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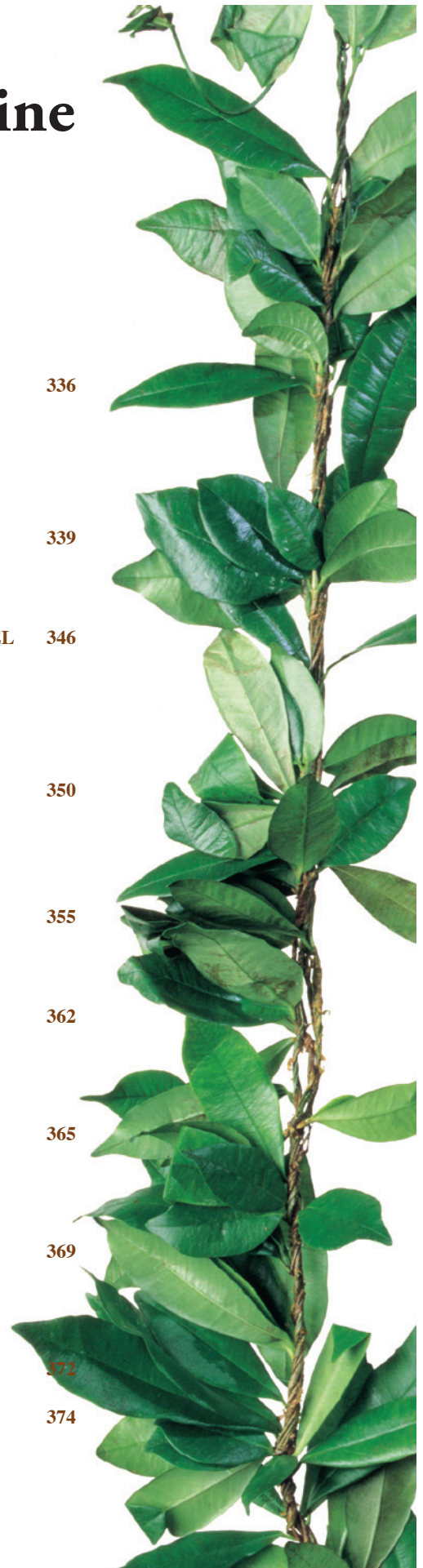
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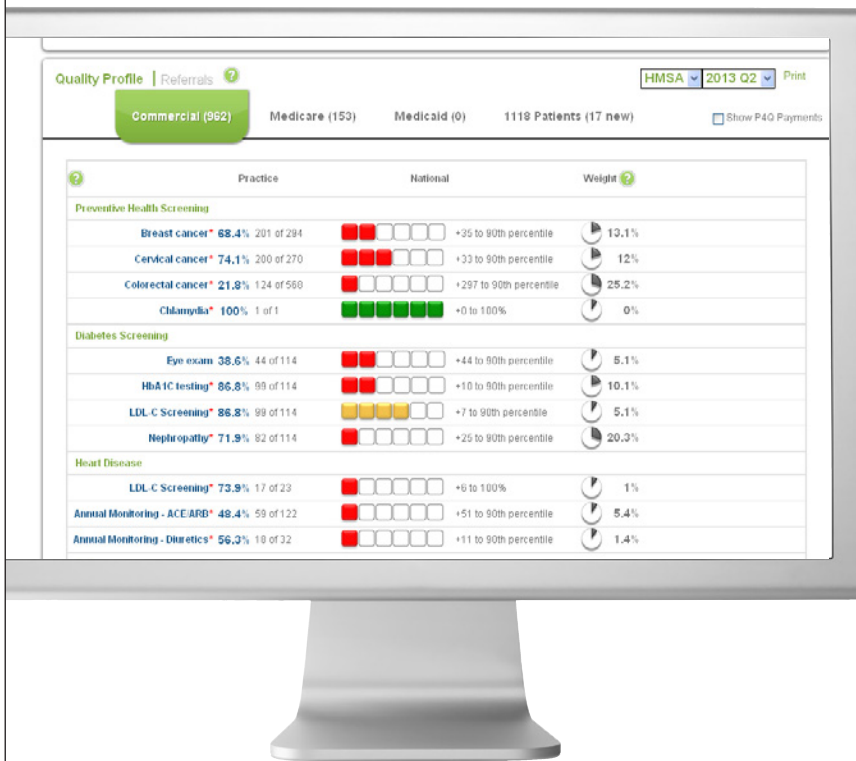
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EDITORIAL

The “Spin” Doctors

Ranjani R. Starr MPH; Tonya Lowery St. John MPH; and Michael J. Meagher MD, FACR

Over the last several decades, we have become accustomed to the manipulation of straightforward facts to fit a particular viewpoint, best demonstrated by mass media pundits on the right and the left. Unfortunately, regardless of intent, publications used by many of us as essential education aids appear to be vulnerable to just such spin, particularly in an environment of “publish or perish.”

Study publication bias and outcome reporting bias are phenomena that are gaining increasing attention in the literature.^{1,2} Study publication bias is said to occur when studies reporting positive or statistically significant findings are more likely to be published, and published sooner; in turn, this type of bias overstates the treatment effects because inconsistent or non-efficacious findings of the treatment are suppressed relative to efficacious findings. Newer treatments appear more efficacious than older treatments simply because of a time lag in the publication of negative findings. In turn, the results of meta analyses are skewed toward positive outcomes by study publication bias. Outcome reporting bias results within studies when positive findings are selectively highlighted in the write-up and negative findings are suppressed or omitted. Both these phenomena independently and simultaneously contribute to biasing the literature.^{1,2}

Examples of these phenomena abound. Ochodo, et al, recently analysed almost 7000 articles listed in MEDLINE and, of those meeting preselected criteria, a final group of 126 studies was evaluated for either actual or potential overinterpretation of the data presented.³ Such errors as disparity between the abstract and the presented data, incomplete (selective) result reporting, lack of power analysis, lack of statement of a hypothesis and, most disturbing, use of inappropriate statistical tests were found in 31% of the articles demonstrating actual overinterpretation and 89% of the potential overinterpretation group.

Levine, et al, in an accompanying editorial, emphasize the potential danger to society by the conflation of optimistic results leading to conclusions only vaguely supported by fact.⁴ The conclusions drawn are similar to those of an excellent summary review of the “bias and variation” issues in diagnostic accuracy studies.⁵

Unfortunately, publication biases are not limited to less rigorous studies. In fact, they are quite common even in the reporting of Randomized Clinical Trials (RCTs). Rising, Bacchetti and Bero compared findings reported in the published literature to those submitted to the United States Food and Drug Administration (FDA) as part of New Drug Applications (NDAs) between 2001 and 2002.² The analysis was limited to

first-in-class novel drugs that sought approval during this time period; the inclusion of only first-in-class novel drugs in this study made the findings especially important, as these drugs did not have previously approved counterparts in the market and clinicians were expected to rely most heavily on the literature to educate themselves before prescribing these drugs. Only drugs that were approved by FDA and not eventually withdrawn from the market were included in the study. The authors used data reported to the FDA as the gold standard, as reporting of all results from all trials is a requirement of the NDA. As such, these inclusion criteria lent themselves generously to findings of comparability between data reported to the FDA and in the literature, as all drugs chosen were approved and being marketed at the time of analysis, and a sufficient number of years had passed to allow for the publication of both positive and negative findings from their clinical trials. Nevertheless, the authors found a number of discrepancies. Approximately one fifth of the trials submitted to the FDA were not published in the literature, and trials with favorable primary outcomes had a nearly five times higher odds of being published. Trials that used active controls (ie, those that used another drug from the same class, or a gold standard treatment, for example, as the control) also had significantly higher odds of being published. In addition, outcomes that did not favor the drug in the NDA were either not reported, or changed in the published literature to be neutral or favor the drug. The authors concluded that the published literature presented novel drugs more favorably to clinicians when compared to how they were submitted to the FDA.²

A recent focus on publication biases in the literature has led to some noteworthy reversals of previously reported findings; for example, consider a recent re-analysis of data published in *The Lancet* regarding the efficacy of 12 new-generation antidepressants.⁶ Del Re and colleagues used a Monte Carlo simulation to replicate the network meta-analysis and found that in “greater than 7 times out of 10, the network meta-analysis resulted in one or more comparisons that indicated the superiority of at least one antidepressant when no such true differences among them existed.”⁷ Similarly, Maurage, Heeren and Pesenti conducted a critical review of an ecological study in the *New England Journal of Medicine* touting the association between per capita chocolate consumption and the number of Nobel Laureates generated by a country.^{8,9} They found that the number of Nobel laureates produced by a country was also highly correlated with the number of IKEA furniture stores ($r=0.82$; $P<.001$) as well as gross domestic product (GDP) ($r=0.66$,

$P < .001$).⁷ They concluded their analysis by reminding readers and authors alike of perils of attributing causation to correlation and the importance of using causal criteria when interpreting findings.

Our commitment to you, the reader, is that we will work as thoroughly and diligently as possible to maximize objectivity and accuracy in the material we publish, and if opinion, separate from reasonable conclusion, is appropriate and necessary, to label it clearly as such.

Authors' Affiliation:

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Perceptions of Health Equity and Subjective Social Status Among Baccalaureate Nursing Students Engaged in Service-learning Activities in Hawai'i

Lisa M. Thompson PhD, MSN, FNP, RN; Sarah Jarvis MSN, RN; Patricia Sparacino PhD, RN; Devina Kuo MPH; and Stephanie Genz EdD, RN

Abstract

The purpose of this study was to measure undergraduate students' knowledge of social determinants of health, health equity, and subjective social status (SSS). A cross-sectional semi-structured survey was administered to 68 racially/ethnically diverse freshman students enrolled in a baccalaureate nursing program in O'ahu, Hawai'i. Students ranked the impact of 13 issues on Hawai'i residents' health and described how well the health care system addressed these issues. A 10-rung ladder was used to rank SSS; students marked an "X" on the ladder rung where they stand in society and explained what they would need to "move up or down" the ladder. The students identified three key issues that adversely impact health: substance abuse, diet/nutrition, and cancer. Sixty-nine percent of students stated that social determinants of health impact Hawai'i residents' health either "quite a bit" or "very much", while only 31% felt that the health care system adequately addressed these determinants. Students who ranked high on the ladder (rungs 6-10) cited family as the reason. The students who ranked low on the ladder (rungs 3-5) credited their position to lack of money. Students' perceptions of social determinants of health and health equity align with findings from public health studies in Hawai'i. These concepts were integrated into the 4-year nursing school curricula and findings inform future research and service-based learning activities conducted by the students. While findings presented here focus on nursing students in Hawai'i, this educational innovation could be replicated with students in other undergraduate health sciences programs.

Introduction

The social, physical, and environmental context in which a person is born, grows up, and grows old influences his or her health and illness.¹ "Social determinants of health" is a phrase often used to package together the contextual factors that contribute to a person's health and wellbeing.² Contextual factors (eg, money, social status, and power) are not evenly distributed among populations; this unevenness in accessing resources, such as lack of medical insurance, needs to be addressed to improve population health.³ Social determinants of health play a role in health inequities seen between nations, populations within nations, and sub-groups within populations. As long as the inequities in influence and resources persist, marginalized populations will suffer. In order to provide culturally competent care among underserved communities,^{4,5} students engaged in improving public health must have an understanding of the social determinants of health impacting local, ethnically diverse communities.

It is well established that there is a health gradient that is dependent on socioeconomic status—more wealth equals more health.⁶ In a seminal study examining the health of British civil servants, social position (as measured by employment classification) had a marked effect on cardiovascular mortality, with employees at the lowest employment grade 3.6 times more likely to die from cardiovascular disease than those at the highest employment

grade.⁷ However, other factors influence this health gradient. Researchers have grappled with the multidimensionality of the predictors of health, but one predictor, subjective social status (SSS), has a unique effect on both physical and psychological health.^{8,9} A person's relative social position can be measured using SSS. The MacArthur Scale of Subjective Social Status is a 10-rung ladder developed to measure SSS.⁹ SSS may be influenced by societal factors, such as racial/ethnic discrimination, educational opportunities, economic wealth, place of residence,^{10,11} and by family and individual factors, such as family support, self-esteem, resilience and coping mechanisms.¹² Furthermore, SSS is defined differently by each person and is also culturally bound.^{13,14} By exploring SSS prior to engaging in a community-based learning activity, students can identify the barriers and strengths they see as impeding or fortifying their health.

Chaminade University Honolulu (CUH) is a private college founded in 1884 on the principles of serving Native Hawaiian and Pacific Island communities and is a Title III Native Hawaiian-Serving Institution. In order to fulfill CUH's mission to provide higher education to Native Hawaiians and Pacific Islanders, and in an effort to improve the health and well-being of the people of Hawai'i, Chaminade received a Title III grant to fund the initiation of a School of Nursing at CUH. In fall 2010, the School of Nursing enrolled 75 baccalaureate nursing students. In 2010, an Atlantic Philanthropies grant supported a partnership between CUH and University of California, San Francisco School of Nursing (UCSF) to develop academic curricula and design a research project focusing on social determinants of health and health equity.

In an effort to track their mastery of health equity concepts taught during the four years of study, the first cohort of nursing students was invited to participate as research participants in the second semester of their freshman year. These students were later trained to conduct community needs assessments; based on findings from these needs assessments, the students engaged in service-based learning (SBL) activities through nursing coursework. This research project was consonant with the long-standing tradition at CUH of providing students with SBL activities in underserved communities.

The goal of the research study is to prepare baccalaureate nursing students to integrate concepts of social determinants of health and health equity into their future nursing practice. The aims of the study are to: (1) measure freshman nursing students' perceptions of social determinants of health, health equity, and subjective social status; (2) build research capac-

ity among nursing students to investigate Hawai'i residents' perceptions of social determinants of health and health equity and; (3) integrate concepts of social determinants of health and health equity through courses, service-based learning, and evidence-based practice. The objective of this paper is to present the results of the baseline survey of students' perceptions of social determinants of health and health equity in communities residing in O'ahu, Hawai'i.

Methods

Sample and Design

The sample consisted of 70 first-year nursing students who remained enrolled as freshman at CUH in spring 2011. In this cross-sectional study, a semi-structured written questionnaire was self-administered to nursing students during a freshman core course in March 2011 with 68 responding (97% participation rate). Three attempts were made to contact the remaining two nursing students to participate in the survey.

Survey Instrument

Students were asked which age groups and communities on O'ahu were most impacted by adverse health. Students ranked the impact of 13 health issues. The researchers drew these issues from a review of research-based literature conducted in Hawai'i.^{11,14-23} Each of the 13 issues was ranked independently using the rankings "not at all," "very little," "some," "quite a bit," "very much," and "don't know." Within each of the 13 health issues, sub-items were provided and students ranked the importance of these sub-items. For example, "substance abuse" was a one of the 13 health issue categories, with sub-items "alcohol," "tobacco," "methamphetamines," and an open-ended option so that students could add a new sub-item. "Social determinants of health" was another category. Because students may not have been familiar with this concept, a definition was provided as follows: "Social determinants of health are the circumstances in which people are born, grow up, live, work and age, and the systems put in place to deal with illness."²³ The sub-items for this issue were "discrimination," "homelessness/housing," "poverty," "unequal access to health care," "family issues/support," "work environment/unemployment," "violence," and participants were also able to supply their own response in an open-ended option. Students were then asked how well the health care system in Hawai'i addressed each of these 13 health issues ("very poorly," "poorly," "neither poorly, nor well," "well," "very well," and "don't know").

Students were asked to identify the top three problems impacting residents of Hawai'i, describe why these problems exist, and list what is being done in Hawai'i to address the problems. Students supplied their own response in an open-ended response format to these three questions. They were then asked whether they felt the health of Hawai'i residents was better, worse, or the same as US mainland residents. They were asked to describe, in their own words, three of Hawai'i's greatest strengths that could be used to improve health in Hawai'i.

A 10-rung ladder was used to rank SSS. Students were asked

to mark an "X" on the rung where they stand in society and explain what they would need to "move up or down" the ladder rungs. The instructions, taken from Adler, et al, were, "think of this ladder as representing where people stand in our society. At the top of the ladder are the people who are the best off, those who have the most money, most education, and best jobs. At the bottom are the people who are the worst off, those who have the least money, least education, and worst jobs or no jobs."⁹

Five key informants, two of whom are Native Hawaiian researchers, were asked to review the instrument and provide feedback, after which changes were made. Specifically, the SSS instructions were modified to let students name what would make them "better" or "worse." This decision was based on feedback from Native Hawaiian researchers who felt that defining "best off" based on money, education, and employment was culturally biased. The survey instrument was piloted with five nursing students, and revisions were made after a group interview with these students. The self-administered questionnaire took approximately 30 minutes to complete.

Ethical Approval

The study received ethical approval from the Committee for Human Research at UCSF. Because CUH does not have an Institutional Review Board, the study also received approval from Papa Ola Lokahi, a federally registered Institutional Review Board that reviews and approves research studies conducted with Native Hawaiians.

Statistical Analysis

Frequencies, percents, means, and standard deviations were calculated. Group differences were compared using Student's t-test (ladder rank of SSS was normally distributed). Categories and themes that emerged from open-ended responses were collapsed into categorical variables and analyzed using quantitative methods. To illustrate this, when students were asked to list the top 3 health problems that exist in Hawai'i, open-ended responses like "sexual reproduction," "teen pregnancy," "reproduction/sexual health," "unplanned pregnancy" were coded as reproductive/sexual health. Stata version 11 (StataCorp, College Station, Texas) was used for data analyses.

Results

Among the 68 participants, most were women, born in Hawai'i and between 18 and 24 years old. Students were racially and ethnically diverse. Approximately 8% of the nursing students were Native Hawaiian and over half of the students reported two or more race/ethnicities. Approximately 60% spoke a second language in addition to English (Table 1).

Students reported that groups who would benefit most from health care research were adolescents (22%), the elderly (22%), infants/children (21%), women (13%), and men (6%). Sixteen percent of the students did not know which group would benefit most from additional research. Students were asked an open-ended question: "Who is most affected by health problems in Hawai'i?" Four broad categories emerged: those in specific

Table 1. Demographic characteristics of nursing students (N=68)	
	n (%)
Female	52 (76.5)
Born in Hawai'i	43 (63.2)
Years lived in Hawai'i, mean (SD)	18.5 (10.1)
Age group	
18-24	39 (57.4)
25-29	13 (19.1)
30-39	15 (22.1)
40-49	1 (1.4)
Ethnicity (all reported=130)	
Filipino	32 (24.6)
White	27 (20.8)
Chinese	17 (13.1)
Japanese	14 (10.8)
Hawaiian	10 (7.7)
Latino/Hispanic	9 (6.9)
Other Asian	5 (3.8)
Black	4 (3.1)
Korean	4 (3.1)
Other Pacific Islander	3 (2.3)
Native American	2 (1.5)
Chamorro	2 (1.5)
Samoan	1 (1)
Multiethnic	
One ethnicity	32 (47.1)
Two ethnicities	16 (23.5)
Three ethnicities	14 (20.6)
Four ethnicities	6 (8.8)
Languages spoken	
First language English	53 (83.8)
English only language spoken	28 (41.2)
Highest education level achieved	
High school/GED	39 (59.1)
Certificate program	3 (4.6)
Associate's degree	21 (31.7)
Bachelor's degree	3 (4.6)
Full time student	68 (100)
Currently employed	34 (50.0)

age/ethnicity groups, those with certain health conditions, and those with low socioeconomic status. Forty-two responses included specific age groups: the most frequent were the elderly (45%) and children (28%). Thirteen responses specified ethnic/immigrant populations: Hawaiian/Pacific Islanders (70%) and immigrants (23%). Ten respondents identified individuals with specific health conditions: obesity (56%), diabetes (22%), the mentally ill/handicapped (22%) and those with "bad genes"

(11%). Fourteen indicated that those living in poverty (60%) and the homeless (14%) were most affected.

Students were asked to compare health within communities on the island of O'ahu and compare health of O'ahu residents with US mainland residents. Students reported that the residents of Waianae, Makaha, and Nanakuli were most impacted by poor health. These towns are located on the west side of O'ahu and include traditional Hawaiian homelands. One-third of the students responded that the health of residents of Hawai'i was about the same as US mainland residents, 15% consider that Hawai'i residents have better health than mainland residents, but 29% did not know which population had better health outcomes. Among students who believed that health of Hawai'i and mainland residents was comparable, students stated that both populations suffer from similar conditions: obesity, childhood obesity, hypertension, and diabetes.

From among a set of 13 predefined health issues, students responded that the three issues which most impacted residents of Hawai'i included substance abuse (92%), diet/nutrition (84%), and cancer (76%). Methamphetamine (56%), alcohol (20%), marijuana (16%), and tobacco use (8%) were the substances most commonly reported. Obesity (54%), diabetes (33%), and poor nutrition (13%) ranked highest in importance in the diet/nutrition category. Breast (37%), lung (29%), skin (21%), and prostate cancer (7%) were ranked the highest in the cancer category (Table 2).

The issues that least impacted Hawai'i residents from the point of view of these students were: environmental factors (air and water quality and pesticide use) at 23%; immunity (vaccines, sanitation, and HIV/AIDS services) at 12%; and mental health (attention deficit hyperactivity disorder, anxiety, and depression) at 10%.

Students were asked to state which of the 13 health issues were being effectively addressed by the health care system in Hawai'i: Immunity (60%), environmental factors (54%), and respiratory health (asthma, emphysema, and tuberculosis) (43%) emerged as the top three issues that were being addressed "well" or "very well." Dental/oral health (27%), diet/nutrition, cancer, and mental health (all at 24%) were viewed as being addressed "very poorly" or "poorly."

Since the aim of this research was to investigate students' perceptions of social determinants of health prior to introducing the concept into the curricula, responses to this question were of interest to the researchers. Sixty-nine percent of the students stated that social determinants of health, impact health of residents of Hawai'i either "quite a bit" or "very much." Only 31% of the students felt that the health care system and other ancillary social support systems, such as Red Cross Hawai'i, food banks, and government assistance programs, adequately addressed these determinants.

When students were asked to list the top three problems in Hawai'i using an open-ended format, a different set of issues emerged compared to forced-choice answers to the set of 13 issues previously described. Substance abuse and diet/nutrition still remained in the top three problems (76% and 68%,

Table 2. Student perceptions of impact of health issues and health care effectiveness to address these issues in communities residing on O'ahu*

	Impact of health issues		Health care system effectiveness	
	"Quite a bit" or "Very much" n (%)	"Not at all" or "Very little" n (%)	"Very poorly" or "Poorly" n (%)	"Well" or "Very Well" n (%)
Substance abuse	63 (92.6)	0	13 (19.1)	27 (39.7)
Diet/nutrition	57 (83.9)	3 (4.4)	16 (23.5)	20 (29.4)
Cancer	52 (76.4)	2 (2.9)	16 (23.5)	15 (22.1)
Reproductive/sexual health	49 (72.1)	3 (4.4)	9 (13.3)	22 (32.4)
Infant/child health	49 (72.1)	4 (5.9)	6 (8.8)	25 (36.8)
Social determinants of health	47 (69.1)	3 (4.4)	6 (8.8)	21 (31.3)
Immunity	47 (69.1)	8 (11.8)	6 (8.8)	39 (60.0)
Cardiovascular health	44 (64.7)	6 (8.8)	10 (14.7)	24 (35.3)
Dental/oral health	44 (64.7)	5 (7.4)	18 (26.5)	25 (36.8)
Respiratory health	42 (61.7)	5 (7.4)	15 (22.4)	29 (43.2)
Environmental factors	39 (57.4)	11 (22.5)	4 (5.9)	36 (53.7)
Mental health	39 (57.4)	7 (10.3)	16 (23.5)	16 (23.9)
Skeletal/muscular health	35 (51.5)	3 (4.4)	8 (16.7)	19 (28.8)

* "Neutral response" and "no responses" are omitted, thus total do not add up to 100%

Table 3. Student perceptions of impact of health issues and health care effectiveness to address these issues in communities residing on O'ahu*

	Top health problem n (%)	Second health problem n (%)	Third health problem n (%)	Total for each problem n (%)
Diet/nutrition/obesity/diabetes	27 (39.7)	14 (20.6)	11(16.1)	52 (76.4)
Substance abuse	18 (26.5)	18 (26.5)	10 (14.7)	46 (67.7)
Social determinants of health	14 (20.6)	7 (10.2)	8 (11.7)	29 (42.5)
Circulatory/heart health	4 (5.8)	6 (8.8)	9 (13.2)	19 (27.8)
Reproductive/sexual health	3 (4.4)	10 (14.7)	4 (5.9)	17 (25.0)
Cancer	1 (1.5)	4 (5.8)	6 (8.8)	11 (16.1)
Mental health	0	3 (4.4)	5 (7.4)	8 (11.8)
Immunity	0	1 (1.5)	6 (8.8)	7 (10.3)
Respiratory health	0	1 (1.5)	2 (3.0)	3 (4.5)
Dental/oral health	1 (1.5)	1 (1.5)	1 (1.5)	3 (4.5)
Skeletal/muscular health	0	2 (3.0)	0	2 (3.0)
Environmental factors	0	0	2 (3.0)	2 (3.0)
Infant/child health	0	0	1 (1.5)	1 (1.5)
Missing	0	1 (1.5)	3 (4.4)	4 (5.9)

* "No responses" are omitted, thus total do not add up to 100%

respectively), but social determinants of health emerged as the third most frequent response, with 29 (43%) respondents listing factors (eg, unemployment, high cost of living, homelessness) that are contained within this concept (Table 3).

Students were asked to provide a list of three of Hawai'i's greatest strengths that could be used to improve health in Hawai'i. Responses to this question were more mixed as 20 (29%) of the respondents cited the sense of community and aloha spirit and 11 (16%) mentioned environmental factors in Hawai'i, including clean air and water and good weather that

allows residents to engage in exercise. In order to improve health, students would like to see changes in health care (37%), especially the cost and quality of care; an increase in education (24%), mainly nutrition and health education; a change in behavior of residents of Hawai'i (16%), specifically better eating and exercising habits, and a change in government regulations (6%), mainly related to food costs and aid programs. Ten (15%) of the students responded that they did not know what might improve health and the remaining responses were < 1%.

On a 10-rung ladder, the mean SSS score was 6 (Standard Deviation, 2; range, 3 to 10). There were no statistically significant differences on how students ranked their location on the ladder rungs based on gender ($P = .70$), age ($P = .69$), race/ethnicity ($P = .24$), whether they were born in Hawai'i ($P = .26$) or level of education ($P = .40$). Students who ranked high on the ladder (rungs 6-10) cited family as the reason. The students who ranked low on the ladder (rungs 3-5) credited their position to money (or lack thereof). To improve their rank, students on higher rungs wanted to be employed; those on lower rungs desired community support.

Discussion

The primary objective of this study was to assess freshmen nursing students' perceptions of social determinants of health and health equity in Hawai'i before introducing students to curricula that focus on increasing awareness around disparities in health. Over time, as students advance through their studies, we will be able to quantitatively evaluate their change in knowledge based on increased levels of complexity in the curricula, as well as their experience with SBL over the four years of undergraduate study. Because Chaminade University integrates SBL into the curricula, students work each semester with Hawai'i residents in homeless shelters, at food banks, and with those who live in public housing. By asking the students to participate in the survey presented here, we hopefully planted a seed that will allow them to think critically about health problems faced by residents of Hawai'i, why problems exist, and potential solutions. This critical thinking skill will be integrated into the next phase of study, which will occur when these undergraduate students are trained to be student researchers. This will include coursework on social determinants of health, issues of health equity, and the ethical conduct of research. Students will then administer a survey to Hawai'i residents during their SBL which will ask about health problems, why problems exist and what potential solutions are. Results from these surveys will be presented back to the local communities by the nursing students and will be used to tailor future SBL activities. SBL has been described in nursing education programs, but student perception of activities are have only been described qualitatively, and few have integrated a community-based research component.²⁴⁻²⁸ The present study is novel because we employed a quantitative approach to describe students' baseline knowledge about health equity and social determinants of health before they engage in SBL.

Almost 93% of the students felt that substance abuse had a major impact on health of Hawai'i residents. This reflects current trends in Hawai'i. Approximately 50% of people 12 years and older reported drinking alcohol, and 19% of adults aged 18-35 years reported illicit drug use (mostly marijuana) in the past 30 days.²⁹ In a review article of 32 peer-reviewed research articles, Native Hawaiian youth reported using more tobacco, alcohol, and illicit drugs as compared to other ethnic/racial groups.³⁰ Crystal methamphetamine is a serious threat in Hawai'i; treatment admissions to public facilities has quadrupled between 1994 and 2007.³¹

Diet/obesity emerged as the second most important problem impacting residents of Hawai'i. While many of the students stated that strengths of Hawai'i include an environment that permits year-round exercise and delicious traditional foods, others lamented the high cost of fruits and vegetables, the low cost of fattening "fast foods", and the lack of physical education in schools. This is consonant with findings from state-wide surveys and research-based studies. Among high school students who participated in the 2011 Hawai'i Youth Risk Behavior Survey, 26.6% were obese, only 17.5% ate fruits and vegetables five or more times per day in the past 7 days and 18.5% did not participate in 60 minutes of physical activity on any of the seven days prior to the survey.³² The 2010 Hawai'i Behavioral Risk Factor Survey reported that while 23.1% of population was obese (defined as a Body Mass Index [wt/ht²] ≥ 30), Native Hawaiians were almost twice as likely to be obese (43.7%).³³ Despite the high obesity prevalence among Native Hawaiians, obesity among all residents of Hawai'i is low compared to the mainland residents; Hawai'i ranks 49th in the nation in obesity prevalence.³⁴ In a review of 15 articles, Mau found that Native Hawaiians had a higher prevalence of obesity, more co-morbidities associated with obesity (elevated blood pressure, increased insulin resistance, and diabetes), but engaged in more physical activity compared to other ethnic/racial groups.²¹ The towns of Nanakuli, Waianae, and Makaha were perceived by the students to be the most impacted by poor health. In these areas, 50.1% of adults were obese and 18.3% of adults 18 to 64 years of age lacked health insurance.³³

Cancer was perceived by the students as the third most important impact on health of Hawai'i residents. Filipino women were four times less likely to have never had a Pap smear as compared to White women (17.2 vs 3.9%, respectively).³⁵ Prostate and breast cancers were the most frequently diagnosed cancers among all ethnic/racial groups but lung cancer causes the largest percentage of mortality. Not surprisingly, this is the same in Hawai'i as it is nationally in the United States.³⁶ Native Hawaiians have a higher proportion of late-staged diagnosed cancers for breast, cervix, colon, lung, and melanotic skin cancers compared to Whites. Native Hawaiians and Whites had higher mortality rates from all cancers compared to Filipinos, Chinese and Japanese residing in Hawai'i.³⁵

A 10-rung ladder to measure SSS⁹ was adapted and used among a group of ethnically diverse undergraduate nursing students. Open-ended questions were used to allow students to provide their definitions of "better off" and "worse off." Are employment and financial stability good measures of being higher up on the rungs of the ladder? Does family and social support play an important role in moving up the rungs of the ladder? In this study, the answer to both of these questions is yes. Money and employment were important factors, but money was not one of the top five factors necessary for moving up to the next ladder rung. Instead, community and family were two of the five top factors. One of the greatest strengths of Hawai'i mentioned by the students was the aloha spirit. In Hawai'i, the definition of aloha spirit is complex; it can literally be explained as the

mutual regard (“*alo*”) of each other’s soul or spirit (“*ha*”). It has been described as love, compassion, welcome, respect, and giving without expecting anything in return.³⁷ Future studies that use the ladder should investigate culturally situated factors that may be important indicators of SSS.

In this cohort of first year nursing students, “I don’t know” was a frequent response. Students were uncertain about who would benefit most from research (16%), which population (Hawai’i versus US mainland residents) experiences better health (29%), or what would be the impact of the 13 issues on the health of Hawai’i residents (6%). While in other studies this “non-response” would be a vexing problem, we expected that this would be common in these novice health sciences students, many of whom were recent high school graduates. The findings of the student survey were presented to the students and their answers were compared to state and national survey data; it is expected that students will gain knowledge about issues of health equity and determinants of health in Hawai’i communities through coursework, clinical residencies, and exposure to community assessments embedded in SBL activities. Activities will include designing and implementing a project that is student-led and informed by community-based surveys. A focus of these activities will be the formation of partnerships that may evolve into community engaged research projects focused on social determinants of health and health equity in O’ahu communities. While findings presented here focus on nursing students in Hawai’i, this educational innovation could be replicated with students in other undergraduate health sciences programs.

Conclusion

This study used a survey instrument developed by the authors to assess student knowledge of health issues, including social determinants of health, which impact Hawai’i residents. The authors also described the adaptation and use of the subjective social status instrument for a multiethnic nursing student group. This adaptation allowed students to describe other factors (besides money, education and a job) that influenced perceptions of their social position in society. Future studies should use similar instruments to gather baseline knowledge during freshman year courses and before the introduction of curricula related to health equity and social determinants of health. Finally, undergraduate programs that engage students in SBL should consider the advantages of developing students into student-researchers and employing quantitative methods to assess issues of health equity in communities who are being served. Community-based surveys could serve as the basis for a “needs assessments” to develop SBL activities, which would have a greater influence on community well-being. Public health professional programs are rapidly expanding to include SBL into their curricula. In order to best inform practice, educators need to develop and implement instruments to assess, address, and evaluate efforts to improve health equity that run in parallel to efforts at engaging students in community service activities.

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Conflict of Interest

None of the authors identify a conflict of interest.

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Intubation Methods by Novice Intubators in a Manikin Model

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Abstract

Tracheal Intubation is an important yet difficult skill to learn with many possible methods and techniques. Direct laryngoscopy is the standard method of tracheal intubation, but several instruments have been shown to be less difficult and have better performance characteristics than the traditional direct method. We compared 4 different intubation methods performed by novice intubators on manikins: conventional direct laryngoscopy, video laryngoscopy, Airtraq® laryngoscopy, and fiberoptic laryngoscopy. In addition, we attempted to find a correlation between playing videogames and intubation times in novice intubators. Video laryngoscopy had the best results for both our normal and difficult airway (cervical spine immobilization) manikin scenarios. When video was compared to direct in the normal airway scenario, it had a significantly higher success rate (100% vs 83% P=.02) and shorter intubation times (29.1±27.4 sec vs 45.9±39.5 sec, P=.03). In the difficult airway scenario video laryngoscopy maintained a significantly higher success rate (91% vs 71% P=0.04) and likelihood of success (3.2±1.0 95%CI [2.9-3.5] vs 2.4±0.9 95%CI [2.1-2.7]) when compared to direct laryngoscopy. Participants also reported significantly higher rates of self-confidence (3.5±0.6 95%CI [3.3-3.7]) and ease of use (1.5±0.7 95%CI [1.3-1.8]) with video laryngoscopy compared to all other methods. We found no correlation between videogame playing and intubation methods.

Introduction

Tracheal intubation is an important skill that has resulted in improved outcomes in critically ill and injured patients.¹⁻³ Direct laryngoscopy, a method taught to many healthcare professionals is the standard method of securing an airway via tracheal intubation.^{4,5} Nevertheless, conventional direct laryngoscopy remains a difficult skill to acquire and master with difficult or failed intubation resulting in severe consequences including esophageal intubation, aspiration of gastric contents, airway injury, and death.⁶⁻⁹ Fiberoptic laryngoscopy has traditionally been reserved for difficult airways by experienced intubators, and it has been shown to be difficult for novice intubators.¹⁰ Video laryngoscopy is an alternative and widely accepted airway management technique shown in previous studies to be easier for novice intubators to learn.^{5,11,12} The Airtraq Optical Laryngoscope is another alternative laryngoscope that has made visualization of difficult airways easier.¹³

A recent study published in 2011 showed that there may be some correlation between prior videogame experience and improved psychomotor skills for surgical interns while performing simulated endoscopic skills.¹⁴ The purpose of this study is to determine which intubation method is best for novice intubators and to ascertain if there is any correlation between videogaming and intubation times in novice intubators.

Methods

Verbal consent was obtained from 35 medical student study volunteers to participate in this Western Institutional Review

Board (Olympia, WA) approved study. All subjects were 1st and 2nd year medical students at the John A. Burns School of Medicine at the University of Hawai'i, and none had any prior experience in performing intubation. Subjects were given a computerized slide orientation to the use of the four intubation methods below, followed by one-on-one hands-on standardized instructions (from a script) and a demonstration of each method.

The four intubation methods studied were: direct laryngoscopy (Direct), videolaryngoscopy (Video) using a Storz C-MAC® videolaryngoscope (Karl Storz GmbH & Co. Tuttlingen, Germany), Airtraq® Optical Laryngoscopy (Airtraq) (King Systems, Noblesville, IN), and fiberoptic nasal intubation (Fiberoptic). For each method we recorded intubation success, time to intubation, self-reported likelihood of intubation success, self-reported confidence in performing the intubation in the future, and reported ease of use. All intubations were performed on identical airway simulation manikins (Laerdal SimMan Manikin, Laerdal Inc. Wappingers falls, NY)

The sequence of intubation methods tested was randomized by computer (<http://www.randomizer.org>). Each subject conducted one practice intubation on the randomized device followed immediately by the two timed intubation attempts; one in a "normal airway" simulation and one in a cervical collar immobilized "difficult airway" simulation. The sequence of "normal airway" first or "difficult airway" first was also randomized. Subsequent paired practice attempts followed by the two timed intubation attempts then continued on the remaining three devices in a randomized fashion.

All techniques used 7.5 mm cuffed endotracheal tubes. For the Direct and Video methods, a malleable stylet was inserted into the endotracheal tube with a pre-determined standardized curvature. Fiberoptic and Airtraq methods were preloaded with an endotracheal tube. Fiberoptic intubation was performed nasally. Silicone lubricant was sprayed onto the outer surface of endotracheal tubes for all methods prior to starting intubation in order to minimize friction.

Equipment placement was standardized on an airway cart adjacent to the airway simulator with the participant one step away and hands by their side. Time to intubation ("intubation time") was the time from when a research assistant verbalized the "start" signal to when the subject verbalized "finished." Intubation success was defined as intubation within 180 seconds, after which the attempt was terminated. Prior to intubation success confirmation, study subjects were asked to rate the likelihood or perception that the trachea was successfully intubated ("likelihood of success") as 1=no confidence, 2=some confidence, 3=confident, 4=very confident. Tracheal intubation was confirmed

after the research assistant inflated the endotracheal tube balloon and observed chest wall rise via bag-valve ventilation. No effort was made to distinguish between mainstem and bronchus placement.

Following all intubations subjects were asked to report on “self-confidence” (confidence that the subject could successfully intubate a patient on their own) with each intubation method using the scale: 1=no confidence, 2=some confidence, 3=confident, 4=very confident. Subjects were asked to rate the ease of intubation for each method using the scale: 1=very easy, 2=easy, 3=difficult, 4=very difficult. Subjects were surveyed on their history of using video games according to Table 3.

Data Analysis

The paired t-test was used to compare intubation times for Direct laryngoscopy with each of the 3 other intubation techniques in a pair-wise fashion. McNemar’s test was used to compare the success rates of Direct laryngoscopy and the 3 other intubation techniques in a pair wise fashion. Linear regression was used to compare video game experience (years of videogaming) and intubation times for each method.

Results

Thirty-five subjects were enrolled in the study. All subjects completed all intubation attempts, except for three subjects who did not attempt intubation with the Airtraq device secondary to battery failure of the light source in the provided Airtraq devices during the last three intubation trials of the experiment.

The results are summarized in Table 1. In both normal and difficult airway scenarios, direct laryngoscopy had the lowest success rates. Pair-wise comparisons of intubation times and suc-

cess rates are summarized in Table 2. When video was compared to direct in the normal airway scenario, it had a significantly higher success rate (100% vs 83% $P=.02$) and shorter intubation times (29.1±27.4 sec vs 45.9±39.5 sec, $P=.03$). In the difficult airway scenario, video maintained a significantly higher success rate (91% vs 71% $P=.04$) and likelihood of success, the testing subject’s perception of the likelihood that the trachea was successfully intubated, (3.2±1.0 95%CI [2.9-3.5] vs 2.4±0.9 95%CI [2.1-2.7]) when compared to direct. Participants also reported significantly higher rates of self-confidence (3.5±0.6 95%CI [3.3-3.7]) and ease of use (1.5±0.7 95%CI [1.3-1.8]) with video compared to all other methods.

Linear regression analysis of video game years relative to intubation times were not found to have significant correlation for any of the intubation methods and is reported in Table 3.

Discussion

Video laryngoscopy had the best results for this group of novice intubators in this manikin model for both normal and difficult airways, which agree with previous manikin/novice intubator studies.^{5,11,12}

Direct laryngoscopy requires line of sight visualization of the airway, while video laryngoscopy reduces the need to attain line of sight. This is particularly useful in the difficult airway scenario. The Airtraq device also eliminates the need for direct line of sight, but it was significantly slower in the normal airway scenario compared to video laryngoscopy and its ease of use was significantly less for our participants.

Contrary to our study, a study conducted by Ray, et al,¹¹ found no difference in reported ease of use by novices between direct and video laryngoscopy in manikins when using a McGrath

Table 1. Mean time to intubation (seconds), self reported likelihood of intubation success, ease of use, and self confidence given as mean ± SD.				
	Direct	Fiberoptic	Video	Airtraq
Number of Participants	35	35	35	32
Normal Airway				
Success Rates	83%	89%	100%	94%
Mean time to intubation 95% Confidence Interval	45.9±39.5 (32.8–59.0)	79.6±30.5 (69.5–89.7)	29.1±27.4 (20.2–38.2)	59.1±36.4 (46.5–71.8)
Likelihood of success 95% Confidence Interval	2.9 ±1.0 (2.6–3.3)	2.9 ± 0.9 (2.6–3.2)	3.5 ±0.7 (3.3–3.7)	3.0 ±0.9 (2.7–3.4)
Difficult Airway				
Success Rates	71%	83%	91%	88%
Mean time to intubation 95% Confidence Interval	60.9±43.9 (46.4–75.4)	95.5±43.0 (81.2–109.7)	48.9 ±48.6 (32.8–65.0)	75.0±50.2 (57.6–92.4)
Likelihood of success 95% Confidence Interval	2.4±0.9 (2.1–2.7)	2.7±1.0 (2.4–3.1)	3.2±1.0 (2.9–3.5) [†]	2.9±1.0 (2.5–3.2)
Questionnaire Results				
Self Confidence 95% Confidence Interval	2.8±0.9 (2.5–3.1)	2.8±0.8 (2.6–3.1)	3.5±0.6 (3.3–3.7) [‡]	2.9±0.9 (2.6–3.2)
Ease of Use 95% Confidence Interval	2.3±0.9 (2.0–2.5)	2.3±0.7 (2.1–2.6)	1.5±0.7 (1.3–1.8) [‡]	2.5±1.0 (2.2–2.8)

Likelihood of success on scale of 1 – 4; 1 = no confidence; 4 = very confident. Self confidence on scale of 1 – 4; 1 = no confidence; 4 = very confident. Ease of use on scale of 1-4; 1= very easy; 4 = very difficult. [†]Significantly greater than direct laryngoscope. [‡]Significantly different from Direct, Fiberoptic, and Airtraq devices.

laryngoscope, a type of Video laryngoscope. This may be due to several reasons. There may be inherent differences between the Storz and McGrath devices, or because their participants did not have trials with other non-direct techniques. Our ease of use questionnaire was taken after completion of all four methods (rather than just two methods in the above mentioned study), giving our subjects a broader perspective to compare ease of use between video and direct laryngoscopy.

The performance measures confirmed the manikin model's ability to simulate greater intubation difficulty in the "difficult airway" compared to the "normal airway." The Laerdal Deluxe Difficult Airway Trainer had the capability of producing tongue edema to add another difficult scenario, but we found it too unreliable to produce the same amount of edema for each

intubation attempt. Thus, we did not include this in the study. Mastering the use of a fiberoptic scope is a complex and time consuming skill, consistent with reporting the longest times to intubation. It should be noted that fiberoptic intubation in our study was done nasally rather than orally because our preliminary studies demonstrated frequent failures via the oral route. Since the other methods were done orally, this compromises a true comparison.

Videogaming did not correlate with intubation times, either because no relationship truly exists or videogaming is heterogeneous and only certain types of videogaming skills correlate to intubation. This may also suggest that intubation is a completely separate skill from videogaming and requires learned psychomotor skills to perform adequately.

Table 2. Paired t-test compares mean time to intubation (seconds). McNemar's Test comparing success rates between devices. P-values for paired t-test and McNemar given as one-tailed.

	Mean intubation times (sec)	Mean difference intubation time (sec)	Difference of success rates	Paired t-test P-value	McNemar P-value
Normal Airway					
Direct	45.9±39.5				
Video	29.1±27.4				
Fiberoptic	79.6±30.5				
Airtraq	59.1±36.4				
Direct vs Video		16.8	17%	.029†	.021†
Direct vs Fiberoptic		33.7	6%	< .01†	.38
Direct vs Airtraq		14.8	11%	.06	.34
Difficult Airway					
Direct	60.9±43.9				
Video	48.9 ±48.6				
Fiberoptic	95.5±43.0				
Airtraq	75.0±50.2				
Direct vs Video		12.0	20%	.13	.035†
Direct vs Fiberoptic		34.6	12%	< .01†	.17
Direct vs Airtraq		14.8	17%	.11	.28

†Significant value; P<.05

Table 3. Linear Regression Analysis Results. Performed for number of years playing video games vs. airway device duration to intubation.

	R	R Square	Adjusted R Square	Durbin-Watson	P-value
Normal Airway					
Direct	0.04	0.002	-0.03	1.8	.82
Fiber	0.40	0.16	0.13	1.8	.17
Video	0.13	0.02	-0.01	2.3	.46
AirTraq	0.002	3.27x10 ⁻⁶	-0.03	1.9	.99
Difficult Airway					
Direct	0.09	0.008	-0.02	1.7	.61
Fiber	0.23	0.05	0.02	0.9	.19
Video	0.06	0.004	-0.03	2.2	.73
AirTraq	0.20	0.04	0.01	1.7	.26

Table 4. Survey of Video Game experience. (Only Participants who answered yes to Question#1 (N=29) completed the rest of the survey)						
1) Have you ever played video games? Yes / No						
2) How many years have you played video games? (Circle ONE best answer)						
0-1	1-3	3-5	5-10	10+		
3) How many hours per week did you play video games when this was at its maximum? (Circle ONE best answer)						
0-1	1-3	3-5	5-10	10-15	15+	
4) How many hours a week do you currently play video games? (Circle ONE best answer)						
0	0-1	1-3	3-5	5-10	10-15	15+

The results of this study are limited to novices using a manikin model. Even high fidelity manikins do not perfectly simulate a human patient. Future research could investigate how well training intubation techniques on manikins translates to successful tracheal intubation of patients, or compare several different types of video laryngoscopes. Certain aspects of this study are likely to be generalized to other novice intubator groups, such as video laryngoscopy intubation being more successful and faster than direct, fiberoptic, and airtraq intubations. Given the results of the study, video laryngoscopy could be a useful teaching adjunct to basic direct laryngoscopy techniques in novices.

Success rates are an objective measurement for this laryngoscopy study, and should be considered more important than students perception of success (likelihood of success). Additionally, the likelihood of success and ease of use are subjective ratings reported by the test subjects were likely to have been falsely positive, given social desirability bias and the desire to report positively on their outcomes and preparation.

Conclusion

Video laryngoscopy was the best intubation method in this group of novice intubators in a manikin model as evidenced by shortest mean time to intubation and highest success rates among the four tested airway devices. Given these findings, video laryngoscopy could be considered a useful training device for learning various aspects of intubation with novices. The study found that videogaming experience did not correlate with times to intubation in any method studied.

It was also found that multiple intubations are required to become proficient in the skill of airway management, and we were able to demonstrate a method of teaching intubation techniques using a slide presentation, live demonstration, and intubation trials on a manikin, which may be translated to teaching airway management to novices.

Conflict of Interest

None of the authors identify a conflict of interest.

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Treatment of Overactive Bladder Syndrome with Urethral Calibration in Women

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Abstract

Our objective was to determine whether urethral calibration with Walther's urethral sounds may be an effective treatment for overactive bladder syndrome. The diagnosis of overactive bladder syndrome is a clinical one based on the presence of urgency, with or without urge incontinence, and is usually accompanied by frequency and nocturia in the absence of obvious pathologic or metabolic disease. These symptoms exert a profound effect on the quality of life. Pharmacologic treatment is generally used to relieve symptoms, however anticholinergic medications may be associated with several undesirable side effects. There are case reports of symptom relief following a relatively quick and simple office procedure known as urethral dilation. It is hypothesized that this may be an effective treatment for the symptoms of overactive bladder. Women with clinical symptoms of overactive bladder were evaluated. Eighty-eight women were randomized to either urethral calibration (Treatment), or placebo (Control) treatment. Women's clinical outcomes at two and eight weeks were assessed and compared between the two treatment arms. Eight weeks after treatment, 31.1% (n=14) of women who underwent urethral calibration were responsive to the treatment versus 9.3% (n=4) of the Control group. Also, 51.1% (n=23) of women within the Treatment group showed at least a partial response versus 20.9% (n=9) of the Control group. Our conclusion is that Urethral calibration significantly improves the symptoms of overactive bladder when compared to placebo and may be an effective alternative treatment method.

Keywords

Overactive bladder, urinary incontinence, dilation

Introduction

In 2002, the standardization sub-committee of the International Continence Society issued new definitions for a condition formerly referred to as detrusor instability, and coined the phrase "Overactive Bladder." Overactive bladder (OAB) is now defined as a medical condition having the symptoms of urinary frequency and urgency with or without urge incontinence. Frequency is defined as greater than 8 micturations in a 24 hour period whereas urgency is characterized by a feeling that the patient must void immediately or risk loss of bladder control.¹⁻³ The diagnosis of OAB can now be made clinically after a basic evaluation which consists of a detailed medical history and physical exam, voiding diary, and urinalysis. Postvoid residual and stress tests are often included although the use of extensive urodynamic studies in the assessment of OAB is unnecessary.

In the United States, the prevalence of OAB in the National Overactive Bladder Evaluation (NOBLE) program was 16.9% in women and 16.0% in men with prevalence increasing with age.⁴ Results from a large scale European based population study by Milsom and colleagues showed a similar prevalence with 16.6% of survey respondents reporting symptoms of OAB.⁵ Individuals with OAB often experience urgency at inconvenient and unpredictable times, which may result in an incontinence

episode. The compelling need to void may occur, however, with or without urinary incontinence. More than 33 million American adults experience OAB at an annual estimated cost of more than \$12 billion.⁴ Many cases of OAB go untreated because patients are too embarrassed to bring their symptoms to the attention of a clinician. It is a disease with serious physical, emotional, social, and economic consequences.

The symptoms of OAB are suggestive of overactivity of the bladder detrusor muscle. Involuntary contractions of the detrusor muscle during filling, often without a known cause, resulting in sustained high bladder pressure has been demonstrated through urodynamic studies but OAB can also be caused by other forms of urethrovesical dysfunction. In one study, urethral instability was demonstrated in 42% of patients with OAB.⁶ Other causes of OAB include, neurologic diseases (multiple sclerosis, cerebrovascular disease, parkinsonism, Alzheimer's disease), local bladder and urethral irritants (cystitis, foreign bodies, tumors), outflow obstruction (severe cystocele or vaginal vault prolapse), and medications (parasympathomimetics). The majority of cases are idiopathic in nature.

Outflow obstruction is another theory. In the male population, benign prostate hyperplasia represents up to 80% of cases of OAB syndrome.⁷ It is known that urinary tract infections are eight times more prevalent in women. It is hypothesized that the disturbance in nerve, muscle, and urothelium from repeated infections can cause a condition which may be amenable to treatment by urethral calibration.

Given the prevalence of OAB and the widespread consequences, much investigation has been made into the treatments of OAB. These range from psychological therapies, to pharmacologic innovations. A variety of nonpharmacologic treatments, including behavioral therapy, bladder retraining, and pelvic floor muscle rehabilitation can enhance bladder control and improve symptoms. The current standard of pharmacologic treatment for OAB is antimuscarinic agents. These block the muscarinic receptor for acetylcholine, preventing detrusor contraction and relieving symptoms. However, these drugs may cause troublesome side effects such as dry mouth and dry eyes, gastroparesis, gastroesophageal reflux, constipation, incomplete bladder emptying, and confusion.^{8,9} In one study, six months after the initial prescription of anticholinergic therapy, only 42 out of 231 patients (18%) were still taking it on a regular basis.¹⁰

Several new pharmacologic therapies are being investigated currently. Intravesical vanilloid therapies such as capsaicin and resiniferatoxin have been shown to reduce bladder spasticity. Intense irritation immediately after intravesical instillation of capsaicin has so far limited its clinical application.¹¹ Botulinum

toxin has emerged recently as a novel treatment for a variety of lower urinary tract dysfunctions.¹²

If pharmacologic therapy fails or is intolerable, several surgical procedures are available. Augmentation cystoplasty, urinary diversion, bladder denervation, or various neuromodulation procedures may be performed, but these procedures incur considerable cost and involve the risk of surgery. A search of the literature shows that urethral dilation, a simple office procedure that uses dilators to widen the opening of the urethra, has been used successfully in the past to treat urinary retention following sling placement and in men to control urinary strictures following a transurethral prostate resection.^{13,14} Three uncontrolled studies report cure rates of 61%-88% following dilation in children with dysfunctional voiding.¹⁵ In a placebo controlled trial, significant symptomatic improvement and objectively measured urodynamic flow improvement was demonstrated following urethral dilation for the treatment of urethral syndrome.¹⁶

Several prior studies have determined the average caliber of the female urethra to be 26-29 French.¹⁷ The study team chose to use calibration, inserting dilators no larger than the normal caliber of the average female urethra, rather than dilating the urethra to larger than normal size. The goal was to return to urethra to its normal caliber, rather than to enlarge its size. The objective of this study is to determine whether urethral calibration with Walther's urethral sounds may be an effective treatment for OAB syndrome, using a randomized, placebo controlled study design.

Methods

This study was approved by the Institutional Review Board of The Queen's Medical Center (QMC), Honolulu, Hawai'i.

Women aged 18 years or older who self-reported symptoms of OAB were recruited at QMC from August 2008 to August 2011. Women were not excluded from participation if they had taken or were taking anticholinergic therapy for their symptoms, but any participants currently taking medications for OAB were required to undergo a washout period of one week. Any women who had a known physiologic cause of their symptoms were excluded.

Participants were screened and evaluated by a licensed Obstetrician/Gynecologist. Written consent to participate in this study was obtained from all participants. They underwent a history and physical exam, completed a questionnaire describing their symptoms, and completed two 24-hour voiding diaries. Data was obtained regarding personal history, extent, frequency, and duration of symptoms, and any current or prior treatments. All participants had a urinalysis, and a urine culture. Participants with urine cultures indicative of a urinary tract infection were treated with antibiotics and were only included in the study if their symptoms persisted after a post-treatment negative urine culture. Any participants with >5 RBCs in the urinalysis were excluded from the study and referred to a urologist. Postvoid residuals were measured and participants were excluded if their residual was greater than 100 cc.

The criteria for diagnosis of OAB was adapted from the Mayo Clinic's description of OAB based on its signs and symptoms, including urgency, frequency, and nocturia.¹⁸ Urgency was defined as feeling a strong, sudden urge to urinate, frequency was voiding eight or more times in 24 hours, and nocturia was being awakened two or more times in the night to micturate. A set of three questions were asked at initial and follow-up visits regarding urgency, frequency, and nocturia, with scores between 0-4 assigned to each multiple choice answer type.

Urgency: "Once you get the urge or desire to urinate, how long can you usually postpone comfortably?" More than 60 minutes: Score 0; About 30-60 minutes: Score 1; 10-30 minutes: Score 2; A few minutes (less than 10 minutes): Score 3; and Must go immediately (less than 5 minutes): Score 4.

Frequency: "How often do you usually urinate during the day?" No more than once in 4 hours: Score 0; About every 3-4 hours (coded as 3.5 hours): Score 1; About every 2-3 hours (coded as 2.5 hours): Score 2; About every 1-2 hours (coded as 1.5 hours): Score 3; At least once an hour (coded as 1 hour): Score 4.

Nocturia: "How many times do you usually urinate at night (from the time you go to bed until the time you wake up for the day)?" 0-1 times: Score 0; 2 times: Score 1; 3 times: Score 2; 4 times: Score 3; 5 or more times: Score 4.

Following Mayo Clinic's criteria, a woman was eligible for this study if she could "only comfortably hold for less than 10 minutes after an urge to urinate (score of ≥ 3)", and needed to "urinate at least twice a night (nocturia score of ≥ 1)", and had "a combined frequency during the day and during the night of at least 8 times" (frequency score ≥ 2).

Eligible participants were randomized to either urethral calibration or placebo treatment. Urethral calibration was performed using #18 through #28 Walther's urethral sounds coated with KY jelly. Two percent lidocaine jelly was applied to the tip of each sound prior to calibration. The placebo group underwent urethral instrumentation with #12-14 French McCrea Infant Sounds. The participants were blinded to their treatment group. All participants received prophylactic nitrofurantoin 100 mg bid for two days following treatment.

Participants were reassessed at 2 weeks post-treatment and again at 8 weeks, and asked to complete the same symptom questionnaire that they completed pre-treatment. They were divided into three Outcome categories based on their responses: Responsive, Partially Responsive, and Failed.

Responsive was defined as having:

- an urgency score of ≤ 1 (ie, able to hold for more than 30 minutes);
- a frequency score of ≤ 2 (ie, frequency of less than 8x in 24 hours); and
- a nocturia score of 0 (ie, being awakened no more than one time during the night to micturate).

Partially Responsive was defined as not being “responsive,” but having:

- an urgency score of ≤ 2 (ie, able to hold for more than 10 minutes);
- with none of the other two symptoms (frequency or nocturia) getting worse, and have at least one of them improved;

Failed was defined as any other score combination.

After the eight week follow up visit, the study participants were unblinded and those who had been in the control group were offered the option of having the treatment done. Participants who had urethral calibration done were followed for an additional 12 months.

Statistical Analysis

Patient demographic and clinical variables were summarized by descriptive statistics: means and standard deviations (SD) for continuous variables; frequencies and percentages for categorical variables. For ethnicity, participants were categorized into six ethnic groups: Caucasians, Chinese, Filipino, Hawaiian, Japanese, and Other. For the Caucasian, Chinese, Filipino, and Japanese groups, only those who indicated one ethnic type, not a mixture, eg, Caucasian-Japanese, were included in these categories. The Hawaiian category, however, included any mention of Hawaiian blood, including part-Hawaiian, eg, Hawaiian-Chinese. The Other category included participants who did not fit in the other five categories. The two treatment groups were compared using two-sample t-tests for continuous variables and Fisher’s exact tests for categorical variables. Outcomes at 2- and 8-weeks were tabulated and compared between the two treatment arms using the Fisher’s exact tests. All statistical analyses were performed using SAS, version 9.3 (SAS Institute, Cary, NC). Two-tailed *P*-value of less than 0.05 was regarded as statistically significant.

Results

A total of 101 women were prescreened and 88 met the eligibility criteria for participation. Forty-five were randomized to the treatment group and 43 were randomized to the control group. The demographic and clinical data for both groups are shown in Table 1. The mean (SD) age was 66.7 (± 11.6) years and 62.9 (± 14.6) years for the Treatment group and Control groups, respectively, with no significant difference between the two groups (*P* = .18). There was also no significant difference in years of education, BMI, and parity between the two groups. In the Control group 9.3% were Caucasians, 25.6% Chinese, 27.9% Filipino, 11.6% Hawaiian, 14.0% Japanese, and 11.6% Other ethnic groups. In the Treatment Group 31.1% were Caucasians, 17.8% Chinese, 22.2% Filipino, 4.4% Hawaiian, 20.0% Japanese, and 4.4% Other ethnic groups. The two groups showed no statistically significant differences in ethnicity.

Two weeks after treatment, patients in the treatment arm

	Treatment (n=45)	Control (n=43)	P-Value*
Categorical Variable	n (%)	n (%)	
Ethnicity			
Caucasian	14 (31.1%)	4 (9.3%)	.10
Chinese	8 (17.8%)	11 (25.6%)	
Filipino	10 (22.2%)	12 (27.9%)	
Hawaiian	2 (4.4%)	5 (11.6%)	
Japanese	9 (20.0%)	6 (14.0%)	
Others	2 (4.4%)	5 (11.6%)	
Continuous Variable			
	Mean (SD)	Mean (SD)	P-Value**
Age (years)	66.7 (± 11.6)	62.9 (± 14.6)	.18
Education (years)	13.0 (± 3.8)	12.1 (± 4.3)	.34
BMI	25.6 (± 4.1)	25.5 (± 7.3)	.89
Parity	2.4 (± 1.2)	2.2 (± 1.6)	.58

*Based on Fisher’s exact tests for categorical variables. **Based on two-sample t-tests for continuous variables.

Treatment Group	Responsive	Partially Responsive	Failed	Total
Control	4 (9.3%)	8 (18.6%)	31 (72.1%)	43
Treatment	14 (31.1%)	24 (53.3%)	7 (15.6%)	45
Total	18	32	38	88

Fisher’s exact tests:

P < .0001 (Treatment vs control for all 3 categories: response, partial response, failed);
P < .0001 (Comparing Treatment by Outcome Response + Partial Response vs Failed);
P = .02 (Comparing Treatment by Outcome Response vs Partial Response + Failed).

showed statistically significant improvement, compared with those in the control arm (*P* < .001) (Table 2). There were 31.1% (n=14) of women within the Treatment group who qualified for the Responsive category versus 9.3% (n=4) of the Control group. Within the Treatment group, 53.3% (n=24) of women were Partially Responsive versus 18.6% (n=8) of the Control group. Lastly, there were 15.6% (n=7) of women within the Treatment group and 72.1% (n=31) within the Control group who qualified for the Failed category.

At the eight-week follow-up visit, the results were nearly identical to those observed at two weeks post-treatment: 31.1% (n=14) of women within the Treatment group and 9.3% (n=4) within the Control group qualified for the Responsive category; while 51.1% (n=23) of women within the Treatment group and 20.9% (n=9) within the Control group qualified for the Partially Responsive category. Lastly, 17.8% (n=8) of women within the Treatment group and 69.8% (n=30) within the Control group qualified for the Failed category. When all three outcome categories were compared at eight weeks, there were significant differences between treatment groups (*P* < .001) (Table 3; Figure 1). When aggregating partial and full response together, 82% of women from the Treatment Group had at least a partial response to the urethral calibration treatment compared to 30%

Treatment Group	Responsive	Partially Responsive	Failed	Total
Control	4 (9.3%)	9 (20.9%)	30 (69.8%)	43
Treatment	14 (31.1%)	23 (51.1%)	8 (17.8%)	45
Total	18	32	38	88

Fisher's exact tests: $P < .001$ (Treatment vs control for all 3 categories: response, partial response, failed); $P < .001$ (Comparing Treatment by Outcome Response + Partial Response vs Failed); $P = .02$ (Comparing Treatment by Outcome Response vs Partial Response + Failed).

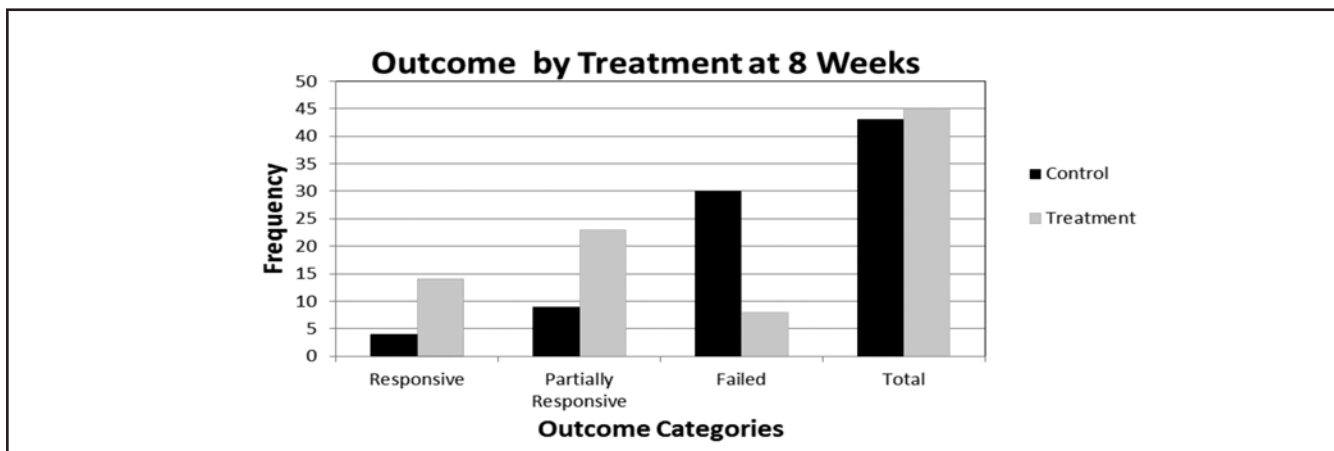


Figure 1. Outcome Types for Urethral Calibration Treatment vs Control at Eight Weeks

Treatment (n) / Control (n)		Outcome at 8 weeks			2 week Subtotal
		Responsive	Partial Responsive	Failed	
Outcome at 2 weeks	Responsive	9 / 2	4 / 2	1 / 0	14 / 4
	Partial Responsive	4 / 2	18 / 5	2 / 1	24 / 8
	Failed	1 / 0	1 / 2	5 / 29	7 / 31
8 weeks Subtotal		14 / 4	23 / 9	8 / 30	45 / 43

of women from the Control Group ($P < .001$). When comparing those participants who met the “Responsive” criteria with participants in the other two outcome types (“Partially Responsive” and “Failed”), there was still a significant difference between the Treatment and Control Groups ($P = .02$). It should be noted that although the results were very similar at 2 and 8 weeks post-treatment, there was some movement between the three outcome categories (Table 4)

The study participants were unblinded at the end of the eight week follow up visit, and those who had been in the control group were offered the option of having the treatment done. Thirty-eight of the original 45 participants in the control group accepted and had urethral calibration. The 83 total participants who had urethral calibration done were followed for an additional 12 months. At 2 months after the initial calibration, 60% of participants had the calibration procedure repeated again, if bothersome symptoms returned. At 12 months, half of participants still met criteria for the Responsive category, 20%

still showed a Partial Response, and 30% were in the Failed category.

There were no reports of any chronic problems as a result of the urethral calibration procedure. At 12 months there were no strictures or difficulty voiding. At the start of the study, 44 participants also had symptoms of stress incontinence (25 in the treatment group, and 19 in the control group). There were no new cases of stress incontinence reported at 12 months.

Discussion

This study demonstrates that urethral calibration can be an effective, low cost, office based alternative treatment for the symptoms of OAB syndrome. The current Medicare cost for a Urethral Calibration procedure is \$65.70 compared to the cost of anticholinergic medication which runs from \$30.78 to \$269.99 for a one month supply. Previous literature had reported the use of urethral dilation for treatment of other voiding problems, but this is first reported use in the treatment of OAB. The study

team chose to use urethral calibration, as opposed to dilation, because the goal was to return the urethra to the normal diameter. It was hoped that this strategy would also minimize any potential side effects from overdistention, such as tearing, scarring, or stricture. In this study, no participants reported any adverse side effects from the calibration process.

This study is limited by its small sample size, but was still able to show a statistically significant improvement in OAB symptoms in the treatment group compared to the placebo group. It is of note that even though the frequency of outcomes stayed about the same at two and eight weeks, there was movement of participants among outcome categories for both Treatment and Control groups. At this time, the duration of the effectiveness of the treatment is not known, as participants were only followed for 12 months, and some did require a second calibration procedure 2 months after the first. A study following participants for a greater length of time may be warranted in the future. Repeated calibration procedures may improve effectiveness and may also be acceptable to patients. It is currently known that the majority of patients on anticholinergics will discontinue the medication due to side effects, leaving them with few options to control their symptoms. Some patients prefer not to take medication or have other medical conditions that may preclude taking anticholinergics. This procedure would give them another option for treatment.

It was not the objective of this study to attempt to explain the etiology of OAB. Clearly, detrusor instability alone cannot explain all cases of OAB and several other theories have been proposed. These include disorders of the intrinsic neuromodulatory mechanisms, bladder or urethral irritation, and outflow obstruction. Further research into causative mechanisms and treatments is needed.

Conclusion

Urethral calibration significantly improves the symptoms of overactive bladder when compared to placebo and may be an effective alternative treatment method.

Conflict of Interest

None of the authors identify a conflict of interest.

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Five Years After the Hawai'i Smoke-free Law: Tourism and Hospitality Economic Indicators Appear Unharmed

Katharine A. Dobson MPH, CPH; Cheryl Rivard MPH; Julian Lipsher MPH, CHES; and Andrew Hyland PhD

Abstract

Opponents of Hawai'i's smoke-free law argued that such a law would lead to a decrease in tourism. The purpose of this study is to determine if there is evidence of an adverse impact of Hawai'i's smoke-free law on tourism utilizing data obtained from Hawai'i's Department of Business, Economic Development & Tourism website for tourists from the United States. Descriptive statistics were reported before and after the law and linear regression was used to assess the relationship between the implementation of the law and changes in indicators of tourism while adjusting for underlying economic factors. The most pronounced fluctuations observed with all tourism indicators occurred around the time the US entered the recession (December 2007), with steady increases following the end of the US recession. While controlling for economic and seasonal trends, the presence of the smoke-free law was associated with an increase in arrivals ($\beta = 42847.9$; 95% CI: 16303.3, 69392.5), accommodation employees ($\beta = 969.0$; 95% CI: 351.1, 1586.8) and food services & beverage places employees ($\beta = 3390.8$; 95% CI: 2326.9, 4454.7). Fluctuations in tourism indicators are likely to be associated with greater economic forces, such as decreasing GDP and consumer confidence in the United States and greater global economic trends, rather than the smoke-free law.

Keywords

Public Health, Policy, Tourism, Economics, Smoke-free law

Introduction

On November 16, 2006, Hawai'i became the 14th state to implement a comprehensive statewide law prohibiting smoking in all enclosed or partially enclosed places of employment, including bars, restaurants and nightclubs.¹ This followed a series of county ordinances that were implemented in all Hawai'i's counties earlier in the 2000s that covered many workplaces but exempted others, including bars and taverns. At the time of its passage, more than 85% of all Hawai'i voters were in favor of this law.²

The Hawai'i Smoke-free Law specifically requires that all enclosed and partially enclosed places open to the public and workplaces provide a completely smoke-free environment. In addition, smoking is prohibited within 20 feet of doorways, operable windows, or ventilation intakes of such places that prohibit smoking. The state law sets a minimum level of protections against exposure to secondhand smoke. Individual business and counties may enact stricter policies and ordinances. For example, hotel chains may choose to enact comprehensive smoke-free policies that prohibit smoking anywhere on the hotel property.

Previous studies in other states and countries have consistently shown smoke-free regulations do not adversely impact economic indicators.³ Over 200 studies have examined the impact of smoke-free laws on the hospitality industry, but the majority focused on restaurant and bar revenue rather than overall tourist

spending.⁴ Few studies have assessed the potential impact of smoke-free policies specifically on local tourism, rather than bar and restaurant revenue.⁵⁻⁷ However, the limited published literature does not evaluate a state that relies as heavily on tourism as Hawai'i, where it accounts for as much as a third of all economic activity in the state,⁸ one third of employment and nearly one quarter of the gross state product.⁹ One study explored the effect of a nationwide smoke-free law in bars, restaurants, and casinos in New Zealand on their revenue as a proxy for tourism and hospitality industries and did not find a sustainable negative impact of the law.⁷

Beginning in 2005, the year prior to the smoke-free law's implementation, the US and world had been in a tumultuous financial situation. Increasing unemployment rates and fluctuating consumer confidence in the economy, combined with the increasing economic turmoil led the US to officially be in a recession from December 2007 through June 2009. The price of petroleum began to skyrocket in the midst of the US recession in March 2008, resulting in the increase in gasoline and jet fuel prices, as well as airline ticket prices. Slow economic recovery in the US and the continuation of a global recession through the present day has resulted in a social climate of continued recession despite its technical end in 2009. Many economic factors are dependent on each other in various combinations, any of which can affect the tourism industry.

Leading up to its passage, proponents argued that workers' health was at risk due to secondhand smoke exposure, while opponents of the law claimed that Hawai'i's unique situation as a tourist destination placed its tourism industry at risk of economic losses. The purpose of this brief report is to provide an assessment of this claim by evaluating multiple objective data sources to determine if there is evidence that Hawai'i's tourism and hospitality business sectors suffered adverse economic consequences in the five years following the smoke-free law taking effect.

Methods

The methods for evaluating the potential economic impact of the Hawai'i smoke-free law data follow existing practices for similar studies conducted in other cities and states. Data on domestic and international visitor arrivals and monthly spending was obtained from Hawai'i's Department of Business, Economic Development & Tourism (DBEDT) from January 2003 to November 2011. The data for passengers arriving by air was determined using the Domestic In-flight Survey and the International Departure Survey.¹⁰ The surveys are an optional

portion of the mandatory Hawai'i State Department of Agriculture's Plants and Animals declaration form for all arrivals by air and sea. The data were not collected from a convenience sample of a few people leaving Hawai'i, but was rigorously collected to obtain large sample sizes. In 2010, there were a total of 5,022,884 arrivals on domestic flights from the United States and 2,948,282 Domestic In-flight Surveys were completed and used for data collection, suggesting that approximately 59% of domestic visitors completed the survey.

Aggregate data on domestic and international arrivals by air were used for these analyses, but excluded arrivals by foreign cruise ships, as well as returning residents and potential residents.¹² Data on average monthly arrivals and spending were restricted to those arriving on domestic flights to explore the influence of the smoke-free law, the economic and seasonal trends on tourism indicators among arrivals from the United States. However, these results did not differ greatly from the overall data including international visitors. Monthly spending included expenditures by visitors while in Hawai'i and prepaid travel packages that included airfare and accommodations. Data on the total monthly spending, in millions of US dollars, was adjusted to the 2011 dollar using the second half 2011 consumer price index for Hawai'i to control for inflation.¹¹ Information on the monthly average number of "accommodation" and "food services & drinking places" employees was also obtained from the State of Hawai'i DBEDT.¹² Accommodation employees include hotel, motel, bed and breakfast, recreational or outdoor lodging such as camp sites, and long-term temporary lodging employees.¹³

Statistical Analysis

Descriptive and multivariate statistical analyses were used to analyze the tourism specific indicators. Year-over-year percent change in monthly arrivals and monthly average tourist spending are presented graphically, along with the annual global GDP growth, from January 2004 to November 2011 (Figures 1 and 2, respectively). The year-over-year percent change gives a broad overview of the tourism indicator trends over time while taking into account seasonal trends. The year-over-year percent change in the monthly average of "accommodation" employees and "food services & drinking places" employees were also examined as an important tourism outcome that is a direct representation of the impact on the local economy (Figure 3). Four key time points are indicated on Figures 1, 2 and 3: the date the smoke-free law took effect, the beginning of the US recession, the end of operation for Aloha Airlines (a major airline that flew inter-island and west coast United States to Hawai'i) and the official end of the US recession. This recession was the longest recession experienced since the Great Depression and was not limited to the United States, but was experienced on a global scale.¹⁴

Other tourism indicators that were examined in the same manner include average daily spending and the average length of stay, but these results are not shown. All variables were examined as a monthly average and as the year-over-year

percent change. Opponents to the smoke-free law argued that the tourism industry would suffer financially as a result of the smoke-free law, therefore only the arrivals, monthly spending and the change in employment indicators are shown here.

Four multiple linear regression models were constructed for the number of arrivals for visitors, average monthly spending, monthly average accommodation employees and monthly average food services & drinking places employees using SPSS v20 (IMB Corp., Armonk, NY). The main independent variable is whether the smoke-free law was enforced during a given month or not (coded 0 for pre-law [January 2003–November 2006] and 1 for post-law [December 2006–November 2011]). Models were also run that included November 2006 in the post-law period because the law took effect halfway through that month and all conclusions remain unchanged. To control for underlying temporal and economic trends, additional covariates such as an indicator for the pre- and post-recession time (pre-recession coded 0 [January 2003–November 2007]; post-recession coded 1 [December 2007–November 2011]) and weighted annual global GDP growth were included in the model. Country specific annual growth in GDP was obtained from The Conference Board Global Economic Outlook 2013.¹⁵ Country specific weights were given based on the proportion of visitor arrivals to Hawai'i in 2010 from the Hawai'i DEBDT and total weighted change in GDP score was used as a global measure of underlying economic trends.¹⁰ Three dummy variables for season were also included in the linear regression models. Winter (December, January, and February) was the referent group; spring included March, April and May; summer included June, July and August; and fall included September, October and November. Statistical significance (as evidenced by a 95% confidence interval that does not include zero) of the smoke-free law indicator variable would indicate a step increase or decrease after the law took effect.

Results

Monthly Overall Arrivals

A relationship between economic factors (GDP) and year-over-year percent change in monthly overall tourist arrivals can be observed in Figure 1. Fluctuations in the year-over-year percent change in arrivals began shortly after the implementation of the law. However, the US entered a recession one year after the smoke-free law took effect. The GDP began a steady decline three years prior to the official start of the recession, while fluctuations in tourist arrivals began two years prior to the start of the recession. A sharp decline in arrivals compared to the previous year began in March 2008, as the GDP growth began a sharp decline. As the recession officially ended and the GDP growth began to increase again, the arrivals began a sharp increase as well. The overall percent change from pre-law to post-law average number of arrivals was -0.4%, with an average of 582,331 pre-law arrivals and 580,053 post-law arrivals. Through economic turmoil, the post-law number of arrivals only decreased by less than one percent.

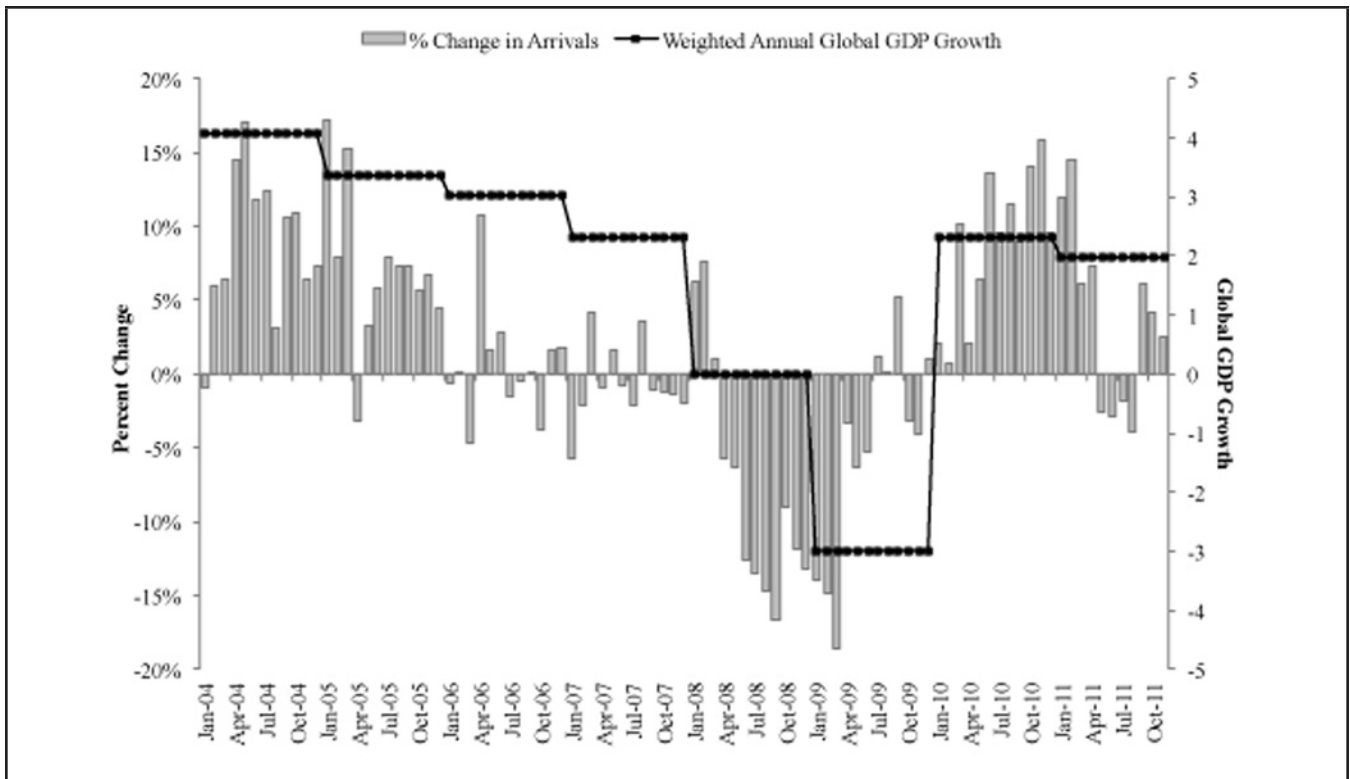


Figure 1. Year-Over-Year Percent Change in the Monthly Average Number of Overall Tourist Arrivals, January 2004 to November 2011

Note: The percent change from pre-law to post-law average number of arrivals was -0.4%. The pre-law average of tourist arrivals was 582,331 compared to 580,053 after the implementation of the law.

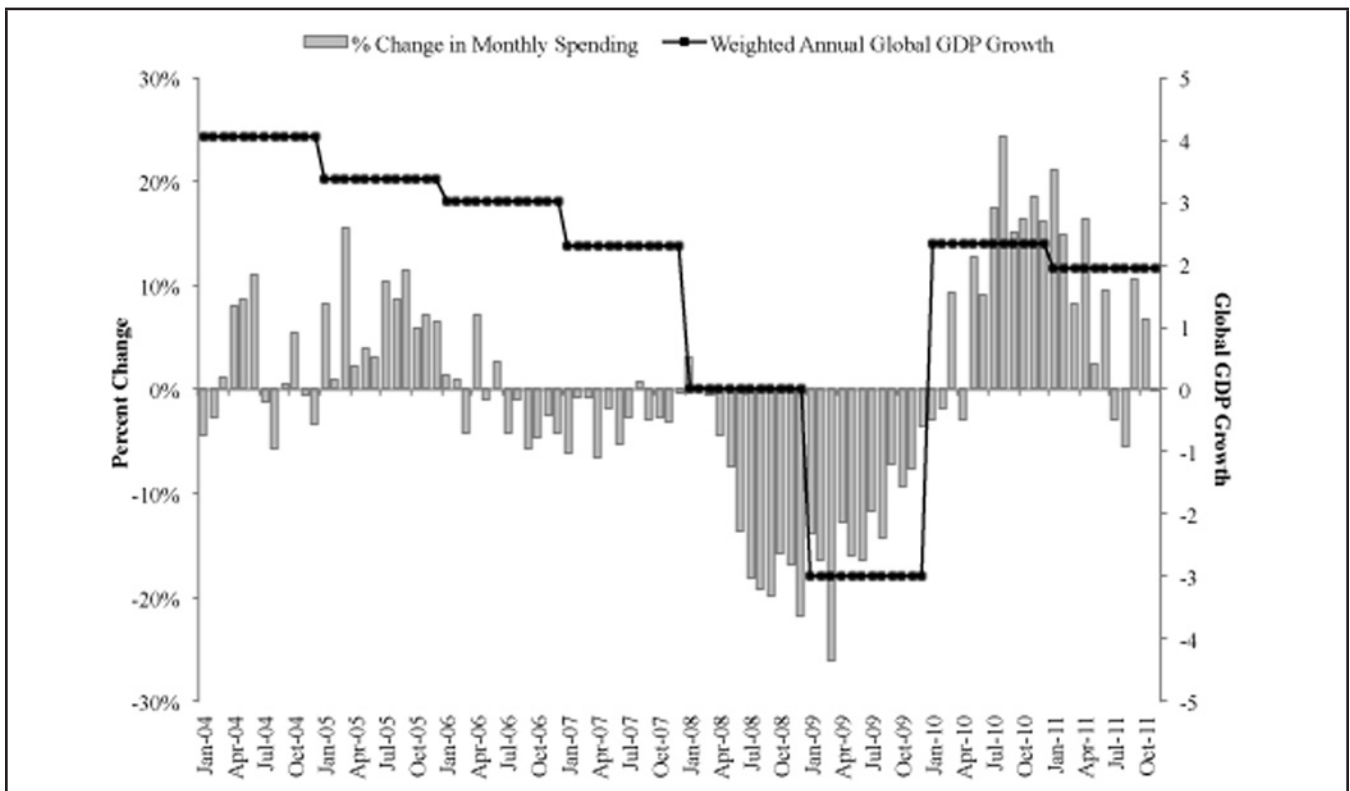


Figure 2. Year-Over-Year Percent Change in the Monthly Average Overall Tourist Spending in Hawai'i, January 2004 to November 2011

Note: Monthly average US spending in millions of US dollars was adjusted to the 2011 US dollar. The percent change from pre-law to post-law average monthly tourist spending was -11.4%. The pre-law monthly average tourist spending was \$1.18 billion compared to \$1.04 billion after the implementation of the law.

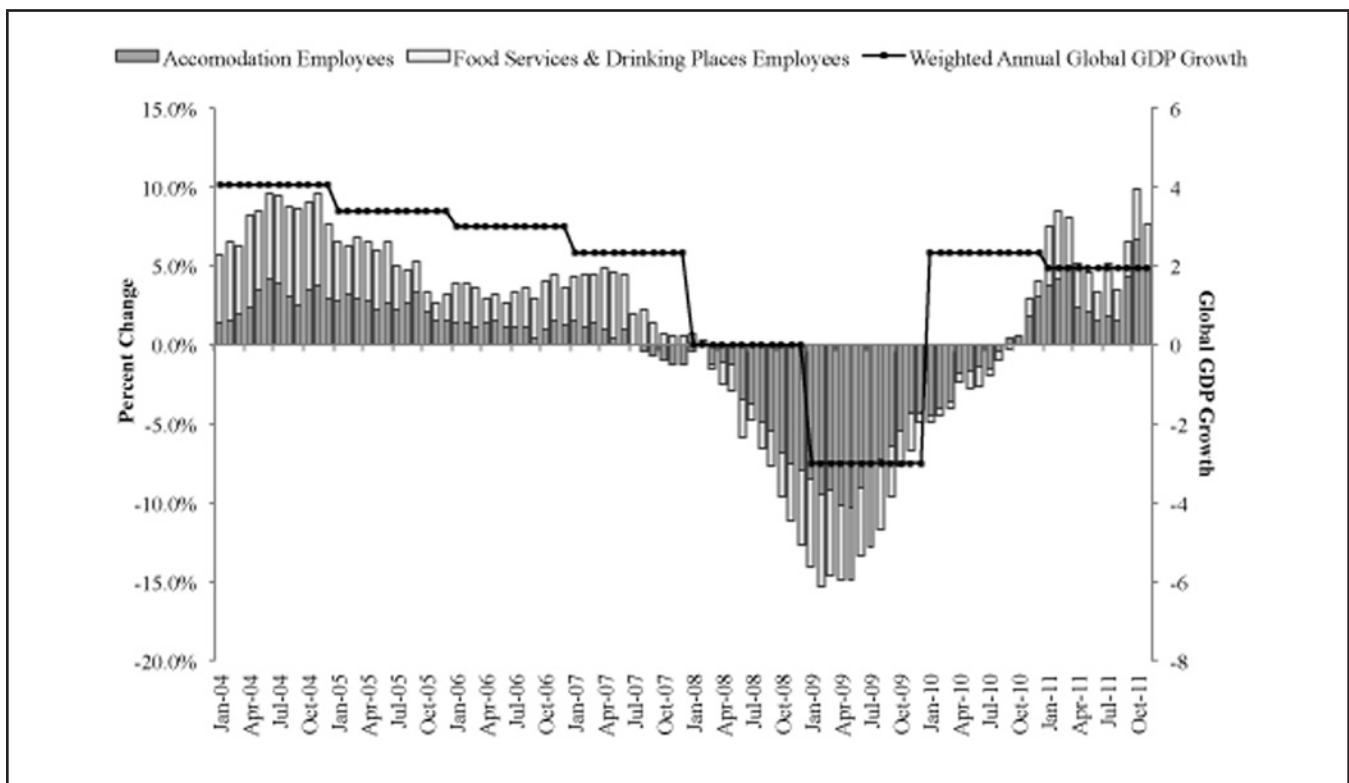


Figure 3. Year-Over-Year Percent Change in the Number of “Accommodation” and “Food Services & Drinking Places” Employees in Hawai’i, January 2004 to November 2011.

Note: The percent change from pre-law to post-law average accommodation employees was -4.3% and the percent change from pre-law to post-law average food services & drinking places employees was 3.3%. The average pre-law accommodation employees were 38,346 compared to 36,163 after the law. The average pre-law food services & drinking places employees were 55,519 compared to 56,608 after the implementation of the law.

Monthly Overall Tourist Spending

The impact of the economy on the number of overall monthly tourist spending in Hawai’i is evident with the percent year-over-year difference in monthly average spending, when compared to the annual global GDP growth (Figure 2). If the smoke-free law had a major impact on tourist spending, a sharp decline following the implementation of the law would be expected. However, the fluctuations that began nine months prior to the implementation of the law continued until March 2008, while the global GDP growth was slowly declining. Beginning in April 2008, the overall tourist spending year-over-year difference continued to decline till June 2009 along with a sharp decline in global GDP growth. From July 2009 through November 2011, fluctuations in spending were experienced but the overall trend suggests a growth in spending compared to the years prior. The consistent decline in spending reflects the time the US was in a recession (January 2008 – June 2009), and the overall trend for growth in spending reflects the economic recovery period (after June 2009). The pre-law monthly average tourist spending was \$1.18 billion compared to \$1.04 billion in the post-law period, a -11.4% change.

Accommodation and Food Services & Drinking Places Employees

The year-over-year percent change in the monthly average employees in both the accommodation and food services & drinking places sectors followed similar trends from January 2004 through November 2011 (Figure 3). A steady but modest increase in the number of employees in both sectors was observed from January 2004 through July 2007. In August 2007, the first observed decline in the number of employees in the accommodation sector compare to the previous year was observed. In April 2008, seventeen months after the implementation of the smoke-free law and four months after the official start of the US recession, both accommodation and food services & drinking places employment numbers began to sharply decrease compared to the previous years. This sharp decrease directly correlates to the sharp decreasing trend observed in the global GDP growth at that time. More than 12 months after the official end of the US recession, the number of hospitality and tourist industry employees began to increase compared to the previous year. Again, this trend closely follows a sharp increase in the global GDP growth after the end of the recession. The pre-law average number of accommodation employees was 38,346 compared to 36,163 in the post-law period, a decrease of 4.3%. The pre-law average number of food services & drinking places employees was 55,519 compared to the post-law average of 56,608 an increase of 3.3%.

Regression analyses of these four tourism indicator variables support the hypothesis that any decline or fluctuations in the tourist and hospitality industry in Hawai'i were associated with the economy rather than the implementation of the smoke-free law. While controlling for seasonal and economic trends in Table 1, the indicator variable for the presence of the smoke-free law shows a statistically significant positive association with the number of arrivals ($\beta=42847.9$; 95% CI: 16303.3, 69392.5). The presence of the smoke-free law is associated with a statistically significant increase in accommodation employees ($\beta=969.0$; 95% CI: 351.1, 1586.8) and food services & drinking places employees ($\beta=3390.8$; 95% CI: 2326.9, 4454.7), while controlling for economic and seasonal trends (Table 2). Specific seasons were associated with changes in arrivals and

monthly spending, but not with tourism employment (see Tables 1 and 2). Presence of the recession was significantly associated with a decrease in monthly tourist spending ($\beta=-123.5$; 95% CI: -183.1, -63.8), a decrease in accommodation employees ($\beta=-3231.7$; 95% CI: -3889.3, -2574.1), and a decrease in food services & drinking places employees ($\beta=-1836.6$; 95% CI: -2969.0, -704.2). Global annual GDP growth was significantly associated with increased tourist arrivals ($\beta=12468.6$; 95% CI: 7205.4, 17731.8), monthly tourist spending ($\beta=23.9$; 95% CI: 12.8, 35.0), accommodation ($\beta=234.3$; 95% CI: 111.8, 356.8) and food services & drinking places employees ($\beta=344.8$; 95% CI: 133.9, 555.8), once again supporting that the economy is a strong driver of tourism and hospitality trends rather than the smoke-free law.

Table 1. Factors Associated with Trends in Monthly Tourist Arrivals and Tourist Monthly Expenditures				
Variables	US Tourist Arrivals		Monthly Expenditures (2011\$ Millions)	
	β	95% CI	β	95% CI
Constant	534369.1	509507.7, 559230.6	1178.2	1125.7, 1230.7
Presence of the Smoke-free Law	42847.9	16303.3, 69392.5	20.3	-35.8, 76.3
Season				
Winter	Ref.	Ref.	Ref.	Ref.
Spring	-4350.5	-26622.2, 17921.3	-154.0	-201.0, -106.9
Summer	74932.0	52660.2, 97203.7	24.2	-22.9, 71.2
Fall	-36986.5	-59258.2, -14714.8	-161.2	-208.3, -114.2
Recession	-18509.9	-46763.3, 9743.6	-123.5	-183.1, -63.8
Global GDP Growth Average	12468.6	7205.4, 17731.8	23.9	12.8, 35.0
R ²		0.586		0.693

Note: Each linear regression model is adjusted for all variables listed. Monthly expenditures were adjusted for the 2011 dollar and are presented in millions of US dollars. Bold β coefficients and 95% confidence intervals are statistically significant at $P<.05$.

Table 2. Factors Associated with Trends in Monthly Accommodation Employees and Food Services & Drinking Places Employees				
Variables	Accommodation Employees		Food Services & Drinking Places Employees	
	β	95% CI	β	95% CI
Constant	37624.6	37046.0, 38203.3	54488.6	53492.1, 55485.0
Presence of the Smoke-free Law	969.0	351.1, 1586.8	3390.8	2326.9, 4454.7
Season				
Winter	Ref.	Ref.	Ref.	Ref.
Spring	-103.2	-621.5, 415.2	127.2	-765.5, 1019.8
Summer	-127.2	-645.6, 391.2	-295.1	-1187.7, 597.6
Fall	156.1	-362.3, 674.5	-61.7	-954.3, 830.9
Recession	-3231.7	-3889.3, -2574.1	-1836.6	-2969.0, -704.2
Global GDP Growth Average	234.3	111.8, 356.8	344.8	133.9, 555.8
R ²		0.735		0.275

Note: Each linear regression model is adjusted for all variables listed. Bold β coefficients and 95% confidence intervals are statistically significant at $P<.05$.

Discussion

Positive associations were observed between the smoke-free law and the tourism and employment indicator variables when controlling for seasonal and economic trends. The implementation of the smoke-free law was associated with an increase in the monthly average tourist arrivals, accommodation employees, and food services & drinking places employees. A similar increase in the number of employees in the restaurant industry was observed in New York City after the implementation of an indoor smoke-free law.¹⁶

Except for the recession indicator variable in the arrivals model, economic indicator variables were statistically significant in all regression models, suggesting that the economy is a strong driving force behind fluctuations in tourism and hospitality outcomes in Hawai'i. In conjunction with seasonal fluctuations, economic turmoil may have caused a decline in the tourist arrivals, tourist monthly spending, and hospitality industry employees. An unaccounted for interaction between seasonal trends and the effects of the recession or greater economic instability occurring around the implementation of the law may have also influenced the results. In 2009, an economics professor at Hawai'i Pacific University, told the Honolulu Star Bulletin that the "Hawai'i Tourism industry may not see a boost until 2011," which is what the graphic results depict for the three tourism indicators examined.⁹

Hawai'i is only accessible by air or sea and 98% of the visitors arrive by air,¹⁷ which makes it practical to attempt to survey all visitors, making this unique data collection strategy advantageous for this analysis. For example, it would be very difficult to survey visitors to a state with land access as many will drive to their destination. One advantage of this evaluation is the utilization of routinely collected comprehensive monthly information of all tourists arriving to Hawai'i by plane. The data is not subject to the limitations of information reported quarterly, which is often reported for economic impact studies, and it results in a large number of data points from the years before and after the law. Lastly, the analyses in this study are unique to exploring the impact of a smoke-free law on the tourism and hospitality industry. Few studies in the published literature utilize tourist spending or employment information for the related industries; rather, they report revenue for restaurants and bars. Reporting the number of employees is a reflection of the economic climate and the demand for service, therefore increases in tourism and the economy are likely to boost the number of employees in the tourism and hospitality industries.

Despite advantageous data collection and reporting, there are limitations with the data as well. They are aggregate data therefore trends in subsets of visitors are masked. Similarly,

seasonality affects tourism in Hawai'i and must be accounted for when analyzing monthly aggregate financial data. Only overall economic changes can be assessed, rather than the economic impact on specific businesses. Another limitation is that there is limited ability to look at underlying economic trends in comparison to the available outcome data. A number of different measures and combination of measures were explored as potential covariates in the regression models; however, the weighted annual global GDP growth variable statistically and conceptually suited the models best. The global GDP growth variable best captured global economic instability in the absence of a readily available overall global economic indicator variable. Including a time variable in the regression models is inappropriate in the models presented because it reflects a linear trend. To address this issue, the recession variable was included in the models to reflect a non-linear time trend since time and an indicator variable for recession were highly correlated ($r=0.861$; $P<.001$).

In conclusion, it does not appear that the smoke-free law had a harmful effect on the tourism and hospitality industry in Hawai'i. The implementation of the law prior to the unforeseen economic downturn for both the United States and global economies creates a difficult and unstable time to measure tourism indicators. However, taking into account the economic trends and the smoke-free law, it appears that the economy had a major impact on tourism in Hawai'i, not the smoke-free law. Not only is the Hawai'i smoke-free law beneficial for the health of the patron and worker, but it does not appear to have a negative impact on tourism, employment, or patronage to venues that once allowed smoking in Hawai'i.

Conflict of Interest

None of the authors identify a conflict of interest.

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MEDICAL SCHOOL HOTLINE

Enhancing Problem-Based Learning with Technology: The Introduction of iPads into the John A. Burns School of Medicine Curriculum

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The Medical School Hotline is a monthly column from the John A. Burns School of Medicine and is edited by Satoru Izutsu PhD; HJMPH Contributing Editor. Dr. Izutsu is the vice-dean of the University of Hawai'i John A. Burns School of Medicine and has been the Medical School Hotline editor since 1993.

Problem-Based Learning (PBL) has been the primary educational modality at the John A. Burns School of Medicine (JABSOM) since 1989. In PBL, students work in small groups to process through health care problems (HCPs), which are essentially patient cases. The students discuss their hypotheses and possible explanations for the clinical findings, and develop a list of learning issues (LI) which are topics and concepts needed to learn about to better understand the HCP. The students research their LI, create a handout or presentation, and then present their LI to the PBL group for discussion at the next session. Many articles have discussed the positive values of PBL including better problem-solving skills, higher USMLE Step 2 scores, and increased retention of material.^{1,2}

Some medical schools have been utilizing computer and web-based multimedia scenarios to enhance the text-based PBL cases for their students since the early 2000's.^{3,4} The multimedia format made the patients in the cases realistic and more importantly, the students found the cases were more stimulating and improved self-directed learning.^{3,4} While computer technology has been utilized by students for many years, in the past it was cumbersome for students to take notes on digital documents. Most schools found that their students were still printing electronically disseminated materials. The introduction of the iPad in 2010 allowed individuals to take notes directly on digital documents and provided a portable alternative to access the internet and other digital media.

Since its introduction, numerous medical schools have integrated iPads into their curriculum. In 2011, nine medical schools reported using iPads in their curriculum.^{5,6} Current estimates indicate that 25% of all US medical schools require the use of iPads.^{5,6} The majority have used this tablet technology to deliver course and lecture material in digital format. Some have also taken advantage of the versatility and interactive capability of ePublications (ePubs), which are digital text books that allow for the integration of video, audio, and other interactive features. ePubs are useful for medical courses and have been shown to increase student interest and retention of material.^{6,7} The medical schools that have incorporated iPads into their curricula have

found many benefits of this technology, including increased student satisfaction, cost savings, and more innovative course materials.^{6,7} In 2012, JABSOM conducted a pilot study to see if integrating iPads into the PBL curriculum would be both feasible and satisfying for the students in terms of navigating through the HCPs and their LI handouts. In addition, the use of technology to digitally enhance the HCPs to make them more interactive and fun was explored.

Pilot Study

During the third curricular unit (MD3) for first year medical students, 12 students, who already owned iPads, volunteered to participate in the study. These students were placed into two PBL groups that received all of their HCPs and LI handouts electronically and were asked to refrain from printing any course material. For these groups, digital annotations were added to the electronic versions of the PBL cases. These annotations included color pictures with "pop-up" descriptions, audio files, and video files. The annotations allowed the students to see physical findings, diagnostic studies, slides, and hear heart and lung sounds instead of reading a description on paper. The students were encouraged to hypothesize and discuss what they were seeing and hearing before they looked at the "pop-up" descriptions, with the aim to improve both their clinical skills and clinical reasoning skills. All lecture handouts were delivered electronically to the pilot students. The study was continued in the fourth curricular unit (MD4) and 12 new students were added to the study, bring the total to 24 students, comprising four PBL groups. Eight of these 24 students did not own iPads and were given loaners for the duration of the unit. This allowed the evaluation of whether students who were not familiar with the use of iPads would have more difficulty navigating through the cases and using the annotations.

At the end of the study, the overall performance of the iPad students compared to non-iPad students and student/tutor satisfaction with using iPads for PBL was examined. The results were overall positive, from both the students and the faculty tutors, for the use of iPads in PBL. T-tests were conducted and

there were no significant differences between the iPad “naïve” students and those that already owned their own iPads. This was measured both in terms of overall performance and satisfaction ratings. In MD3, there was no significant difference between the test scores of iPad students compared to traditional “paper” students. However, in MD4, the iPad students’ scores, analyzed via a t-test, were statistically higher than the “paper” students. (Figure 1)

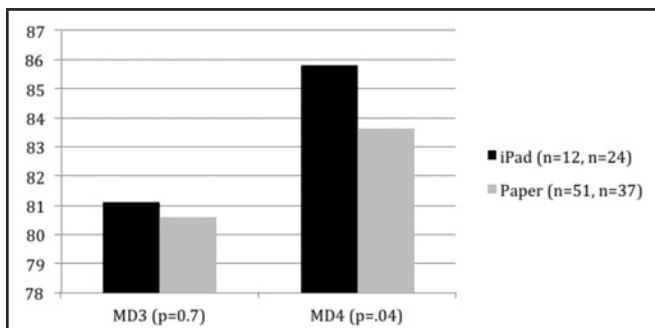


Figure 1. Test scores of iPad students vs paper students in MD3 and MD4

In each of the categories for satisfaction, all of the iPad students rated the use of iPads compared to paper for PBL as “better” or “much better.” (Table 1)

Table 1. Satisfaction ratings of MD3 and MD4 iPad students when comparing iPads to paper use for PBL (N=24)	Mean
My efficiency in creating learning issues for use on an iPad	4.5
My creativity in creating learning issues for use on an iPad	4.8
My creativity in presenting learning issues with my iPad	4.5
Group efficiency in going through the cases	4.4
Group efficiency in presenting learning issues	4.4
My satisfaction with the PBL process using iPads	4.7

Ratings: 1=much worse, 3=same, 5=much better

All of the pilot students “strongly agreed” that the digital case enhancements added to their overall learning and that the iPads made the cases more fun. In addition, 92% of the students felt it was “easy” or “very easy” to use the iPads to take notes on the cases and the handouts, with the other 8% finding it “difficult.” The same 92% of students reported they did not print out any of the electronically distributed material during the units. The 8% who found annotating difficult, none of whom were iPad naïve students, reported that they printed out approximately 75% of the material. All of the PBL tutors that participated in the pilot found the iPads to be a beneficial adjunct to PBL, enjoyed having only electronic cases and handouts, and found that student learning issues and presentations were also better compared to traditional “paper” groups.

Student comments regarding the use of iPads for PBL:

“It was so much better going through the cases with the iPads. The picture and sound enhancements definitely added to our learning and made the cases more fun. They also made me think harder about clinical findings and situations.”

“I felt that our group processed the cases more efficiently than when we were using paper. It is really nice not to have to carry around a heavy binder full of papers.”

“Presenting LI’s was really smooth. Not having to worry about color printing made everyone more creative in making their LI’s.”

Tutor comments regarding using iPads for PBL:

“I never want to go back to using paper cases. The students really seem to enjoy the case enhancements and having to look at the pictures and listen to the sounds without being told what they are looking or listening to also helps to boost their clinical skills.”

“The quality of the student learning issues was noticeably superior in this group of students. They made good use of color pictures and diagrams and used the annotative features in iAnnotate to make their presentations and handouts more interactive.”

Discussion

At JABSOM, there are roughly 90 HCPs over the first two years of medical school, supplemented by 8 hours of lecture per week. Until 2012, the HCPs, LI handouts, and lecture handouts were all duplicated on paper. Approximately 411,000 sheets of paper were distributed in each medical class cohort during their two preclerkship years. Considering the cost of paper, ink, copier/printer maintenance, binders, and other office supplies, it was estimated that approximately \$3,500 would have been saved for each of the 6 preclerkship curricular units if paper handouts were replaced with electronic media.

Although the sample size of this pilot study was small, the results were positive. In addition to the cost savings from not printing out PBL and lecture materials, multimedia case enhancements were provided, which improved learning and satisfaction for the students. An unanticipated benefit found in the study was the improvement in the quality of student-generated learning issues. In the past, students did not often include color pictures, tables, and diagrams into their handouts because of the cost to print color handouts. If printed in black and white, the pictures in their handouts came out very dark. By having electronic versions of the handouts, students started to incorporate more color into their learning issues. They also included more sound and video files, links to useful web resources, and interactive pop-ups into learning issues, making the discussions in PBL groups more fun, fulfilling and memorable.

The success of the pilot study, including the costs savings, increased student and tutor satisfaction, preservation of overall performance, and ease of note taking, prompted the JABSOM curriculum committee to decide on incorporating iPad use for all students. Starting with the Class of 2016 in the Fall of 2012, all incoming students are required to have an iPad. This requirement replaced the previous requirement for all students to have a laptop. Although it was determined that students would still

need access to computers, the resources located at JABSOM are more than adequate to support that need.

Challenges

The incorporation of iPads into the curriculum has not been completely smooth and as with any new initiative, several challenges were encountered in implementing this technology. The following are some of the areas that have been and are currently being addressed.

1) Changing the Culture

The largest challenge was orienting all tutors to the new system. Although all tutors in the pilot study embraced the technology and found it to be easy and beneficial, they volunteered to participate in the study and were probably amongst the more “tech savvy” faculty tutors. When the iPads were introduced to all faculty tutors, a significant amount of training was required to utilize the iPads effectively and efficiently, especially for those tutors who were not as comfortable using the technology. Despite the training sessions, there was still faculty who were uncomfortable with using the iPads in tutorial. In addition, in PBL groups that had tutors who were “frustrated” with the use of the iPads, they were less likely to fully embrace the use of iPads for their curricular needs. These students were more likely to use laptops in tutorial and to print out case material and handouts. While this behavior still remains a challenge, the JABSOM Office of Medical Education (OME) faculty are working towards improving the training in iPad use for both tutors and students. OME is also working on expanding the utilization of the various iPad technologies to broaden the benefits of using iPads in the curriculum.

2) Wireless Needs

The addition of iPads to the curriculum also increased our information technology (IT) needs, primarily the need to expand capacity of the wireless system. It was previously thought that the wireless needs would not increase because the iPads would simply replace laptops in respect to the number of devices that would be connecting to the wireless system. However, many students were bringing both their laptops and iPads to tutorials, which almost doubled the number of devices trying to connect wirelessly. This problem was easily addressed by upgrading the wireless routers and emphasizing the important role IT plays in medical education.

3) Full Utilization of the Technology

When introducing the requirement for iPads into the curriculum, there needed to be more than just cost savings as a benefit to justify the new expense for students. To accomplish this, it is necessary to take full advantage of iPad features and to ensure the PBL cases are uniformly being enhanced for the students

through the use of annotation. This has required the PBL course directors to learn new skills in utilizing digital media for case design and has also pushed for the faculty to brainstorm ways to make full use of the technology. This is an ongoing process and is an area that the course directors are currently working on.

Future Directions

During the current academic year (2013-2014), both the first and second year students will be utilizing iPads in the curriculum. This means that starting in academic year (2014-2015), all of the third year students in their clinical rotations will have iPads. This opens up many possibilities for the clinical clerkships, who are currently exploring ways to utilize this technology in the clinical years. Some of these possibilities include the production and utilization of ePublications to enhance clinical learning, improving access to point-of-care resources for the students, and improving organization and communication for the clerkships.

JABSOM’s preclerkship faculty continues to explore ways to make PBL cases more interactive and to innovatively utilize iPads in their courses. The number of medical education applications for iPads has increased exponentially in the past two years. Measures to determine which applications can be of most utility to our students will be needed. A survey of the current students is needed to explore their iPad use, this will help explore how this technology can be better utilized to the fullest benefit for the students.

Conflict of Interest

None of the authors identify a conflict of interest.

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It Takes a *Hui* to Raise a Child: A Case for Peer-to-Peer Support for Child Abuse Prevention

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Insights in Public Health is a monthly solicited column from the public health community and is coordinated by HJMPH Associate Editors Jay Maddock PhD from the Office of Public Health Studies at John A Burns School of Medicine and Donald Hayes MD, MPH from the Hawai'i Department of Health in collaboration with HJMPH Manuscript Editors Tonya Lowery St. John MPH and Ranjani R. Starr MPH from the Hawai'i Department of Health.

The Problem

In the United States, child abuse has been called a national public health epidemic by the Centers for Disease Control and Prevention,¹ The Child Welfare League,² and Michael Petit, a leading researcher and advocate for child welfare from Every Child Matters,³ among others. A recent BBC documentary investigated why the United States, one of the most prosperous nations on earth, has the worst child abuse record in the industrialized world. "America's child maltreatment death rate is triple Canada's and 11 times that of Italy. Over the past decade, more than 20,000 American children have been killed by their own family members — that is nearly four times the number of US soldiers killed in Iraq and Afghanistan."⁴

Every year, approximately 3.3 million reports of child abuse, involving almost six million children, are made in the United States. Eighty percent of fatality reports involve children under four, with half under one year of age; 80% of the fatalities involve a parent as the perpetrator.⁵ What is worse, a national study conducted by Prevent Child Abuse America early in 2007 suggests that the number of confirmed child abuse fatalities increased 39% over the last 10 years.⁶ Dr. Jack Shonkoff, one of the leading brain researchers on the effects of abuse on healthy child development, confirmed, "Ongoing toxic stress from child abuse and neglect has proven to be impediments to healthy emotional, social and physical development and school readiness."⁷

In a groundbreaking study, Suzuki Tomoda and colleagues discovered that correlational data revealed a significant relationship between harsh childhood physical punishment and the volume of gray matter assessed in adults ages 18 to 25. In this analysis, 1,455 young adults participated in a comprehensive screening. Neuroimaging of brain anatomy revealed that harshly punished participants had significantly reduced volumes of gray matter in three brain regions. Correlations between the brain volume measures and IQ scores were significant as well.⁸

Not only are the consequences of abuse significant to a child's development, but they result in devastating impacts on the health, social fabric and economic productivity of our communities. In 1999, the World Health Organization Consultation on Child Abuse Prevention drafted the following definition of child abuse:

"Child abuse or maltreatment constitutes all forms of physical and/or emotional ill-treatment, sexual abuse, neglect or negligent treatment or commercial or other exploitation, resulting in actual or potential harm to the child's health, survival, development or dignity in the context of a relationship of responsibility, trust or power."⁹

The Center for Disease Control and Prevention (CDC) uses an ecological model to address child abuse prevention and intervention. The CDC's model identifies four categories of risk factors for child abuse including *Risk Factors for Victimization*, *Risk Factors for Perpetration*, *Risk Factors for Families* and *Risk Factors for Community*.¹⁰

They include:

Risk Factors for Victimization

- Children younger than 4 years of age
- Special needs that may increase caregiver burden (eg, disabilities, mental retardation, mental health issues, and chronic physical illnesses)

Risk Factors for Perpetration

- Parents' lack of understanding of children's needs, child development and parenting skills
- Parents' history of child maltreatment in family of origin
- Substance abuse and/or mental health issues including depression in the family
- Parental characteristics such as young age, low education, single parenthood, large number of dependent children, and low income
- Nonbiological, transient caregivers in the home (eg, mother's male partner)
- Parental thoughts and emotions that tend to support or justify maltreatment behaviors

Family Risk Factors

- Social isolation
- Family disorganization, dissolution, and violence, including intimate partner violence
- Parenting stress, poor parent-child relationships, and negative interactions

Community Risk Factors

- Community violence
- Concentrated neighborhood disadvantage (eg, high poverty and residential instability, high unemployment rates, and high density of alcohol outlets), and poor social connections

State-level abuse prevention and intervention programs are often administered through Child and Family Services with support from Departments of Health, Departments of Human Services and Departments of Education. They are generally professional service models whereby a “professional” provides “services” to someone in need, often on a one-on-one basis, focused on the individual, parent, child or individual family. Programs routinely focus on mitigating the risk factors previously mentioned and engage along the ecological spectrum. However, the one aspect of the ecological model that is often missing or insufficient in these programs is the “community” or “social connections” component, integral to primary prevention.

This article will explore peer-to-peer, community-based family support frameworks as critical components of the comprehensive puzzle to end child abuse. Many states across the nation have incorporated family support programs in their state plans to end abuse. Supporting evidence will be presented and one program in particular will be highlighted, Family Hui. Family Hui is an organization founded in Hawai‘i, that has had demonstrated success in preventing abuse over the last 33 years. Pre and post participant surveys consistently demonstrate on average 88% knowledge increase of nonviolent alternatives to discipline challenges. Over 75% of participants report successful application of nonviolent alternatives.

Peer-to-Peer Support Frameworks

Peer-to-peer family support groups are gaining recognition as an integral part of our strategies to prevent child abuse and neglect. The popularity of support groups is evident with estimates of the number of Americans participating in these groups being as high as ten million.¹¹ Not only do peer-to-peer models decrease social isolation and increase peer connection, but they build shared accountability for parenting in more loving and nurturing ways, provide safe spaces for families to share their deepest challenges and provide a framework for sharing of tips and strategies beyond the prescribed curricula. The following three nationally recognized frameworks provide examples of evidence based parent-to-parent support group models.

1. **Parents as Teachers (PAT)** is an international early childhood parent education and family support program serving families throughout pregnancy until their children enter kindergarten, usually at age 5. The program is designed to enhance child development and school achievement through parent education accessible to all families.

2. **Parents Anonymous® Programs** include weekly, free of charge Parents Anonymous® Groups which are co-led by parents and professional Group Facilitators trained in the Parents Anonymous® model of mutual support and shared leadership.

3. **Home Instruction Program for Preschool Youngsters (HIPPY)**, is a “two-year home-based early education intervention program;” parent group meetings are a core element of the model.¹¹

All three programs focus on parent leadership and positive parenting strategies that support early learning. PAT and HIPPY support primarily low-income families whereas Parents Anonymous® supports all families with an integrated Christian focus. Evidence shows the intrinsic value of family-to-family or peer-to-peer support in building skills and empowering caregivers. “These groups include, “highly personal, intimate, and peer-oriented norms of caring and exchange.”¹² The benefits from helping others include “increased feelings of competence, equality, social usefulness, independence, and social value.”¹³ In the actual prevention of child abuse and neglect, participants in mutual self-help parent support groups report statistically significant decreases in use of violent discipline techniques due to mutual support and learning new strategies. For example, using standardized scales to evaluate Parents Anonymous® “all parents showed improvements in child maltreatment outcomes, risk factors and protective factors. Parents starting out with particularly serious needs showed statistically significant improvement on every scale.”¹⁴ Results indicated that participation in Parents Anonymous® contributed to the reduction in child maltreatment.

States across the nation are identifying parent support groups in their child abuse and neglect prevention plans.

For example, in Florida’s State Plan for Prevention of Child Abuse, Abandonment, and Neglect, parent support groups were identified in the second and third tiers of the prevention framework.¹⁵ Wisconsin’s state plan mentions support groups in a recommendation that calls for the establishment of a universally accessible continuum of family support services in all communities in Wisconsin.¹⁶ In Alaska, the Child and Family Services Plan lists parent support groups as services that are available in several programs designed to improve parenting skills.¹⁷ In the state of Hawai‘i’s work to create a comprehensive early childhood system, building and supporting social connections between families was identified as one strategy in the state’s Action Strategy for Taking Action for Hawai‘i’s Children.¹⁸ One such program will be discussed below.

Family Hui Hawai‘i

In 1982, Joan Kreeger, a social worker from the Hawai‘i State Department of Health and Lee Ann Mitchell, a member of the Junior League of Honolulu, recognized a lack of parent support services throughout the state. They founded two programs, The Baby Hui (*hui* means *group* in Hawaiian language) and Parent Line to connect families and provide them with support. Baby Hui in particular, provided skills for dealing with the challenges of raising young children, connected families to community resources, and provided them an immediate *hui* of friends they could trust and rely upon. Thirty-three years later, the organization continues, under the name Family Hui, connecting, supporting and empowering families with children

from birth to age five. Family Hui staff connects families by neighborhoods, by convening eight to ten families at a time with children of similar ages. Staff train peer leaders in the Hui framework, curriculum and group facilitation techniques. Hui participants then meet for an intense and intimate 12 weeks, 2-3 hours at a time, learning from the Hui resources as well as from each other. They explore strategies on the following topics: Expectations of Parenting, Healthy Nutrition, Crying and Sleeping, Child Development, Positive Discipline, Touching Boundaries, Play and Language, Health and Safety, Media, Family Life and School Readiness.

Participants provide mutual support, shared accountability and shared leadership to inspire long term positive changes in their families. After the 12-weeks, 90% of families stay together and many participants volunteer to lead a subsequent *hui*. Family Hui is a comprehensive program working in partnership with over 20 community and state organizations that provides skills training, development screenings, CPR training and referrals as needed. Where Family Hui is slightly different vis-a-vis the abovementioned national organizations is that Family Hui does not discriminate based on ethnicity, income or religion and therefore bridges communities and culture; it is therefore able to cross barriers that otherwise would not be crossed.

Family Hui puts into action the Center for the Study of Social Policy's five critical protective factors for families and subsequently communities to thrive.¹⁹ They include: (1) Parental Resilience, (2) Social Connections, (3) Knowledge of Parenting and Child Development, (4) Concrete Support in Times of Need and (5) Social-Emotional Competence of Children. Over the last 33 years, over 75% participants have consistently reported increased skills and application of nonviolent discipline strategies, connections to community resources, greater confidence in working through challenges, decreased sense of isolation and depression, greater understanding of child development and changed expectations of their children's behavior as a result.

Peer-to-peer support programs like Family Hui and the others mentioned have been proven to support the all five critical protective factors identified by the Center for the Study of Social Policy. In addition, peer-to-peer programs reap the following long-term benefits:

- Peer-to-peer support is a low-cost or no-cost supplement to more traditional service oriented family services. Family connections and support continue beyond the set participation periods.
- Participants learn valuable skills not only from the program, but from each other. Peer-to-peer support provides modeling and mentoring, two key components to sustained behavior change.^{20,21}
- The number of individuals involved exclusively in a "helpee" role is vastly reduced, and the number of helpers increases dramatically.²²

- The positive ethos of cooperation, honesty, belonging and shared accountability between the members of the group is necessary for success. For advocates of self-help, the emphasis on empowerment and an active approach to solving a problem are viewed favorably.¹¹

- Providing a dialectic process for debate or the exploration of differences creates a space for growing as a parent and identifying core family values.²³

- Shared accountability or the expectation that members of the group will work on their problems results in mutual support and long-term success.

- Members are able to use the group as an arena for rehearsing new ways to communicate or behave, and in gaining strength from others in the group.

Conclusion

Child abuse has historically been an unspoken tragedy in our communities with reprehensible consequences to our families, schools, communities and workplaces. Children from birth to age four are our most vulnerable and most poorly represented citizens. Abuse is pervasive across the United States, occurs at every socioeconomic level, crosses ethnic and cultural lines, and is found in all religions and at all levels of education. It truly is a national emergency. With 75% of reported abuse cases involving children birth to age 4 and over 80% of abuse happening at the hands of a child's own parents, prevention and early intervention is critical. In Hawai'i reported and confirmed child abuse cases continue to plague our communities, resulting in significant social and economic costs. One very critical but often overlooked strategy for child abuse prevention is building communities of prevention. Family Hui is one example, offering a framework that connects, empowers and supports families through the challenges of raising healthy and resilient young children.

According to Laurendeau and Chamberland:

"This important justification, the family to neighborhood and community connection is a key component in our theoretical understanding of child abuse and neglect. The parent support group can serve as this connection to bridge family to neighborhood and community in the prevention of child abuse and neglect. As additional endorsement, this bridge represents a community-focus and allows the program to 'go beyond the boundaries of the individual child and family to the parents' social network and community integration."²⁴

A poll taken on childabuse.com found that 74% of American parents surveyed wished they had received assistance in learning how to take care of their newborns. Parenting well involves a complex set of skill sets that need to be taught, modeled and supported as children transition through different developmental stages. The importance of ties between the individual, the

family, and the community has also been endorsed by the view that it takes a village to raise a child.²⁵

We know a great deal about preventing abuse and neglect and stopping related fatalities. When provided with support services and appropriate supervision, the vast majority of potentially abusive and neglectful parents can learn to safely care for their children. And many abused children who get help are resilient enough to overcome their history. But for many, the outcome is predictable: when childhood goes wrong, adulthood goes wrong, and the sad story of abuse, including death, repeats itself from one generation of troubled families to the next.

The family to community connection realized through parent support groups like Family Hui is not only essential in our understanding of child abuse and neglect but also in our strategies to prevent it. It's time family-to-family support systems become a prominent component of states' cross-sector human services plans to ensure our children and our communities have opportunities for safe and healthy futures.

For more information, please contact Kerrie Urosevich at kurosevich@familyhui.org or visit <http://familyhui.org>.

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Improving Public Health Across the Pacific: A Retrospective of the 2012 Pacific Global Health Conference

Hali Robinett MPH

The Cancer Center Connection is a standing column from the University of Hawai‘i Cancer Center and is edited by Carl-Wilhelm Vogel MD, PhD; HJMPH Contributing Editor. Dr. Vogel is professor and former director of the University of Hawai‘i Cancer Center and has been the editor of this column since 2001.

One year ago this month, the Hawai‘i Public Health Association (HPHA) hosted its 5th Pacific Global Health Conference (PGHC), *Transforming Public Health in the Pacific*, held in Honolulu, Hawai‘i, October 8-10, 2012. Like the previous HPHA-sponsored global public health conferences held in 2002, 2003, 2005 and 2007, the October 2012 PGHC brought together a diverse mix of public health practitioners, academics and policymakers from across the Pacific to address public health issues unique to the region. The HPHA, as the only American Public Health Association (APHA) affiliate in the region, remains committed to supporting the aims of a regional public health conference recognizing that communities in Hawai‘i and the larger Pacific region face common threats to public health, such as food insecurity, natural disasters, global warming, and among others, non-communicable diseases of epidemic proportions. HPHA also recognizes that opportunities for networking, training and knowledge exchange are relatively limited in our geographically dispersed and isolated region. While HPHA’s 2002 and 2003 conferences attracted participants from as far away as Africa and Australia, HPHA began tailoring its PGHC program in 2005 to directly address the needs and interests of public health professionals in Hawai‘i and neighboring US-affiliated Pacific Islands (USAPI), namely the US flag territories of Guam, the Commonwealth of the Northern Mariana Islands and American Samoa, and the independent nations in free association with the United States, including the Republic of Palau, Republic of the Marshall Islands and the Federated States of Micronesia (Yap, Chuuk, Pohnpei and Kosrae). PGHC 2012, likewise designed for public health practitioners, academics and policymakers from Hawai‘i and the USAPI, offered a two and a half day program that featured local, regional and national speakers invested in improving the health of communities in the Hawai‘i-Pacific region.

Pacific Global Health Conference 2012

The passage of the Affordable Care Act (ACA), signed into law in March 2010, and the timely and historic June 2012 US Supreme Court decision upholding the constitutionality of the ACA, gave rise to a “transformation” theme that shaped much of the 2012 PGHC program. Opening keynote speaker Paulo Pontemayor of the Asian & Pacific Islander American Health

Forum, who was joined by a response panel of representatives from APHA, Papa Ola Lokahi, Hawai‘i Health Connector and the Pacific Islands Primary Care Association (PIPICA), spoke to the ACA and the Asian American, Native Hawaiian and Pacific Islander community. Other keynote speakers responded to the real and anticipated changes in health care and public health from the perspectives of health equity, human rights and social justice (Dr. Adewale Troutman, APHA President-Elect), and health communications and inequalities (Dr. Vish Viswanath, Dana Farber/Harvard Cancer Center). Closing keynote speaker, Dr. Dave Jenkins, founder and Medical Director of SurfAid International, shared new science in behavior change for improved impact on health in low and middle income countries.

HPHA’s 2012 call for abstracts resulted in 5 skills-building workshops, 63 oral presentations and 29 poster presentations—each peer-reviewed and organized into a five track scientific program: (1) workforce development; (2) health and culture; (3) health communications and education; (4) policy and advocacy; and (5) a “mixed plate” category which featured regionally relevant, creative approaches to addressing public health issues. Health promotion and disease prevention projects employing photography, print art, social media, videos, documentaries and storytelling were showcased in the mixed plate track, while some of the actual artwork was displayed during the conference and the locally-produced *Ingredients Hawai‘i* documentary was screened, with an introduction by director Robert Bates.

The scientific program canvassed a broad spectrum of topics. Declared a Regional State of Health Emergency by the Pacific Island Health Officers Association¹ (PIHOA), non-communicable diseases (NCD), including diabetes, cancer, heart disease, and stroke, and related risk factors such as tobacco and betel nut use, obesity, physical activity, and nutrition, were the focus of several oral presentations. Researchers and staff from the University of Guam/University of Hawai‘i Cancer Center Partnership (U54)², the Children’s Healthy Living Program (CHL), and the Department of Native Hawaiian Health, Department of Pediatrics and Department of Family Medicine and Community Health at the University of Hawai‘i (UH) John A. Burns School of Medicine (JABSOM), as well as PIHOA, Cancer Council of the Pacific Islands (CCPI), and Hawai‘i State Department of Health (DOH)

representatives were among those who illustrated the NCD crisis and reported on the progress and outcomes of research and NCD prevention and control programs in the region.

Other regionally relevant sessions, presented by experts in their field, addressed the following topics:

- healthcare transformation
- public health advocacy and legislation
- policy, systems and environmental change
- health disparities and community based participatory research
- workforce development
- nursing and undergraduate public health training
- food sustainability
- community health workers and patient navigators
- traditional practices and health, including hula
- substance abuse and mental health services
- bullying and suicide prevention – in youth and Pacific Islanders
- HIV/AIDS and sexual risk behaviors
- Hepatitis B and HPV
- childhood vaccination
- palliative care
- geriatrics and caregiving

To round out the program, local, regional, and national organizations were invited to chair sessions, some of them sponsored, addressing critical and timely public health issues. Among the invited organizations were JABSOM's Department of Family Medicine and Community Health and Department of Native Hawaiian Health who chaired respective sessions on the CCPI and community-academic partnerships to address obesity disparities. Other invited sessions focused on the health and health services impact of compact migration, chaired by PIHOA; region-wide efforts to address public health workforce development, chaired by the California Pacific Public Health Training Center; health communication and disparities, sponsored by the UH Cancer Center; trends in mental health transformation, chaired by HHS-Region IX Substance Abuse and Mental Health Services Administration; social marketing for public health, presented by the Hawai'i DOH; and performance improvement, the National Public Health Improvement Initiative and public health department accreditation, chaired by the Public Health Accreditation Board.

Breakfast roundtables, a new addition to the PGHC format, provided opportunities for conference registrants to participate in hour-long guided discussions on cutting edge global health topics. Several conference speakers as well as invited guests facilitated discussions on 20 different topics. Despite the 7:30 am start time, the roundtables proved to be a popular addition.

Outcomes and Lessons Learned

Unlike HPHA's previous conferences, PGHC 2012 did not result in financial gains for the association. Early efforts to secure foundation and federal grants proved unsuccessful, and only a

handful of partners signed on as conference co-sponsors, largely due to the poor economic climate following the recession. Too, a lavish Las Vegas conference sponsored by the General Services Administration in June 2010 led to travel and conference restrictions imposed in 2012 on federal employees and agencies. Consequently, fewer federal government representatives were on the program and in the crowd compared to years past, and without federal support HPHA was forced to rely primarily upon registration fees to cover conference expenses.

Given the high cost of air travel between the USAPI and Honolulu, PGHC steering committee members contacted regional organizations early in the planning process in attempt to synchronize PGHC and regional Honolulu-based meeting dates. Several organizations, including PIPCA and CCPI, committed to scheduling their 2012 Honolulu-based meetings in conjunction with the conference, making it possible for their USAPI-based members and staff to participate in and present at PGHC.

All the coordination, planning and promotion efforts resulted in a conference that reached maximum capacity with 467 registrants, including 97 registrants (20%) from out-of-state of which 56 (12%) were from neighboring Pacific Islands. PGHC 2012 attracted a significant number of students, largely from public health and nursing programs on Oahu. Sixteen registrants from Hawai'i's neighbor islands and the USAPI were able to attend, thanks to \$5,000 in travel support from HPHA. And because the cost of HPHA membership was structured into the conference registration fee, HPHA expanded its membership from just over 200 members before the conference to 646 members at the time of this writing.

Thanks to dedicated faculty at the UH Office of Public Health Studies, PGHC 2012 offered more continuing education credits/hours than ever offered before. Fifty-six healthcare professionals each received up to 17.25 Continuing Education Units made available by the Hawai'i State Department of Health's Alcohol and Drug Abuse Division; 15 public health educators each received up to 25 hours of Continuing Education Contact Hours (CECH) for Certified Health Education Specialists (CHES) and Master Certified Health Education Specialists (MCHES); and 23 physicians each received up to 17.25 hours in Continuing Medical Education (CME) AMA PRA Category 1 Credits™.

While feedback from the 2012 conference, based on participant evaluations and key informant interviews (with physicians), was overwhelmingly positive, HPHA is challenged in response to the demand for future Pacific Global Health Conferences. Following the HPHA's 2002 and 2003 conferences, the association moved to a biennial format, realizing that annual conferences at the magnitude of PGHC were difficult to sustain without dedicated staff and significant resources³. In looking ahead, HPHA leadership responsible for PGHC 2012 recommended that no future planning commence without early financial commitments from partner organizations in the form of dedicated staff and/or direct financial support. HPHA is forming an exploratory committee to identify possible strategies to support a regional public health conference as early as 2015. Collaborating with

a local, regional and/or national professional association(s)/ organization(s), one or more with experience hosting state or regional health related conferences, is a consideration.

Implementing the region's premier public health conference would be impossible without dedicated public health leaders willing and able to devote time and energy to the planning process. Eleven public health professionals, all based in Hawai'i, including O'ahu's neighbor islands, comprised the 2012 PGHC Steering Committee. Many more volunteers contributed their time and expertise to PGHC 2012, including 34 abstract reviewers from Hawai'i and the USAPI and 46 on-site volunteers. Two part-time HPHA staff plus a conference vendor provided vital support to the PGHC Steering Committee and subcommittees. And for the past three consecutive Pacific Global Health Conferences (2005, 2007 and 2012), staff at the University of Hawai'i Cancer Center (UHCC) has taken on the role of conference chair, while others at UHCC have served at the steering and subcommittee levels. Greater representation from the USAPI as well as institutional support for those involved in PGHC planning will be crucial to its future success.

With a new board president and a recently hired part-time executive director, HPHA is gearing up for a busy year ahead. HPHA members can expect to see increased capacity as the association strengthens its partnerships and responds to the needs and interests of its growing membership. And partners can expect to hear from HPHA regarding future opportunities to collaborate and leverage resources in support of public health training, professional development and capacity building in Hawai'i and in the USAPI. For more information about HPHA's PGHC exploratory committee, contact HPHA's Executive Director, Holly Kessler, at hawaiipublichealth@gmail.com. PGHC 2012 abstracts are available for download at <http://hawaiipublichealth.org/pghc>.

Acknowledgements

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A very special thanks to our 2012 conference sponsors: Pacific Islands Primary Care Association; Hawai'i Public Health Training Hui; California Pacific Public Health Training Center; Hawai'i Pacific Health; University of Hawai'i Cancer Center; and the University of Hawai'i John A. Burns School of Medicine's Department of Native Hawaiian Health, Department of Family Medicine and Community Health and Department of Public Health Sciences.

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10/21-10/24	Scientific Symposiums International	Hapuna Beach Prince Hotel, Mauna Kea, Big Island	Diagnostic Dermatopathology: Correlating Clinical and H and E Findings Is Not Enough	http://www.scientificsymposiums.com/course_details.php?cid=42
10/27-11/1	UC San Francisco School of Medicine	Grand Wailea Resort & Spa, Maui	Diagnostic Radiology Seminars	https://www.cme.ucsf.edu/cme/CourseDetail.aspx?coursenumber=RAD14011
November 2013				
11/6-11/8	University Learning Systems	Waikiki Beach Marriott Resort & Spa	Primary Care Update: Series V	http://www.universitylearning.com/CME-Conferences/hawaii-november-2013/november-6-8-hawaii-accreditation.html
11/6-11/9	UC Davis Health System	Fairmont Kea Lani	10th Annual Emergency Medicine Update: HOT TOPICS 2013	http://www.ucdmc.ucdavis.edu/cme/conferences/pdfs/EMHOT14_11-6-13w.pdf
11/16	OPAT Outcomes Registry/ Hepatitis Support Network of Hawaii	Queen's Conference Center, Honolulu	Viral Hepatitis Hawaii - Update 2013	saltman@hawaii.edu
December 2013				
12/15-12/19	Medical Education Resources, Inc.	Aulani, Disney Resort & Spa, O'ahu	Internal Medicine for Primary Care Physicians: Hem-Onc/Pulm/Vascular/Derm	http://www.mer.org/conferences/seminars/570/internal-medicine-for-primary-care-hem-oncpulmvascularderm-oahu-hi
January 2014				
1/27-1/31	Mayo Clinic	Grand Hyatt Kauai	26th Annual Selected Topics in Internal Medicine	http://www.mayo.edu/cme/internal-medicine-and-subspecialties-2014r755
February 2014				
2/17-2/21	Scientific Symposiums International	Hapuna Beach Prince Hotel, Mauna Kea, Big Island	Breast, GYN and GU: The Essentials of Accurate Surgical Pathologic Diagnosis	http://www.scientificsymposiums.com/course_details.php?cid=48

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Revised November 1, 2012



THE RETRACTION IS ON PAGE SIX COLUMN FOUR.

Measles had nearly disappeared, but in recent years has returned in large numbers in the United Kingdom and the United States. In 1998, Dr. Andrew Wakefield, then a researcher at London's Royal Free Hospital, suggested a link between vaccine and autism. He published a paper in *Lancet*, a British medical journal, describing how 12 "previously normal" children displayed developmental disorders including autism. His paper concluded, "in most cases, onset of symptoms was after mumps, measles, and rubella (MMR) immunization." Media headlines in papers, television shows and even some politicians announced MMR as a link to autism. Subsequent studies debunked Dr. Wakefield's research, and stated there was no evidence of a link. *Lancet* retracted the paper in 2010. The United Kingdom's General Medical Council concluded that his work was irresponsible and dishonest. He was stripped of his medical license for "serious professional misconduct." Well done, but much too late. Many parents still refuse to allow pediatricians to vaccinate their offspring, despite recommendations. Andrew Wakefield lives in Austin, Texas, where he helps run a video-production company.

BUG APPETIT!

It's a good fad that is growing at a slow crawl. Insect diets, entomophagy, are known for high protein and low fat and are good for the environment, but have not been accepted widely at western tables. A recent paper put out by the Food and Agriculture Organization of the United Nations cited nibbles of interest in industrialized countries. Special insect dinners in Japan often sell out, the Netherlands has insects marketed as "bugsnuggets" and "buglibars," the United Kingdom has a website that sells toffee scorpion candy, giant toasted leafcutter ants and oven-baked tarantulas. A yogurt shop in Park Slope, Brooklyn, has chocolate covered crickets among its toppings. Owner Alex Rozhitzky says his Wicked Spoon shop has cricket topping "flying out the door."

OOH, LOOK HOW PALE SHE IS.

From Mumbai to Bangkok to Tokyo the skin-whitening industry is booming. In Asia, a fair skin is a mark of beauty, wealth and higher social position. Companies are scrambling to develop a new product to provide women with a light skin status symbol. Some 20 substances deemed effective in skin-brightening, have been approved by the Japanese government since 1988. Recently the industry has been shaken because the second-biggest cosmetics company, Kanebo Cosmetics, has confirmed the appearance of large white stains on the faces, hands and necks of thousands of women using their skin products. The white blotches, some bigger than two inches in diameter, caused the recall of millions of products containing Rhododenol as a brightening ingredient. In some cases the unevenness faded after the compound was stopped and steroid cream was sometimes helpful. The company has promised to cover all related medical bills, and is preparing to pay compensation.

THE PRINCESS IS SERVING ROAST CHICKEN.

Eastern Oregon would probably not be high on the list of suspected locations for cock-fighting, especially when the gambling ring includes Romanian royalty. Princess Irina, fifth in line to the throne, was included in the arrest of an 18-member gang charged in a conspiracy to violate the federal Animal Welfare Act. The Princess and her husband John Walker, a former sheriff's deputy, live on a horse ranch near Irrigon in an area cultivated with corn and potatoes. They face allegations of operating an illegal gambling business and unlawful animal fighting ventures. The indictment explains details of a cockfight: "The fight is ended when one rooster is dead or refuses to continue to fight. If not killed during the fight, the losing rooster is almost always killed after the fight." A statement from the King's press bureau said, "His

Royal Majesty King Michael I has learned with profound sadness of the events surrounding Princess Irina of Romania, his daughter."

NOW FORENSICS HAVE A POLLEN FOOTPRINT.

Each region on Earth has a specific plant population. Every plant produces a specific pollen or spore that is morphologically unique to the parent plant. The association of pollen and spore types found at a specific location is called the pollen print, and links trace pollen evidence to its source. Thus, pollen can help track provenance of illegally imported art, drugs, medicine, food, as well as items obtained from crime scenes or terrorism investigations. Pollen can also provide clues to the timing of events, because pollination occurs at specific times each year.

LUBRICATION EYE DROPS BECOME BIG BUSINESS.

Times past, eye surgeons didn't concern themselves very much with "dry eye syndrome." It was primarily a minor problem with post-menopausal women and elderly patients, but now has become an epidemic. Airline crews, office workers staring at computers, post-lasik patients, and people in air-conditioned offices, all complain of burning, scratchy dry eyes, with sudden reflex gushes of tears. Some cases are due to autoimmune disorders, and medications such as anti-histamines or anti-depressants, but the most contributory cause is failure to blink. Too often people are blinking at 6 to 8 times per minute versus 12 to 16 times required by the body. This will spread the tears, pump oil from the meibomian glands, and revitalize the corneal tear film.

REGULATIONS FOR BUNNY STUDIES.

In 1966, a stolen family dog was used in a research lab. Congress enacted a four-page law regulating the use of dogs and cats in medical research. In 1970 the law was expanded. Now the US Department of Agriculture (USDA) has prepared a 14-page set of regulations for rabbits alone, including bunnies used in a magic act. When the USDA asked an expert to prepare a disaster plan for rabbits, his report ran to 28 pages. The Washington Post ran an article on this bit of bureaucratic humbug, and the USDA Secretary said the rule would be reviewed. One magician suggested a penciled disaster rule, "Take rabbit with you when you leave."

IT'S ONLY AN ALLIGATOR AND THE LADY NEEDS NEW SHOES.

Once near extinction, the alligator is now flourishing along the gulf coast. A couple was walking along the edge of a bayou just below Houma, Louisiana, discussing property settlement for their divorce. A huge 12-foot alligator suddenly emerged from the murky water and charged. The woman pulled out her .25 caliber Beretta, and shot her estranged husband in his left knee. "If I had not had my pistol with me, I would not be here today. The gator easily got my ex and I was able to escape by just walking away. This is the best pistol in my collection."

ADDENDA

- The 1954 Mercedes-Benz W106R formula 1 racing single-seater driven by Juan Fangio to win the German and Swiss Grands prix, was recently auctioned for \$29.6 million.
- Galileo's best telescope was about as powerful as a good pair of today's binoculars.
- To understand Obamacare, Patient Protection and Affordable Care Act (PPACA), a little brain damage can help.
- What's the big deal about edible underwear? You wear them a couple of days and they taste just like the other ones.

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(Editorial comment is strictly that of the writer.)

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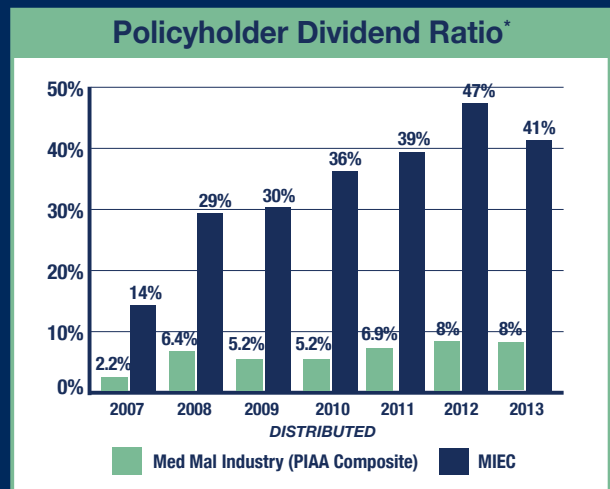


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