potential hepatotoxicity associated with immediate release niacin has limited its use in managing hypertriglyceridemia. The introduction of extended release niacin (ERN), which utilizes both conjugated and non-conjugated pathways of elimination, reduces the adverse effects commonly seen in immediate release niacin. There have been only a limited number of trials investigating the use of niacin in the HIV population.[6-8] The advantageous effects of ERN make it attractive in the treatment of dyslipidemia for HIV-infected individuals. This study examined the safety and tolerability of ERN in HIV-infected individuals on stable highly active antiretroviral therapy (HAART) with HT.

Methods

This is an open-label pilot study that examined the safety and tolerability of Extended-Release niacin (Niaspan®) to treat hypertriglyceridemia in HIV-infected subjects receiving HAART regimens. Subjects were eligible for this study if they had 1) documented HIV-1 infection, 2) had an average elevated fasting TG level greater than or equal to 200 mg/dL by two serial screening blood tests one week apart, and 3) received the same potent antiretroviral therapy for at least 12 weeks prior to study entry. Potent antiretroviral therapy could be either an FDA approved regimen or an investigational new drug (IND) available in an IND program or expanded access program. This study was approved by the Committee on Human Studies of the University of Hawaii at Manoa and Queen's Medical Center. Informed consent was obtained from all subjects.

Subjects were excluded if they had a history of type I or type II diabetes, coronary artery disease, or other lab criteria: hemoglobin < 9.1 g/dL for men and < 8.9 g/dL for women, absolute neutrophil count < 750 cells/mm^3, platelet count < 75,000 platelets/mm^3, aspartate aminotransferase [AST (SGOT)]/ alanine aminotransferase [ALT (SGPT)]/alkaline phosphate > 2.5 x upper limit of normal (ULN), creatinine > 2.0 x upper limit of normal, total bilirubin > 1.5 x ULN, history of acute or chronic pancreatitis, active peptic ulcer disease, active gallbladder disease, pregnancy, breast feeding, history of gout, history of any significant cardiopulmonary or renal disease, or if they were on other lipid lowering agents such as statins, fibrates, or other supplements. Subjects were also excluded if they had an infection or new medical illness within 14 days prior to study entry, unexplained fever >38.5°C within 14 days prior, documented or suspected acute hepatitis within 30 days prior to study entry, any malignancy, and if they had any history of hypersensitivity reaction to niacin or related products.

Eligible subjects were started on a American Heart Association (AHA) Step-One diet for 4 weeks. If the mean TG level was still

greater than or equal to 200 mg/dL after four weeks on the Step-One diet, the dietary regimen was changed to a Step-Two diet. If the mean TG level was < 200 mg/dL the subject was discontinued from the study without further follow-up. A registered dietician instructed each subject on the guidelines for each STEP diet. Additionally, all subjects were told to follow AHA guidelines for exercise.

ERN was started on subjects with a mean TG level of ≥200 mg/dL after 4 weeks of AHA STEP-two diet. The initial dose of niacin was 500mg/day taken at bedtime. The daily dose of ERN was increased by 500 mg every 4 weeks, to a maximum of 1500 mg/day, depending on subject tolerability. The 1500 mg/day dose was sustained for the rest of the 36 week study. Subjects were followed every 4 weeks for a total of 32 weeks. Two lipid analyses were performed one week apart for each of the scheduled follow-up visits.

Safety was evaluated by summarizing the nature and rate of adverse events (signs and symptoms and laboratory values. Tolerability was evaluated by reporting on and summarizing dose modifications and dropouts. Elevations in liver function tests (primarily AST and ALT), changes in fasting glucose and insulin, and clinical symptoms (primarily gastrointestinal symptoms and flushing) were of particular interest. Insulin resistance was assessed using the Homeostasis Model of Insulin Resistance (HOMA-IR) which is calculated by fasting insulin and glucose levels. The grading system utilized to quantify adverse events was the Division of AIDS Table for Grading Adult Adverse Experiences, Division of AIDS Regulatory Compliance.

Statistics

A descriptive analysis was performed evaluating the safety and tolerability of ERN over the course of the study. As this is a pilot study, an analysis for efficacy in lowering lipids was limited. An ad hoc analysis using the Wilcoxon Signed Rank Test was used to assess the changes in continuous variables over 32 weeks of diet and ERN therapy. Statistical significance was tested using a two-sided, $\alpha = 0.05$. Statistical analyses were performed using SPSS version 11.5 (SPSS Inc., Chicago, IL) and JMP version 5.1 (SAS, Cary, NC) statistical software packages.

Results

A total of 12 individuals were enrolled from August 2001 to November 2003. Of the16 subjects screened, 12 subjects were enrolled. There were 11 male and 1 female subjects with an age range of 41-62. Ethnicity was predominately Caucasian with the exception of 1 Hispanic and 3 Asian subjects. Nine were on a PI based regimen, of which amprenavir (3 subjects), lopinavir (3 subjects) and nelfinavir (2 subjects) were predominately used. Three subjects were on efevirenz-based regimens. Two subjects were discontinued before the end of the study because of the following reasons: one achieved TG goals with diet and exercise interventions alone, and one was discontinued because of non-compliance with medication and follow-up visits (confirmed not to be due to adverse effects of ERN). Demographic, clinical and laboratory characteristics of the 10 subjects who received ERN are displayed in Table 1.

Of all 10 subjects who received ERN, all subjects were able to escalate their ERN dose to the targeted dose of 1500 mg per day. None of the subjects required any dose adjustment during the study. None of the subjects had a grade 3 or higher adverse event. The grade 2 or less adverse events are displayed in Table 2. Flushing, noted in 8 subjects, was the most common adverse symptom. All the symptoms of flushing were mild and none required pre-ERN aspirin therapy. Hypophosphotemia were noted in 4 individuals who required phosphate supplementation. The lowest phosphate level reported was 1.0 mg/dl. None of these subjects developed muscle related adverse effects such as rhabdomyolysis. One subject developed an episode of deep venous thrombosis and one subject developed a kidney stone which was assessed not to be related to study drug.

Table 1.— Clinical and Laboratory Characteristics of Subjects Who Received Diet Counseling and Extended Release Niacin

Variable	Baseline (Before ERN)	End of Study (After 24 weeks of ERN)	p
N	10	10	
Age, years	45.5 (42.8, 52.8)	45.5 (42.8, 60.3)	
Ethnicity, Caucasian / Others	7/3		
Gender, M/F	10/0		
Weight (lbs)	182.0 (158.9, 206.3)	181.0 (157.5, 198.5)	NS
Heart Rate, pulse/min	68.0 (60.5, 72.0)	66.0 (54.5, 77.0)	NS
Systolic Blood Pressure, mm Hg	122.0 (117.0, 129.5)	125.0 (104.0, 130.0)	NS
Diastolic Blood Pressure, mm Hg	82.0 (78.0, 88.0)	82.0 (74.0, 83.5)	NS
CD4 count, cells/ml	624.5 (422.8, 970.3)	576.5 (319.8, 818.5)	NS
Undetectable HIV RNA viral PCR, n (%)	6 (60%)	7 (70%)	NS
Uric Acid, mg/dl	5.5 (4.9, 6.5)	5.2 (4.4, 6.7)	NS
Phosphorous, mg/dl	2.6 (2.6, 3.0)	3.1 (2.7, 3.6)	NS
Lactate, mg/dl	1.6 (1.3, 2.0)	1.8 (1.3, 2.0)	NS
Liver Function Tests			
Aspartate aminotransferase, IU/l	24.5 (21.3, 34.8)	29.0 (21.0, 40.0)	NS
Alanine aminotransferase, IU/l	25.0 (19.3, 29.8)	27.0 (19.0, 47.0)	NS
Gamma glutamyl transpeptidase, IU/l	40.5 (24.8, 70.8)	38.5 (24.5, 50.0)	NS
Bilirubin, mg/dl	0.6 (0.4, 1.0)	0.8 (0.6, 0.8)	NS
Glucose Metabolism			
Fasting glucose, mg/dl	87.5 (76.3, 100.5)	96.0 (76.5, 102.5)	NS
Fasting insulin, μUI/ml	12.5 (8.3, 14.8)	9.4 (6.0, 12.2)	NS
HOMA-IR, %	2.7 (2.1, 3.9)	2.3 (1.3, 2.3)	NS
Lipid Panel			
Total Cholesterol, mg/dl	279.0 (202.5, 319.5)	248.0 (213.0, 271.3)	NS
High density lipoprotein, mg/dl	31.0 (26.0, 40.0)	33.5 (31.5, 47.0)	NS
Low density lipoprotein, mg/dl	100.0 (63.0, 122.5)	122.0 (81.3, 158.0)	NS
Triglyceride, mg/dl	516.2 (281.0, 790.2)	293.5 (219.3, 479.6)	<0.05

*continuous variables shown as median (Q1,Q3) – compared by wilcoxon rank non-parametric testing

Table 2.— Adverse Events of Extended Release Niacin*		
Side Effect	**Number of Subjects**	**Total number of episodes**
Flushing	8	18
Diarrhea	5	8
Generalized Pain	4	6
Neuropathy	2	3
Chills	2	2
Numbness	2	2
Nausea	2	3
Sweats	2	2
Abdominal Pain	1	1
Cough	1	1
Edema	1	1
Fever	1	1
Itching	1	1
Muscle Cramps	1	1
Headache	1	1
Dizziness	1	1
Confusion	1	1
Dermatitis	1	1
Acid Reflux	1	1

*There was no grade 3 or higher adverse events

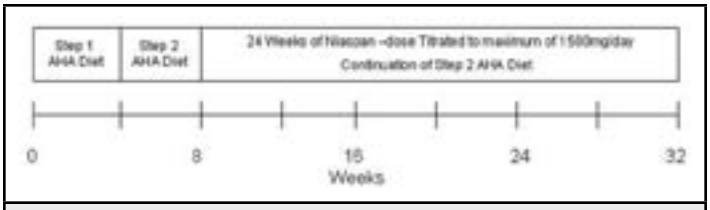

Figure 1.— Schema of Study Interventions

No significant differences in CD4 counts were noted before and after the study (median change (Q1, Q3) of – 23 cell/mm^3 (-79.0, 110.0)). No difference in AST or ALT were noted [AST median change (Q1, Q3) of 5.2 IU/L (-9.3, 11.5) and ALT median change (Q1,Q3) of 6.2 IU/L (3.1, 18.4)]. No difference in HOMA-IR were found (median change (Q1, Q3) of -0.8 (-1.3, 0.9). Median change (Q1, Q3) in fasting insulin of -2.0 μUI/mL (-8.0,-1.7) and glucose of 8.3 mg/dl (-5.3, 11.4) were noted, neither of which were statistically significant. Changes in laboratory data before and after ERN therapy is provided in Table 1.

Median TG (Q1, Q3) were reduced by 254 mg/dL (81.4, 614.9) ($p<0.05$) with a median % reduction of 46.6% (26.7, 63.0). The HDL median change (Q1, Q3) was 5.0 mg/dL (1.0, 8.0) ($p=0.26$), while the LDL median change (Q1, Q3) was 9 mg/dL (-14.0, 17.0) ($p=0.09$) and the total cholesterol median change (Q1, Q3) was -25 mg/dL (-41.2, 30.2) ($p=0.50$).

Discussion

This pilot study suggests that a regimen of diet and ERN for treatment of HT in HIV infected subjects is well tolerated. All subjects were able to achieve the targeted ERN dose without significant development of adverse events. The symptom of flushing was the most common side effect. The total number of episodes of flushing in the 24 weeks of therapy for 8 subjects was 18. This percentage of subjects experiencing flushing is consistent with earlier studies.[5,9] The symptoms of flushing appear to be tolerable. Interestingly, none of the subjects required premedication with aspirin to reduce flushing.

The concern for worsening glucose metabolism was not seen in our study. This study did not show significant increases in fasting glucose or insulin levels, and the HOMA-IR measures were similar between baseline and end of study. Our findings are consistent with the Assessment of Diabetes Control and Evaluation of the Efficacy of Niaspan Trial (ADVENT) study, where niacin was safely used in diabetic subjects.[10] This 16 week, double-blind, placebo-controlled trial of 148 subjects randomized into either placebo or ERN arms with dosages of 1000mg and 1500mg did not show significant changes in gylcemic control.

Liver function tests and insulin sensitivity were not significantly impacted in our study. The lack of hepatotoxicity or change in glycemic control may have been due to the lower dosage used. However, our target dose was still within the normal therapeutic range. Hypophosphotemia was common but did not result in significant clinical and laboratory abnormalities.

This study did show a significant 47% reduction in triglycerides, but no significant changes in HDL, LDL or total cholesterol. These changes were similarly noted in the ACTG Study A5148.[8] The lack of response in LDL, total cholesterol and HDL may be due to limited sample size and/or drug exposure, or influence of HIV and HAART. Although significant reductions in TG were found, the clinical implication of this reduction is unclear. While cardiovascular risk is associated with low HDL and high LDL and triglycerides, the actual cardiovascular risk from secondary dyslipidemia due to HIV and /or HAART is still not well understood.

Limitations of this study include a small sample size, lack of a control group, and inclusion of relatively healthy subjects. However the objective of this pilot study was to determine if ERN is safe in the HIV infected population. The close follow-up and duration of this study would have been long enough to detect acute changes in glucose metabolism, liver enzyme function and clinical symptoms such as gastrointestinal symptoms and flushing. Further investigation is warranted to determine the safety, tolerability and efficacy in HIV-infected patients with impaired glucose tolerance, dyslipidemia, and poor virologic control.

In this pilot study, ERN was well tolerated and resulted in reduction of TG. All subjects were able to achieve the targeted ERN dose without significant development of adverse events. Flushing and gastrointestinal symptoms were tolerable. Hypophosphotemia was common but did not result in significant clinical and laboratory abnormalities. Liver function tests and insulin sensitivity were not significantly impacted. Although the results of this study are promising, the study is limited in the small number of subjects. Further investigation is warranted.

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Profile of Methicillin-resistant Staphylococcus aureus Among Nursing Home Residents in Hawai'i

Fenfang Li PhD; Pamela Arnsberger PhD; and F. DeWolfe Miller PhD

Abstract

Residing in long-term care facilities has long been identified as a risk factor for methicillin-resistant ***Staphylococcus aureus*** *(MRSA) carriage and infection. The objective of this study was to describe MRSA epidemiology among residents in skilled nursing and intermediate care facilities (SNF/ICF) in Hawai'i, using a statewide, population-based antimicrobial resistance surveillance system. From 2000 to 2005, proportions of MRSA increased significantly during the 6-year study period, from 35.0% in 2000 to 58.6% in 2005 (p<0.001). High levels of MRSA resistance to several commonly used antibiotics were observed, e.g., the level of MRSA resistance to clindamycin, ciprofloxacin, and erythromycin was at 77%, 90%, and 89% respectively. Nevertheless, there is a significant difference in the MRSA resistance pattern against certain antimicrobials in different geographic areas. For example, the level of MRSA resistance to trimethoprim-sulfamethoxazole was close to zero in Hawai'i County, but 13% in Kaua'i County. In contrast, the MRSA resistance to tetracycline was 46% in Hawai'i County, but 5% in Kaua'i County. Multi-drug resistant MRSA was well-established among nursing homes in Hawai'i. Regional antibiograms are important in the assistance of empirical therapy.*

Introduction

Contemporary nursing homes generally serve two distinct populations: short post-acute stays for those who need short-term rehabilitation services to recover from an acute episode (e.g., hip fracture) and long term custodial stays, for those typically frail, older people who are no longer able to care for themselves as a result of chronic conditions such as Alzheimer's Diseases. As of June 2009, the United States had 15,720 certified nursing homes with over 1.4 million residents on any given day. In the state of Hawai'i, there were 48 certified nursing homes with 3,896 residents. Of these 19 are hospital-based nursing homes; the remainder are free-standing in the community.[1] As a result of an aging population in the United States, long-term care facilities (LTCFs) in particular, are becoming a major component of the healthcare delivery system.[2-3]

Residing in LTCFs has long been identified as an independent predictor of methicillin-resistant *Staphylococcus aureus* (MRSA) carriage and infection as well.[4-7] Since the first reported outbreaks of MRSA in one LTCF in the late 1980s, MRSA colonization and infection are becoming a major concern for nursing homes worldwide.[8-12] For elderly people, MRSA colonization or infection were known to have adverse clinical and financial indications. They are more likely to have higher mortality and morbidity rates as well as higher costs when compared to those with methicillin-susceptible *Staphylococcus aureus* (MSSA).[13-16]

The objective of this study was to portray MRSA epidemiology among residents in nursing homes in Hawai'i. Frequency of MRSA, its resistance patterns and trends in antibiotic usage for treatment of MRSA were examined by geographical area and facility type, using data from a state-wide population-based surveillance system of antimicrobial resistance.

Methods and Materials

Antimicrobial susceptibility test (AST) results of all clinical *S. aureus* isolates from LTCF residents during 2000 to 2005 were analyzed in this study. AST data were extracted from the State of Hawai'i Antimicrobial Resistance Project (SHARP), which retrospectively collected AST data from participating facilities throughout the state. During the 6-study years, AST data were collected from all but 2 LTCFs. Those 2 facilities had 303 approved long-term care beds, consisting of only 7% of the 4,332 long-term beds of the State. Therefore, the SHARP system captured 93% of the long-term care population in Hawai'i.[1,17]

Specimen sources and collection date, patient's gender and date of birth, and AST category results (resistant, susceptible and intermediate) were some of the information included in the AST data. Only the first isolate per patient per year, regardless of body site, antimicrobial susceptibility profile, or other phenotypic characteristics (e.g., biotype) was included for analysis. A full description of the SHARP system, including AST data collection and duplicate isolate removal methods can be found in our previous studies.[18,19] Susceptibility interpretations for both MRSA and methicillin susceptible *Staphylococcus aureus* (MSSA) isolates were based on minimum inhibition concentration (MIC) breakpoints established by the National Committee for Clinical Laboratory Standards (NCCLS, currently known as the Clinical and Laboratory Standards Institute).[20] For MRSA isolates, the breakpoint was an MIC $\geq$ 4 ug/mL or a zone diameter $\leq$ 10 mm. For MSSA isolates, the breakpoint was an MIC $\leq$ 2 ug/ml or a zone diameter $\geq$ 13 mm. Susceptibility results for other antimicrobials were based also on breakpoints published by the NCCLS.

The MRSA proportion was calculated as the total number of MRSA isolates divided by the total number of *S. aureus* isolates during a year. The proportion of MRSA isolates resistant to a specific antibiotic was calculated as the proportion of resistant isolates divided by the total number of MRSA isolates tested against the respective antibiotic of interest during a year. Proportions between categorical variables were compared by Chi-square test or Fisher's exact test when small cell size occurred. The trend of MRSA proportion during the 6-year study period was examined by Chi-square test for linear trend. Statistical significance was defined as $p<0.05$ and all statistical analysis was conducted using SAS statistical software (Version 9.1, SAS Institute Inc., Cary, NC).

Results

A total of 2,248 isolates were identified from a group of 43 LTCFs, of which 1053 (46.7%) were MRSA strains. Out of the 1,108 isolates identified from female residents, 478 (43.1%) were MRSA strains. In contrast, half (50.0%) of the 1,140 isolates from male residents were MRSA strains. Proportions of MRSA increased steadily during the past 6-year period, from 35.0% in 2000 to 58.6% in 2005 ($p<0.001$, Figure 1). MRSA proportions varied significantly across different geographical areas ($p<0.0001$), with the highest MRSA proportion

seen in Honolulu county. An overall trend of a significant increase in the MRSA proportion was observed in Hawai'i, Honolulu, and Maui but not in Kaua'i, where the total number of *S. aureus* isolates was too small to detect significant change (Table 1).

The mean age of the residents was 77. The mean age of female residents (80) was significantly higher (p<0.001) than that of male residents (75). When examined by 10-year age group, the proportion of MRSA increased to its highest estimate of 60% at age group 40-49. After this age group, it declined gradually as patients aged. Patients at the age group 80 to 89 constituted the highest total number of *S. aureus* isolates identified during the study period, accounting for over one third of the total isolates identified. The majority of isolates, 77% of the total number of *S. aureus* isolates, was from patients aged 70 and up, with an MRSA proportion as high as 44% (Figure 2).

Among the total 2,482 *S. aureus* isolates, 2,184 (97%) had identifiable specimen sources. Wounds were the most common specimen sources across all islands, followed by sputum. Blood isolates accounted for a small proportion, ranged from 3% to 5%. Both specimen sources and MRSA proportions varied significantly by islands. Table 2 summarizes the frequency of *S. aureus* isolates and MRSA proportion by anatomical specimen source for all islands.

Among the 848 isolates identified from hospital-based nursing homes, 442 (52.1%) were MRSA isolates. In contrast, among the 1,400 isolates from free standing/independent nursing homes, 606 (43.3%) were MRSA isolates. Except in 2001, MRSA proportions were always higher in hospital-based nursing homes than that in free standing ones. Nevertheless, a trend showing significant increases in MRSA proportions across the 6-year study period was observed in both free standing nursing homes (p=0.0003) and hospital-based ones as well (p<0.0001). By 2005, MRSA proportions were as high as 62.6% among residents in hospital-based facilities and 55.4% in free standing nursing facilities.

High levels of MRSA resistance were observed to several commonly used antibiotics, e.g., the proportion of MRSA resistant to clindamycin, levofloxacin, and erythromycin was as high as 77%, 89%, and 90% respectively. When comparing LTCFs at different geographic areas, a significant difference was observed in the proportion of MRSA resistance against several commonly used antibiotics. For example, while nearly no resistance to trimethoprim-sulfamethoxazole was observed in Hawai'i Country, a 13% resistance was observed in 13% in Kaua'i County. In contrast, MRSA resistance proportion to tetracycline was 46% in Hawai'i County, but only 5% in Kaua'i County (Table 3).

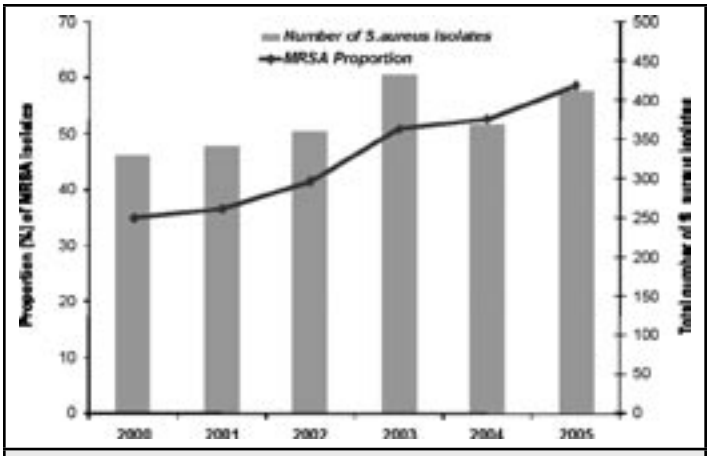

Figure 1.— Proportion of Methicillin-resistant *Staphylococcus aureus* (MRSA) from Nursing Home Residents, Hawai'i, 2000-2005

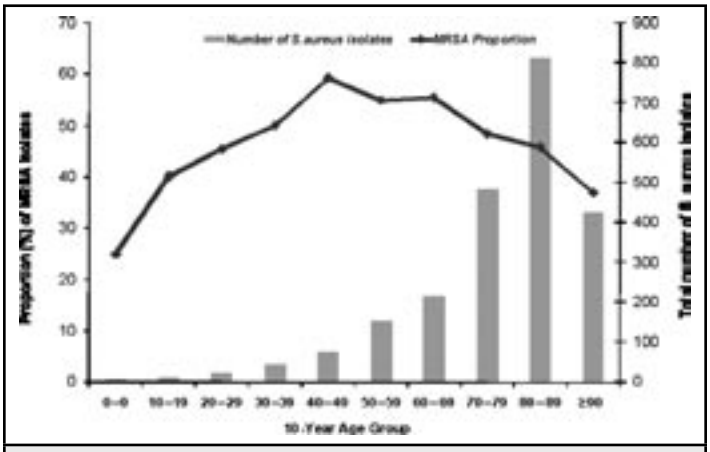

Figure 2.— Proportion of Methicillin-resistant *Staphylococcus aureus* (MRSA) from Nursing Home Residents by 10-year Age Group, Hawai'i, 2000-2005

Table 1.— Proportions of Methicillin-resistant *Staphylococcus aureus* (MRSA) Isolates among Nursing Homes in Different Geographical Areas in Hawai'i, 2000-2005

	Total		Hawai'i County		Honolulu County		Kaua'i County		Maui County	
	No. Isolates	% MRSA*	No. Isolates	% MRSA*	No. Isolates	% MRSA*	No. Isolates	% MRSA	No. Isolates	% MRSA*
2000	331	35.0	121	16.5	173	53.2	5	0	32	12.5
2001	341	36.7	116	15.5	178	51.7	9	44.4	38	28.9
2002	361	41.6	114	35.1	204	43.6	6	50	37	48.6
2003	432	50.9	117	37.6	240	56.7	37	67.6	38	39.5
2004	370	52.7	103	41.7	217	55.3	11	45.5	39	69.2
2005	413	58.6	117	42.4	242	66.8	4	75	50	58
Total†	2,248	46.6	688	31.1	1254	55.0	72	55.6	234	44.4

*p<0.0001, comparing MRSA proportion across 6-year study period within each geographical area. †p<0.0001, comparing MRSA proportion across different geographical areas.

Table 2.— Specimen Sources of *S. aureus* Isolates by Geographical Areas, Hawai'i 2000-2005

Specimen Sources	Total		Honolulu County		Hawai'i County		Kaua'i County		Maui County	
	No. (% total)	% MRSA*	No. (% total)	% MRSA	No. (% total)	% MRSA	No. (% total)	% MRSA	No. (% total)	% MRSA
Wound	1212(55)	45	700 (58)	54	317(47)	32	41(58)	51	154(66)	36
Sputum	525(24)	45	249(21)	55	199(30	25	18(25)	61	59(25)	68
Urine	294 (14)	53	188(16)	57	91(14)	45	7(10)	71	8(3)	38
Blood	82 (4)	38	35(3)	49	37(5)	24	3(4)	66	7(3)	43
Other†	71 (3)	52	33(3)	70	30(4)	37	2(3)	0‡	6(3)	50

*MRSA: methicillin-resistant Staphylococcus aureus. †Other includes medical devices, respiratory swabs, gynecological, stool, synovial fluid, and gall bladder. ‡Total percentage may not equal to 1 due to rounding.

Table 3.— Methicillin-resistant *Staphylococcus aureus* (MRSA) Resistance Pattern to Selected Antimicrobials by Geographical Areas, Hawai'i, 2000-2005

	Total		Hawai'i County		Honolulu County		Kaua'i County		Maui County	
Antimicrobial*	No. isolates tested†	Percent resistant	No. isolates tested†	Percent resistant	No. isolates tested†	Percent resistant	No. isolates tested†	Percent resistant	No. isolates tested†	Percent resistant
Clindamycin	958	77	195	79	644	79.0	36	36	83	72
Erythromycin	969	89	197	95	654	87.0	38	69	80	96
Gentamicin*	1023	23	215	38	664	20.0	40	27	104	6
Levofloxacin	639	90	124	95	422	88.0	32	100	61	86
Rifampin	1018	6	214	4	660	7.0	40	0	104	2
Trimethoprim-sulfamethoxazole	1015	4	214	0.5	656	5.0	40	13	105	2
Tetracycline	1009	27	215	46	650	24	40	5	104	18

* P<0.05 by Chi -square test comparing MRSA proportions at different geographical areas. Fisher's exact test was used for levofloxacin and trimethoprim-sulfamethoxazole.
†The number of MRSA isolates tested against each antimicrobial drug varies as the drug panel and reporting protocol varied at participating facilities and changed during the 6-year study period.

Discussion

According to our knowledge, this is the first study in Hawai'i which has delineated MRSA epidemiology among nursing home residents at a statewide level and across multiple years. Several important findings were generated from this study: (1) A trend showing a significant increase in MRSA proportion during the 6-year study period was found in both hospital-based and free-standing nursing homes and in different geographic areas; (2) High resistance was observed in MRSA isolates against several commonly used antibiotics, including clindamycin, erythromycin, and levofloxacin among LTCF residents across the 6-year study period; (3) In spite of a shared trend of increased MRSA proportion and high resistance to most non-β-lactam antibiotics, MRSA resistance to some secondary antibiotics, including both tetracycline and trimethoprim-sulfamethoxazole varied in LTCFs by geographic area.

The observed significant increase in MRSA proportion in LTCFs in Hawai'i was consistent with the current literature on MRSA, including both studies focusing on nursing home residents in particular and studies focusing on hospital and community settings as well.[18,21-26] By 2005, almost 60% of all *S. aureus* isolates from LTCFs statewide were methicillin resistant and in Honolulu County as high as three quarters were MRSA. This finding further underlines that MRSA has been well-established and highly endemic in most of the LTCFs in Hawai'i.

It is not unexpected to see that the highest MRSA proportions were found in nursing homes in Honolulu County, given the fact that the majority of acute hospitals were located in Honolulu and nursing home residents in this area in general have more hospital visits.[7,26] This same reason might also account for the fact that hospital-based nursing home patients had higher MRSA proportions, when compared to those residing in free standing nursing homes.

Patients over age 70 constituted 77% of the total *S. aureus* isolates and MRSA proportion was 44%. While patients in age group 40-49 constitute only 3% of the total *S. aureus* isolates, MRSA proportion was highest in this group, e.g., 59%. This patient group might possess some unique factors, e.g., relatively younger age but with comprised immune system, and/or multiple comorbidities, which predisposed them to MRSA colonization or infections. On the contrary, patients who lived longer than 90 might possess other factors (e.g., survival bias) which protect them from MRSA colonization or infection. Nevertheless, without accompanying clinical data and as a cross sectional study, this study is unable to explore the possible explanations for this. Future studies which combine clinical and laboratory data and utilize a prospective study design might provide some insights into this phenomenon

Treatment of infections in LTCFs is largely empirical and most often consists of broad spectrum oral agents. This study found that MRSA isolates among nursing home residents were highly multi-resistant. We did find significant difference in MRSA resistance against the above mentioned antibiotics among nursing homes in different geographic areas. Nevertheless, such a difference might not be of clinical relevance as the resistance level was high already, as high as 36% in the lowest range. Of interest were the findings for tetracycline and trimethoprim-sulfamethoxazole. For example,

Hawai'i County had the highest resistance in tetracycline (40%) but lowest resistance in trimethoprim-sulfamethoxazole (0%). In contrast, Kaua'i County had the highest resistance in trimethoprim-sulfamethoxazole (13%) but lowest resistance in tetracycline (5%). As transfers from one nursing home to another or from one region to another region are becoming more frequent, such findings further confirm the importance of regional antibiograms in assistance of empirical therapy and the need to make antibiograms available at different clinical settings and across different regional level.[27-29]

To better understand the variance in antibiotic susceptibility patterns among the islands, we examined the distribution of specimen sources. Wound and sputum accounted for the majority of isolates, with a range of 79% to 91%. As a result, even though a statistical significance was found in the distribution of specimen sources by island, it is difficult to conclude whether the difference is of clinical significance, due to small cell size of specimen sources from blood, urine and other categories in both Kaua'i and Maui. In addition, the 6-year trend analysis revealed no significant change in the susceptibility pattern against several selected antibiotics, including both tetracycline and trimethoprim-sulfamethoxazole. Future studies which use molecular typing might find out whether different MRSA clones are circulating across Hawaiian Islands.

Due to a decreased immune system, underlying chronic diseases and the institutional environment, elder people in LTCFs are particularly susceptible to infections caused by multidrug resistant microorganisms, including MRSA.[7,30] Nevertheless, as we lacked medical records for review, we were not able to estimate the prevalence and actual burden of MRSA infections in this population. In addition, we had no information to estimate MRSA colonization in this population or to track patient movement between hospitals and LTCFs. Nevertheless, the finding of such a high MRSA proportion and the increasing levels of MRSA in LTCFs of all characteristics provided strong evidence that MRSA remains a serious challenge among residents in LTCFs. Future studies which combine clinical and laboratory data are warranted in order to better understand the burden of MRSA infections and the transmission dynamics of MRSA in this unique population.

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Promoting Diversity of the Health Care Workforce

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Increasing the diversity of the health care workforce and developing physicians who serve underprivileged and rural communities are vital to meet the demands of the changing US patient population. Educational institutional efforts to locate, encourage, and support capable students from diverse backgrounds and cultures who are willing and able to pursue careers in medicine and other health professions are sorely needed.[1] The US Census Bureau predicts that the US population's racial and ethnic diversity will continue to rise. By 2050, minorities (those who identify themselves as Hispanic, Black, Asian, American Indian, Native Hawaiian, Pacific Islander or mixed race) will account for 54% of the US population.[2]

In 2009, the University of Hawai'i at Mānoa's John A. Burns School of Medicine (JABSOM) received $3,024,772 over 3 years of funding for the Native Hawaiian Center of Excellence (NHCOE) from the US Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions. Established more than 15 years ago, NHCOE is a part of the University of Hawai'i's Department of Native Hawaiian Health (DNHH). The Centers of Excellence Program provides grants to health professional schools to support educational programs for underrepresented minority students.

NHCOE Mission

The mission of the Native Hawaiian Center of Excellence is to promote the physical and mental health of all Native Hawaiians by recruiting students for the health professions, developing competitive Native Hawaiian applicants, conducting health disparities research, promoting faculty and student development, initiating cultural competence development, and disseminating information.

To successfully carry out its mission, the NHCOE has an Affiliation Agreement with educational and community partners to carry out activities that strengthen the educational pipeline for underrepresented minority students, particularly Native Hawaiians, to enter health professional schools. The partners are 'Ahahui O Na Kauka - Association of Native Hawaiian Physicians, Papa Ola Lokahi - Native Hawaiian Health Organization & Native Hawaiian Scholarship Program, Kīpuka Native Hawaiian Student Center at the University of Hawai'i at Hilo, Office of Student Equity, Excellence and Diversity and Myron B. Thompson School of Social Work at the University of Hawai'i at Mānoa.

The NHCOE activities will focus on 8 areas of education and training:1) Student Recruitment; 2) Competitive Applicant Pool; 3) Student Performance; 4) Faculty Development; 5) Faculty/Student Research; 6) Student Training in Community-Based Facilities; 7) Information Dissemination; 8) Cultural Competence Development.

Student Recruitment

NHCOE will be expanding and strengthening student recruitment by partnering with JABSOM's Area Health Education Center (AHEC) and the UH Mānoa Native Hawaiian Student Services, Kokua A Puni. Interested high school and college students will be introduced to the health professions during student recruitment visits on O'ahu, Hawai'i island, Maui, Moloka'i, and Kaua'i. At least thirty visits to Hawai'i's high schools and colleges are planned for each year of the grant.

Competitive Applicant Pool

Preparatory workshops to improve Native Hawaiian students' competitiveness for medical school admission will be offered. The "Native Hawaiian Student Pathway to Medicine" will be available to Native Hawaiian junior and senior undergraduate students, as well as to post-baccalaureate students, seeking admission to JABSOM. The preparatory program will consist of workshops on interviewing skills, time management, learning skills, and assistance with medical school application. The Kaplan Medical Review, a comprehensive preparation for the Medical College Admission Test (MCAT) will be conducted for each student. Up to 20 students will participate in the program offered on both the UH Mānoa and UH Hilo campuses. The "Native Hawaiian Student Pathway to Social Work" is also available to support the University of Hawai'i's Myron B. Thompson's School of Social Work to continue their diversity initiatives in preparing Native Hawaiian students for advanced degrees in Social Work.

Student Performance

The NHCOE will establish, strengthen, and expand programs to enhance the academic performance of Native Hawaiian medical students at JABSOM beginning in the first year of medical school. Native Hawaiian students will be offered enrichment and retention support through multidisciplinary Student Development Teams. NHCOE will partner with 'Ahahui O Na Kauka to build mentoring relationships currently being provided to Imi Ho'ola Post-Baccalaureate Program alumni and to expand this program to all Native Hawaiian medical students. Students will be paired with a community physician who will provide mentoring, guidance, and support as well as shadowing opportunities. NHCOE will also provide Native Hawaiian second-year students with financial support to purchase study materials for United States Medical Licensing Examination (USMLE) Step 1 preparation.

Faculty Development

The NHCOE will provide trainings in research and leadership skills for Native Hawaiian JABSOM academic faculty by offering a Fellowship Training Program to doctoral level Native Hawaiians interested in areas of health disparities research. The objective of the NHCOE Fellowship Training Program is to increase the number of Native Hawaiian faculty at JABSOM by producing highly trained faculty candidates through the NHCOE fellowship pipeline. This two-year fellowship will be available to Native Hawaiian MDs or PhDs who are interested in developing their skills as an academic educator. Fellows will be mentored in developing and conducting a health disparities research project. The curriculum will include research proposal development, coursework in biostatistics, grant writing assistance, and presentation/publication support. Fellows will also participate in the Office of Medical Education (OME) Fellowship as part of their training. Fellows will receive a stipend

and are required to commit to 40% Full-time Equivalent (FTE) for the duration of the program.

Faculty/Student Research

The NHCOE Health Disparities Research Training Program will be composed of three educational tiers: undergraduates, medical students, and post-graduate fellows. Over the next three years, the NHCOE will establish a research training pipeline that will recruit and provide research training on Native Hawaiian health issues to at least 6 undergraduate students, at least 6 first-year medical students and at least 4 Native Hawaiian fellows. The Summer Research Internship (SRI) program, sponsored by the Department of Native Hawaiian Health, will be available to undergraduate students interested in the medical field and health related research. NHCOE will support 2 Native Hawaiian students in the SRI program by providing stipends for program participation. The "Native Hawaiian Health: Past, Present, Future," first-year course will be offered to first-year medical students as part of the JABSOM Community Health and Service program. Students will be introduced to Native Hawaiian health disparities, basic research methodology, and Native Hawaiian traditional healing methods. The NHCOE's research training fellowship program, established in 1999, has contributed to the recruitment and retention of 10 Native Hawaiian physicians who have joined the ranks of JABSOM faculty.

Student Training in Community-Based Facilities

Each JABSOM medical student will receive part of his/her clinical training at community-based facilities, many of which are designated as Health Professions Shortage Areas (e.g. Hilo Medical Center, Waimanalo Health Center). At each rural site, a community physician will serve as a preceptor and mentor to the medical students. This experience allows students to discover the unique attributes of each facility, the major medical and social challenges faced within rural communities, and the community's response to the health needs of Native Hawaiians. Students will work with traditional Native Hawaiian healers in caring for their patients at select sites. NHCOE will coordinate the placement of at least 10 JABSOM medical students into community-based health facilities that serve a significant number of Native Hawaiians. NHCOE will support the travel and lodging of up to 3 Native Hawaiian medical students placed at neighbor island sites.

Lau Ola is the clinical practice of the Department of Native Hawaiian Health which primarily serves Native Hawaiian patients. Over 60% of the clinic's patient population is Native Hawaiian. The clinic is staffed by Native Hawaiian physicians (Drs. S. Kalani Brady, Dee-Ann Carpenter, and Marjorie Mau) as well as Native Hawaiian support personnel (Geri Kaleponi, medical assistant). During the clinical rotations in the first and third year, medical students will be offered the opportunity to shadow the physicians at Lau Ola. Students will develop their clinical and communication skills while caring for Native Hawaiian patients. As part of the third-year experience, medical students will provide community service to Papakolea, a Native Hawaiian community in urban Honolulu. Students spend one evening a week assisting the clinic physicians with blood pressure screening for individuals, many of whom are Native Hawaiian, who are receiving lomilomi (traditional Hawaiian massage) in the Papakolea community.

Information Dissemination

The NHCOE will publish and disseminate information resources related to health disparities to improve the knowledge and awareness of medical students, NHCOE fellows, JABSOM faculty, community physicians, nurses, and other allied health professionals. Each year, the project plans to publish and/or disseminate at least two publications or resources that focus on Native Hawaiian health issues or promote the activities of the NHCOE. In 2010, the NHCOE will partner with the Department of Native Hawaiian Health and the Center for Native and Pacific Health Disparities Research to hold the He Huliau 2010 Conference entitled "Metabolic Syndrome and Health Equity." NHCOE will also be sponsoring the publication of the He Huliau 2010 Conference Proceedings as a special issue of the Hawai'i Medical Journal.

Cultural Competence Development

Recognition of Native Hawaiian culture and traditions and its significance in improving the health of our Native Hawaiians is vital. Therefore, cultural competence development will be embedded throughout the activities of the NHCOE. Native Hawaiians view spirituality and harmony as contributing factors to their health and well-being. The incorporation of cultural strengths and viewpoints into western healing practices is helpful as physicians work in partnership with Native Hawaiian patients in promoting health and treating disease.

JABSOM's medical school curriculum promotes medical students' cultural competence development. Through problem-based learning (PBL), medical students use patient paper cases to generate self-directed student learning in small groups. Students will be introduced to the populational, psychosocial, scientific, clinical, and cultural factors that impact the health of Native Hawaiians during PBL sessions. Lectures on Native Hawaiian health, traditional healing practice demonstrations, and social justice in medicine are components of the cultural competency curriculum. A cultural immersion learning experience that focuses on Native Hawaiian health and culture will be offered to first-year medical students. By "living" in a culture, students gain the knowledge to develop cultural sensitivity to the Native Hawaiian people that may impact their interactions with future patients. Standardized patients are used regularly as an objective way to evaluate medical student knowledge, skills and behaviors. A culturally based Native Hawaiian standardized patient case will be designed and tested on 6 third-year JABSOM students rotating through Family Medicine. This novel approach will be used to evaluate the cultural competence development of our physicians in training.

Conclusion

The NHCOE will provide services that maximize the potential of Native Hawaiians to pursue and achieve a successful career in medicine and other health professions. The integration of cultural competence development into key aspects of JABSOM curricula enhances the education of all future physicians. NHCOE activities seek to promote health care workforce diversity and improve the health of Native Hawaiians.

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THE WEATHERVANE

RUSSELL T. STODD MD, CONTRIBUTING EDITOR

❖ PURE OXYGEN FOR FRAGILE NEWBORNS. WHAT A GOOD IDEA! NOT!

In the mid 1950s at a time when neo-natologists and newborn nurseries were developing methods and techniques for keeping premature infants alive and growing, an epidemic of blindness was suddenly becoming apparent. An estimated 10,000 newborn infants were afflicted with retrolental fibroplasia (RLF), a blinding overgrowth of vessels within the eye destroying the developing retina. Arnall Patz, M.D., an inquisitive resident eye surgeon on the staff at Johns Hopkins conducted a study of oxygen levels in incubators which were busily turning pale preemies from blue to healthy looking pink. He was nearly sidetracked because reducing oxygen appeared to be counterproductive. Ultimately, it was proven that the 100% oxygen delivered in the nurseries was stimulating the new retinal vessels into wild overgrowth, and that limiting the oxygen to 40% or less proved safe for the frail newborns. Within a period of less than one year, the epidemic was over. Dr. Patz who recently died at age 89 was awarded with the Lasker Award for clinical research in 1956 at the same time as Jonas Salk for his work on polio, two heroes of American medicine.

❖ TECHNOLOGY IS LITERALLY GETTING OUT OF HAND.

General Electric Co. and Siemens AG are now rolling out the latest technology in hand-held ultrasonic machines. These tools are slightly larger than iPhones and marketing people are expecting they will soon be as commonly used as stethoscopes. GE executives anticipate that the market could generate $1 billion per year. The images are not as good as traditional ultrasound, but the convenience and accessability make the device very handy to check for internal injuries or possible cardiac problems. Doctors, nurses, para-medics and even veterinarians can be trained to use it to obviate the need for additional tests and referrals during physical examination. With regulatory approval the handheld scanner will very soon be on the market for less than $10,000, and as the market responds the cost may go down. No doubt this will impact the $5 billion global market on laptop-sized ultrasonic machines, and it remains to be determined what the insurance carriers will pay for. It is the most dynamic segment in the ultrasound market.

❖ VASECTOMIES R US!

March Madness is the catch phrase promoting the annual NCAA basketball championship tourney. In an attempt to capitalize on the event some urologists are promoting March Madness as a good time for basketball fans to rest at home for a few days in front of the television while recovering following vasectomy. Richard Chopp MD a urologist in Austin, Texas, gives away T-shirts reading "I got Chopped at the Urology Team." In Oregon where the nickname for the Trailblazers basketball team is "rip city," the fifteen man Oregon Urology Institute is promoting "Snip City" for male sterilization.

❖ WHAT WE DO TO NATURE WE DO TO OURSELVES.

A study presented at the recent meeting of the American Academy of Otolaryngology-Head and Neck Surgery Foundation analyzed data for a ten year period 1997 to 2007 on 126,060 children of average age nine. The specific attempt was to evaluate the frequency of otitis media, looking at how many instances of infection occurred in each one year period. They used air quality figures from the Environmental Protection Agency (EPA) in the same time frame focusing on air pollutants. Researchers found that as air quality improved, using EPA measures, the occurrence of ear infections measurably decreased. The significance is pronounced for both medical and political reasons since otitis media is one of the commonest childhood diseases, and the savings in reduced infections can result in multi-millions of dollars. The authors note that strict enforcement of the Clean Air Act of 1990 can yield huge dividends. Interesting to note that cleaner air proved valuable for decreasing infections, but it did not alter the frequency of allergic reactions.

❖ BEWARE OF HEALTH FOOD BOOKS. YOU COULD DIE OF A MISPRINT.

A new kind of eating disorder is emerging in our semi-sophisticated community called orthorexia nervosa. It is an obsessive-compulsive focus on a "healthy diet" which results in extreme concern about possible additives, organic cultivation, cooking damage, macrobiotics, heavy metals, processed foods, and whatever, to the point that those seriously afflicted become emaciated much like the pathetic cases of anorexia nervosa. While it is not yet a clinically recognized disease entity, orthorexia has become an increasing phenomenon sometimes with serious consequences. Individuals may spend many hours preparing a "pure and safe" dinner, and continuously worry and plan over the next meal. They sometimes suffer extreme weight loss, but unlike anorexics they are not concerned with appearance, but believe that they are living a pure and clean dietary life.

❖ THERE SHE WAS AWAITING AT THE CHURCH.

The phenomenon of the "broken heart" has long been recognized as a medical reality, but somehow never received the attention it deserved. The person appears in the emergency room with heart attack symptoms and cardiac output reduced by 80%, but within 48 hours the heart is back to almost normal. Imaging studies reveal normal cardiac vessels, but a typical left ventricle shape of a vase-like pot. The cardiac near-collapse most often follows an emotional stress event, such as sudden death of a loved one, an abrupt loss of a large amount of money, or getting lost in a dark unsafe neighborhood at night. The phenomenon was first identified in Japan in the 1990s. Major studies in the United States appeared in 2005 at Johns Hopkins University where researchers found that 90% of broken-hearted patients are post-menopausal women, but some men and younger women have been diagnosed with the syndrome. The cause is unknown but one theory is that an adrenaline rush floods the cardiac muscle with calcium which produces an effect like a concussion.

❖ MY SHORT TERM MEMORY IS NOT AS GOOD AS IT USED TO BE. ALSO, MY SHORT TERM MEMORY IS NOT AS GOOD AS IT USED TO BE.

For those believers who are taking ginkgo biloba in hopes of avoiding Alzheimer's disease or other forms of dementia, the latest research reveals that the popular over-the-counter drug is no better than the placebo. The study was designed for 3,000 people of average age 79 with no apparent cognitive impairment. Half were taking two ginkgo biloba pills each day and half a placebo with follow-up tracking for eight years. The research published in the Journal of the American Medical Association (JAMA) brought "tremendous disappointment" to lead author Dr. Steven DeKoskey, a neurologist at the University of Virginia School of Medicine. Based upon previous questionable studies, he anticipated a different outcome. Presently European researchers are conducting a similar trial. If it is also negative that would remove any doubt.

❖ THERE OUGHT TO BE AN FAA REQUIREMENT THAT SCREAMING BABIES GO INTO THE OVERHEAD COMPARTMENT.

Flying travelers who have been abused or mistreated by air lines can expect some relief beginning in April. Transportation Secretary Ray LaHood will impose new rules from the Department of Transportation. Airlines must respond substantively to customer complaints within 60 days. Airlines must publish data about delayed flights and pay fines for habitually late flights. The Dept. of Transportation will heavily penalize airlines that leave passengers stranded on grounded planes for more than three hours unless pilots or air traffic controllers determine it would be unsafe to return to the gate or let passengers deplane

❖ DO NOT RUN OVER A LAWYER ON A BICYCLE. HE IS PROBABLY RIDING YOUR BIKE.

It is no surprise that tort reform is not included in the health-care reform bill. Congressional campaign contributions by lawyers in the last election cycle were about $25 million more than the combined total of political donations from doctors, pharmaceutical companies, HMOs, hospitals and nursing homes. Moreover, according to the Center for Responsive Politics, since 1990 the sums donated to federal political candidates by lawyers exceed $1 billion without even including their lobbyists.

❖ ARTIFICIAL INTELLIGENCE IS NO MATCH FOR NATURAL STUPIDITY.

A news story in the London Telegraph tells of the owner of an employment agency in Thetford, Norfolk, England. He tried to place an ad for a cleaner at $9.35 (six pounds) per hour "must be hard working and reliable." The ad was refused by the Thetford Jobcentre because "the ad could bring cases against them for discriminating against unreliable people."

ADDENDA

❖ Redheads need 20% more anesthesia than blondes and brunettes.
❖ In 2008 69% of graduating college students said they would move back in with their parents until they found work.
❖ The world's largest cruise ship, The Oasis of the Seas, is five times as large as the titanic and has a full complement of 8,300 when fully booked with passengers and staff.
❖ Average temperature for shower water in the U.S. is 104 deg. F.
❖ If at first you don't succeed destroy all evidence that you even tried.

ALOHA AND KEEP THE FAITH — **rts**■

(Editorial comment is strictly that of the writer.)

Hawaii's Physicians CHOOSE HAPI as their Medical Malpractice Carrier

In recent years, hundreds of Hawaii's physicians have switched their coverage to HAPI, saving thousands of dollars on their medical malpractice coverage costs.

Started 32 years ago, HAPI is Hawaii's first, physician-owned medical malpractice coverage provider.

As a leading medical malpractice coverage provider, HAPI protects and defends Hawaii's most influential and respected physicians.

With a strictly local presence and NO profit motive, savings are distributed to our members.

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In these tough economic times and challenging industry trends, you don't have to worry about your medical malpractice coverage costs. Let HAPI's financially sound, affordable plan protect you. Join your fellow colleagues...**contact HAPI and start saving today.**

2009 HAPI's Total Quarterly Costs (Including Fully Mature Retroactive Coverage)	
General Surgery	$4,168
Internal Medicine	$1,373
Pediatrics	$1,662

The above illustration is an example of HAPI's 2009 fully mature costs. These costs apply to physicians who need three years or more of retroactive coverage upon joining HAPI. If you do not need retroactive coverage or if you join HAPI out of a residency or fellowship, you will pay significantly less than shown above. The above specialties were selected for illustrative purposes only. Call HAPI for your specialty's costs.

If you are a D.O. or M.D. in private practice, call Jovanka Ijacic, HAPI's Membership Specialist to discuss the cost savings HAPI could offer you.

"What prompted me to search for a new malpractice insurance provider was the steep increase in premiums. I am a strong believer that you get what you pay for, but also want value. Malpractice insurance companies should provide good legal support if that fateful day arrives. In addition, I was concerned that certain companies would not have enough reserves to handle large or multiple claims. I checked with the insurance commission and researched the integrity of the attorneys and felt that HAPI has the support that I need at an affordable price. Now, that's value!"
Lance M. Kurata, M.D., Internist

"After converting my coverage to HAPI, I was pleased with the cost savings but even more impressed with their immediate attention to my concerns. It is very reassuring to know that HAPI is highly accessible if there is a concern. I've experienced excellent customer service since day one."
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"I was pleasantly surprised with the additional savings I received when signing up with HAPI. They have been extremely accommodating in providing liability coverage for my practice, and I would recommend other Osteopathic Physicians to consider HAPI as their carrier as well."
Leland Dao, D.O., Family Practitioner

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