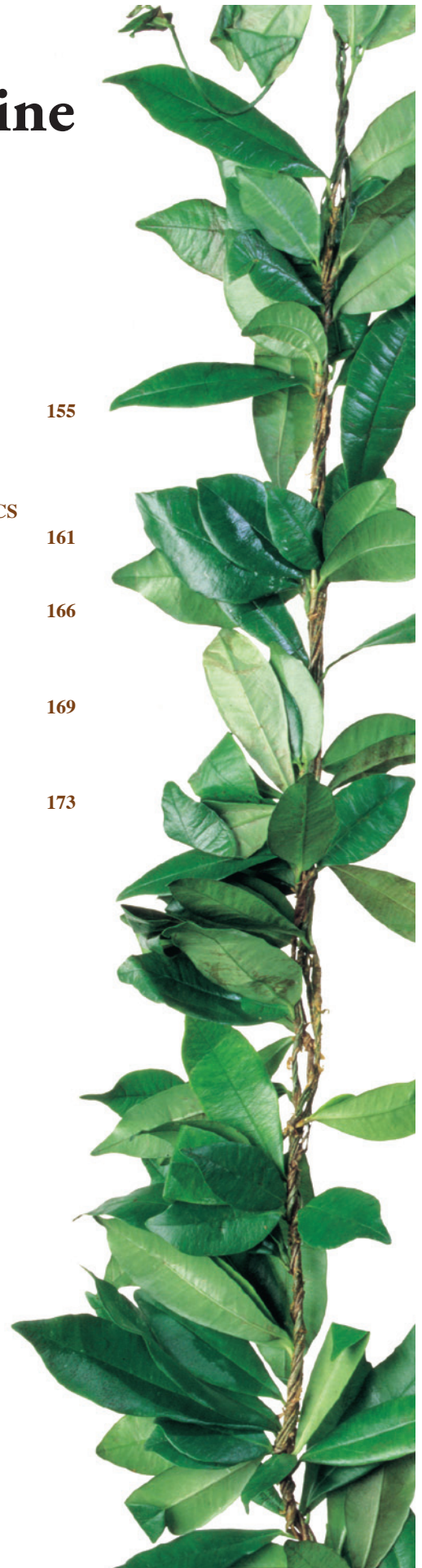


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2017 WRITING CONTEST UNDERGRADUATE WINNER

Pathways to Preventable Hospitalizations for Filipino Patients with Diabetes and Heart Disease in Hawai'i

Jhon Michael Malabed; Deborah A. Taira ScD; Todd B. Seto MD; Kathryn L. Braun DrPH; and Tetine Sentell PhD



Jhon Michael Malabed

Jhon Michael Malabed is a junior at the University of Hawai'i at Manoa and currently working toward his BS in Biology with a minor in Ilokano Language and Culture. In 2017, he worked as a summer research intern with the John A. Burns School of Medicine's Department of Native Hawaiian Health under the mentorship of Dr. Deborah Taira of the Daniel K. Inouye College of Pharmacy with additional assistance from Dr. Tetine Sentell and Dr. Kathryn Braun of University of Hawaii Manoa's Public Health Studies and Dr. Todd Seto of Queen's Medical Center. He presented his research project at the 2017 Hawai'i Health Workforce Summit and won first-place for their health disparities poster competition. He is currently completing another research project with Infrastructure Development Networks for Biomedical Research Excellence (INBRE) program, based at the John A. Burns School of Medicine and funded by the National Institutes of Health.

His winning manuscript is entitled, "Pathways to Preventable Hospitalization for Filipino Patients with Diabetes and heart Disease in Hawai'i." Filipinos are one of the fastest growing Asian ethnic groups in the United States, yet little is known about how to specifically address the varying health needs of the Filipino community with diabetes and heart disease. This is a problem because rates of potentially preventable hospitalizations (PPH) are high for Filipinos with these conditions. A PPH is a hospitalization that could potentially have been avoided with better access to quality primary care. The goal of this study was to investigate the factors and barriers that led to preventable hospitalizations among Filipino patients with heart disease and diabetes. From the patient's own stories, potentially preventable hospitalization pathways of Filipinos in Hawai'i were primarily associated with social vulnerabilities, healthcare system related issues, and cultural/language barriers. They identified these challenges leading to their hospitalization. The findings emphasize the importance of considering the patient's perspectives in the prevention of future hospitalizations. Patient perspectives can help healthcare providers develop management plans that are suitable, acceptable, and realistic for the patients.

Abstract

Filipinos are one of the fastest growing Asian ethnic groups in the United States, yet little is known about how to specifically address the varying health needs of the Filipino community with diabetes and heart disease. This is a problem because rates of potentially preventable hospitalizations (PPH) are high for Filipinos with these conditions. A PPH is a hospitalization that could potentially have been avoided with better access to quality primary care. Patients over 21 years of age with heart disease or diabetes and who were hospitalized at the Queen's Medical Center with a PPH were recruited to complete a face-to-face interview eliciting the patients' perspectives on key factors leading to this hospitalization (n=102). This study focused on a subset of Filipino patients (n=21). Two independent coders reviewed interviews to identify factors leading to their PPH. A majority of the Filipino respondents identified social vulnerabilities as the most common factor that led to their hospitalization, including financial challenges, limited social support, and life instability. Many respondents also noted challenges with the healthcare system as precipitating their hospitalization, including poor communication/coordination, management plan issues, and bad experience with their healthcare providers. Cultural and language barriers were also identified by Filipino patients as challenges leading to their hospitalizations. These findings emphasize the importance of considering patients' perspectives of the barriers they face inside and outside of healthcare facilities.

Keywords

Filipino health, diabetes mellitus, heart failure, preventable hospitalizations, patient perspectives, qualitative research.

Introduction

Filipinos, currently comprising 14% of the population in Hawai'i, are one of the fastest growing Asian ethnic groups in the United States.¹ Despite their growing number, there are very few wide-scale initiatives that specifically address the varying health needs of the Filipino community.² The few studies comparing Filipinos with other ethnic groups in Hawai'i have found disparities in health-related outcomes, such as lack of routine access to preventable health care.³ Additionally, over 1 in 10 Filipino adults have been diagnosed with diabetes (10%) and over a third have been diagnosed with hypertension (37%), which is higher than many other racial/ethnic groups in Hawai'i.^{4,6}

Because of these factors, Filipinos have high rates of potentially preventable hospitalizations, which are defined as admissions for chronic conditions, such as diabetes or heart failure, that could have been avoided with better access to high quality outpatient care.⁷ Between 2007 and 2012, an estimated \$353 million was spent in Hawai'i for potentially preventable hospitalizations for heart disease and diabetes, with approximately \$8,400 spent for each hospitalization for a Filipino patient.⁸ Not only are the hospitalizations for heart disease and diabetes expensive and burdensome to patients, they can lead to patients being at greater risk for hospital-associated adverse events such

as excess mortality observed in patient with diabetes admitted for foot problems^{9,10}

A prior study examined pathways to preventable hospitalizations for patients hospitalized for heart disease and/or diabetes in a large hospital in Hawai‘i.¹¹ This study identified six underlying factors for preventable hospitalizations: (1) social factors; (2) knowledge; (3) practical problems; (4) avoidance/denial; (5) health care system; (6) behavioral health. Adapting the pathway model developed from the prior study for Filipino patients specifically could help us understand relevant pathways to preventable hospitalizations and identify potential intervention points for this community.¹¹ Thus, the goal of this study was to identify the various pathways to diabetes and/or heart disease-related preventable hospitalizations specifically among Filipino patients in Hawai‘i.

Methods

Patients eligible for inclusion in the study were those 21 years and older who self-reported Filipino ethnicity and were admitted to The Queen’s Medical Center from June 2013 to February 2016 for either heart failure and/or diabetes-related potentially preventable hospitalization, as defined by the Agency for Health Care Research and Quality Metrics.¹² As we identified patients during their hospital stay, we were therefore unable to use discharge diagnoses to identify this study cohort. Instead, we used the principal “working” diagnosis to identify potentially eligible subjects.¹³

Patients unable to effectively communicate in English, unwilling to participate, admitted in the Intensive Care Unit, clinically unstable, pregnant, suffering with memory loss, non-Hawai‘i resident, or resided in a nursing home, hospice, prison, or other similar institution were excluded from the study.

Data Collection

After obtaining informed consent, participants completed a face-to-face interview in which they were asked both closed- and open-ended questions to assess factors related to their hospitalization. Relevant questions are available from the authors upon request. Interview questions were developed using relevant items from other studies, including validated measures. Open-ended questions were specifically designed to allow for patient perspectives around factors relevant to preventable hospitalizations for heart failure and diabetes based on existing literature. Interviews were pilot tested and refined before administration. The survey included the Rapid Estimate of Adult Literacy in Medicine (REALM), a screening instrument used to determine a patient’s reading level.¹⁴

The majority of the interviews were completed by a trained Native Hawaiian female research nurse. Patients were encouraged to elaborate on stories and themes. Responses were recorded using an iPad. The open-ended questions took approximately 20 minutes for each patient. Field notes were taken by the interviewer during and immediately after the interview. Patients received a \$20 drug store gift card incentive.

Demographic information (eg, age, gender, ethnicity) and relevant clinical information (eg, same hospital readmission, have been told by a doctor or other health professional if they have diabetes or heart disease) were obtained from the patients’ medical record. The medical record review was used to gather data to validate and supplement the survey data.

Qualitative Analyses

Two researchers (TS and JM) independently reviewed audio recordings and field notes for the 21 Filipino patients and identified themes and details about the patients’ stories regarding pathways to hospitalizations. The researchers then met to discuss the themes for each patient. After recorded interviews of all 21 patients were reviewed, they re-examined the consensus coding documents to ensure congruence with the final study factors and pathways. This final consensus coding was used for analyses. Quantitative data concerning demographic information was linked to the qualitative analysis.^{15,16} The research protocol was approved by the University of Hawai‘i Cooperative Institutional Review Board (CHS 21136).

Results

In the full study, 102 patients participated and 21 self-identified as Filipino. Of the 21 Filipino participants, 62% were aged 21–64, 71% were male, and 60% of those who reported income had family income less than \$40,000 (Table 1). Seventy-one percent of the participants were born in the US, and 91% preferred to speak in English. Participants reported good access to care: 100% were insured and 91% had a usual source of care. Approximately one quarter (24%) of the hospitalizations were diabetes related, 33% were heart disease related, and 43% were both diabetes and heart disease related. The majority of the participants (63%) had a prior hospitalization for the same issue.

Pathways

Following a framework developed from the full sample, three types of factors were identified based on the qualitative data analysis: underlying, precipitating, and immediate factors. Factors were not mutually exclusive—patients could report one or more factors in each step of the pathway. Immediate factors were defined as the reason for admission and were clinical in nature. Precipitating factors were generally behavioral in nature and were the reason why the immediate factors arose. These included not taking medication as prescribed, not exercising, and not eating well. The underlying factors tended to be related to demographics (eg, low income) and mental health issues that led to the precipitating factors. An example of a pathway might be: a patient whose income is below the poverty level (underlying factor) may not take their medication (precipitating factor) because they cannot afford it and may end up in the hospital because of dangerously high blood sugar levels (immediate factor). These pathways are discussed in more detail elsewhere.¹¹

Healthcare system issues, behavioral health, and social challenges emerged as important themes in patient stories (Figure 1). Additional underlying factors included language and cul-

tural barriers. Figure 1 shows the distribution of underlying, precipitating, and immediate factors resulting in potentially preventable hospitalizations for the 21 Filipino patients. For 57% of patients, immediate reasons for their hospitalizations included acute issues related to cardiovascular symptoms, such as shortness of breath and fluid overload. Fluid overload occurs when there is excessive water in the body resulting in swelling of the legs or arms and is a common reason for hospitalization in heart disease.¹⁷

Approximately 63% of patients reported medication issues as a precipitating reason for their PPH (Figure 1). Other precipitating factors reported by patients were issues with clinics/providers (58%); challenges with self-care (58%); issues following diet or water intake restrictions (32%); readmission focused challenges (32%), such as inability to follow discharge instructions; a mental health/behavioral health issue (26%); and/or challenges with exercising (11%).

Social Factors

The most common underlying factor for Filipino patients was social vulnerability, reported by 52% of the participants (Figure 1). The emergence of social vulnerability as one of the recurrent factors in Filipino patient narratives was supported by the demographic data: 29% had no high school diploma, 57% had low health literacy, 60% reported household income of less than \$40,000 annually, and 9% preferred to speak in their native language (Table 1).

Table 1. Patient Characteristics for the Filipino Participants (n=21) and the Total Sample (N=102).

	Filipino (%)	Non-Filipino (%)
Age Group		
Working Age (18-64)	62	75
Older (65+)	38	25
Education		
Less than High School	29	21
High School Grad	71	74
College Grad	0	5
REALM		
Low Health Literacy	57	48
Female		
	29	33
Yearly Income*		
Less than \$20,000	10	56
Between \$20,000- \$40,000	50	32
More than \$40,000	40	12
Insured	100	88
Has Usual Care	91	86
Prefer to Speak English	91	89
Admitted for:		
Diabetes	24	38
Heart Disease	33	27
Both	43	35
Previously Hospitalized for this Issue	63	66

*Income was missing for 11 Filipinos and 23 Non-Filipinos

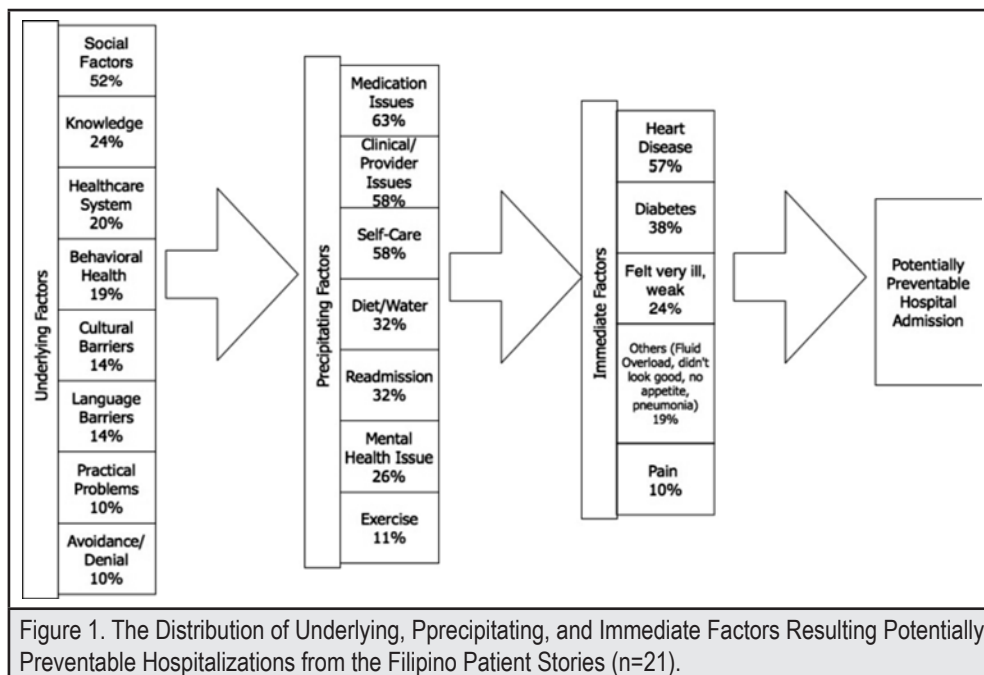


Figure 1. The Distribution of Underlying, Precipitating, and Immediate Factors Resulting Potentially Preventable Hospitalizations from the Filipino Patient Stories (n=21).

Patients mentioned some examples of social factors that contributed to problems in managing their chronic conditions, including financial issues, limited social support, and life instability. For example, Patient A, who was hospitalized with diabetes, said, "I can shop, don't always buy what's good to me. Food expensive, little money." Patient B stated, "I was shut down so many times I needed help. I would ask for money from people, so I could go to the doctor's office. It's rather disheartening and I feel embarrassed at time for feeling so." Six patients also said that they delayed or did not get their needed medical care because they worried about the cost.

Participants with social support mentioned that they heavily relied on their family to help them manage their chronic conditions. For example, Patient C with diabetes said, "I don't remember to take my medications 'til the pain starts. I need my daughter to remind me to take my medications." Patient D stated, "Because my heart condition, I get tired a lot. I need help with organizing my day. Sometimes I need help to get up and use the walker, but there's no one at home to help." Patient E also mentioned, "Sometimes my brother helps me go to the doctor, pick up prescription, and go to the grocery stores." Patient F noted the critical importance of social support in health and described how he felt like a burden and inconvenience to his family.

In many cases, patients who described these social factors noted they were aware of what they should do to manage their chronic conditions; however, due to their social or financial challenges, they were unable to implement their management plan. For instance, Patient G said that people around him did drugs and he did not feel he had a sense of control in his environment. Because of that, he wanted to get his own place where he thinks he can get better: "If I keep going on that place I don't think I'll get better."

Healthcare System Related Issues

One fifth (20%) of patients reported healthcare system-related issues as precipitating factors for their preventable hospitalizations (Figure 1). One issue identified was insufficient interaction with providers. Patient B stated that "[The clinic] want to get you quick [out] as soon as possible."

Two patients complained about the hospital or clinic not meeting their health needs due to poor communication between patient and providers. Patient H said, "Sometimes the doctors ask questions but don't tell me what's going on. I went into the hospital, but no one was explaining stuff to me." Patient I echoed Patient H's frustration about their doctors not articulating the seriousness of their condition. Patient J noted, "If they [had] done that, I could have listened... They need to explain what's happening to the patient and why it's happening to the patient and how things can change or responding depending on the circumstances."

Patient Q said, "Sometimes my vision blurry. I cannot see words—I forget to tell my doctor, most of the time. They talked about my leg wound. Not much about other stuff. The diabetes but never my eyes. I understand more than I can read."

Several of the participants mentioned the challenge of following their management plan created by the doctors, as exemplified by Patient E who said: "I have a hard time, frustrating time with managing my health. If you give me too many things to do. I can't do it and I quit. I rather do something small that I can manage then try manage me and all of it (time/schedule). It drives me crazy and I just quit doing anything for me. I want time to enjoy myself and do the things I want to do than have my health dictate my time. I easily get frustrated especially when I feel out of control. There are times when my health is out of control and it's hard to follow directions when I'm not feeling good."

Four individuals echoed the thoughts of this participant with diabetes, who doesn't check his blood sugar level daily "because it usually ends up the same." Twelve individuals reported not taking medications, as exemplified by Patient A: "Sometimes I don't want to take medication I have in my home. Sometimes I feel weak and tired. I don't feel good taking the medication."

Some patients described notably bad experiences with the healthcare system. Patient B who was homeless and had heart failure stated: "Because I'm homeless, I feel as if I am an outcast. Sometimes the way I'm treated because of the way I look." In addition, the patient believed that "[the state] have nothing they can do. State don't want to help you. They help other people, beside us... That's the truth." Some avoided going to the doctor like Patient H with heart failure: "I usually never ask for help. Why? Because I don't want to feel stupid, inadequate perhaps shame about not knowing anything. If I need help for my health I usually just stay home. I can take care of myself." One patient even mentioned that "the only way you can get your medication if you see your doctor. If you can't see your doctor, you go to the emergency... because you have no choice. What choice do I have?"

Cultural Barriers

Cultural barriers also emerged from patient stories as important factors affecting potentially preventable hospitalizations in Filipino patients, with 14% of respondents mentioning this factor (Figure 1). Two patients reported that establishing trust with their doctors and providers understanding their culture were important to them. Patient I said, "For me I learn different especially local ways. It's important for me to have face-to-face interaction. Trust to be established, I need to look in your eyes. You need to come from/or have information I can learn more about what I need to do. Doesn't make sense to me to learn somethings over, it has to be a shared experience." Patient J said, "It boils down to relationship. It's all relationship. If you're going to get a doctor that looks down up you, or not understand our culture then eventually it's going to break up... It is important. Where you grew up? Who's your parents? Who you related? That's part of Hawai'i. That's part of our culture."

Language Barrier

Another factor was the language barrier. Fourteen percent of the respondents reported the language barrier as an issue (Figure

1). Patient A, who had recently migrated to Hawai'i, described how English-language barriers affected how he handled his conditions. He mentioned that he brings a cousin with him to his doctor visits to help fill out forms and translate. Patient G with diabetes and heart failure, who was born in the Philippines, had a hard time understanding his doctor. The patient said, *"Sometimes my doctor talks too fast and uses words I don't understand. But I don't ask questions I let him talk I don't like to bother."*

Knowledge

Twenty-four percent of the respondents identified lack of knowledge about their conditions as an underlying factor (Figure 1). A few individuals, like Patient K with diabetes, didn't know they had a chronic disease. Five individuals had the disease for years but lacked specific information about how to care and manage their conditions. Patient L said, *"My doctor and I discussed about no salt. I didn't think little salt will hurt. I don't [know] what food I can't eat ... I didn't know if it's safe to take my water pills with my medications together. I don't know if I should take it together."* Seven individuals (33%) echoed the thought of this respondent, Patient H with heart disease said, *"I didn't think [my condition] was that bad."*

Behavioral Health

Overall, 19% of respondents reported behavioral health issues, including active substance abuse, depression and stress (Figure 1). Four patients felt that these issues had contributed to their hospitalizations. Patient M, who had several chronic health conditions including depression, used meth to escape from reality and feel numb. Patient B had used meth *"to forget the pain and hunger"* and said, *"everyone is doing it."* Due to their challenging lifestyle, it was then hard for them to manage their condition. Patient R said, *"I am homeless, no place to live. Very stressful. No really able to trust people. I am depressed about my situation. I have nothing."*

Self-Care/ Practical Problems

Practical problems not caused by social or mental health issues also created challenges for patients. These included forgetting to take their medications and being too busy to manage their health. Practical problems were reported by 10% of participants (Figure 1). Patient L with a heart disease who was sent to the hospital because of difficulty breathing said, *"Sometimes I forget to take my water pills because I only take it once not like my other medications."* Patient N said, *"I don't know where to start"* referring to the overwhelming management plan recommended by the doctor.

Denial/Avoidance

Denial or avoidance of the problem was reported by 10% of respondents (Figure 1). Denial or avoidance includes patients who believed they were healthy or did not want to deal with their chronic conditions. Patient O mentioned, *"As long as I feel good when I go out [of the hospital], I think I'm okay."* Patient

P with both chronic conditions had said, *"I am 'hard head' I know what I need to do... eat right, take my medication, etc."*

Discussion

This study included a convenience sample of Filipino patients who had PPH. In-depth interviews of 21 Filipino patients with diabetes and heart failure enabled us to identify their PPH pathways. Their stories also provided insight into patient perspectives regarding the primary factors that led to their PPH for chronic condition(s).^{8,18} By definition "preventable" assumes that, if certain factors are addressed, the hospitalization could potentially have been avoided. Traditionally, these factors have been linked to hospital-focused factors (e.g. more patient education, better discharge planning) and areas where patients can improve themselves (e.g. better adherence, more responsibility/self-efficacy). In reality, the situation is much more complex.

From their own stories, PPH pathways of Filipinos in Hawai'i were primarily associated with social vulnerabilities, healthcare system related issues, and cultural/language barriers. Social vulnerabilities, such as financial challenges, limited social support, and life instability were the most common underlying factors for Filipinos. This can be true for poor patients regardless of their race or ethnicity and was also the most common underlying factor in the overall sample of patients hospitalized with a preventable condition.¹⁹ An emergent theme notably common to the Filipino patients was their discussion about the support or involvement of family members in their care, which is a key Filipino cultural value.²⁰ Many of the patients' families act as a motivating factor, and patients rely on their family for managing their health. This tendency can be found in other cultures especially for first-generation immigrants.²¹ For example, Patient C with diabetes needed the help of her daughter to remind her to take her medication. Some even expressed that they felt that they are a heavy burden to their family. This may be an important area to focus interventions.

We also identified healthcare system-related issues that may have contributed to respondents' hospitalizations, including insufficient interaction with their doctors, poor communication/coordination, management plan issues, and bad experiences. For instance, Patient S with diabetes said that she wished her doctor had articulated the seriousness of her condition better.

Some of the recent immigrants and the elderly reported the English language was a barrier to seeking healthcare services. For example, four patients mentioned that their physicians talked too fast or used medical terms that were difficult for them to understand. Additionally, patients reported that they don't want to ask questions because they "don't want to cause any trouble" to avoid embarrassment and avoid questioning authority. Moreover, language barriers may be an even greater barrier for Filipinos who were excluded from the study based on language issues.

Two patients reported avoidance or denial as an underlying factor. This may be due to Filipino's strong belief in fatalism or known in Filipino as *bahala na*. If the patient perceives his or her condition is hopeless or "out of their hands," the patient

would not fully engage and invest in managing their condition. Another Filipino cultural belief that may influence their behavior related to their condition was *pakikisama* or being very respectful and polite to people in authority. For instance, Filipinos may avoid asking for clarification even though they do not understand what is being told to them. As patient J noted, “I’m not the person to ask.” These tendencies should be kept in mind when treating Filipino patients, especially in regard to their understanding of their management plan.^{22, 23}

Several limitations of this study should be mentioned. First, our sample was small and came from only one hospital in Hawai‘i, limiting generalizability. In addition, our participants may have responded to the open and closed ended questions in a manner that was socially acceptable. For instance, they may have been less likely to report substance abuse or share social challenges. Moreover, studies have shown that the interviewer’s ethnicity, nationality, culture, religion, color of their skin, age, and gender can influence participant’s responsiveness.²⁴ Another limitation was the study population was limited to patients who spoke English. Pathways of non-English speaking Filipino patients may be different from those identified in this study.

Understanding the patient’s perspectives is critical to the prevention of future hospitalizations. Patient perspectives can help healthcare providers develop management plans that are suitable, acceptable, and realistic for the patients.²⁵ Increasing patients’ involvement in their care could empower them by improving their knowledge of their health and giving them a sense of ownership of their health.²⁶

Conflict of Interest

None of the authors had conflicts of interest to report.

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The Effect of a Targeted Educational Activity on Obstetrics and Gynecology Resident In-Training Examination Scores

Ingrid Chern MD; Clyner Antalan MD; Tod Aeby MD; and Mark Hiraoka MD

Abstract

The objective of this study was to compare the examination scores before and after implementation of a study program based on high yield topics on the Council of Resident Education in Obstetrics and Gynecology (CREOG) In-Training Examination. This prospective cohort study compared scores from academic years 2012 to 2014 of University of Hawai'i obstetrics and gynecology residents who participated in a directed study program based on selected high yield topics from the CREOG Test Item Summary Booklet. Topics were considered high yield if more than 75% of the program residents answered the topic questions incorrectly during the immediately preceding CREOG In-Training Examination administration. Residents were assigned topics to research and present at monthly teaching sessions. The presentations were made accessible in a wiki website. The intervention was initiated in 2012 and discontinued in 2013. The primary outcome was the difference among CREOG In-Training Examination scores before the study program, during the study program, and after the study program was discontinued. Only scores of residents who sat for all three exams were included. Eleven residents were present during the duration of the study period and sat for all three CREOG examinations. During the year of the educational activity, paired individual resident CREOG exams scores increased significantly from the 2012 CREOG administration (mean = 194.7) to the 2013 CREOG administration (mean = 208.2). These findings demonstrate that the CREOG Test Item Summary Booklet and the wiki platform can be used to effectively direct educational efforts resulting in improvements in CREOG examination performance.

Keywords

CREOG, scores, residency training, wiki

Abbreviations and Acronyms

CREOG = Council of Resident Education in Obstetrics and Gynecology

ITE = In-training examination

OBGYN = Obstetrics and Gynecology

USMLE = U.S. Medical Licensure Examination

ABOG = American Board of Obstetrics and Gynecology

UH = University of Hawai'i

Background

As an important technological tool in education, the World Wide Web has evolved from being a static, one-way flow of information or “prepackaged knowledge” to an information super-highway, where users not only consume information but also become active producers and collaborators in the creation and contribution of information.¹ As a collaborative medium designed to promote content sharing,² Wiki-based websites allow users the ability and the responsibility of updating, editing, and maintaining content. Originated from the Hawaiian term “*wiki wiki*” (meaning quickly or swiftly), wikis allow users to become contributors in a collaborative fashion.³ Rather than information coming from one sole editor, learners assume responsibility for constructing knowledge for others by taking on an active role in developing their own formations and representations of

that knowledge. This allows for the incorporation of multiple perspectives and collaborative learning, which facilitates deeper understanding.

Wikis have become increasingly recognized as important educational and collaborative tools, with integration into residency education and curriculum being reported in several recent publications.^{3,4} In 2008, residents at Beth Israel Deaconess Medical Center built a wiki, which contained institutional knowledge and reference information.⁵ After three years, a survey revealed that all residents felt that the wiki improved their ability to complete tasks and improved their experience (90%), efficiency (89%), and education (57%). In 2011, second-year dermatology residents created the Dermatology Education Wiki (DermWiki) quality improvement project at the University of Colorado.⁶ After implementation, dermatology residents and medical students were surveyed. Students rated their elective that used DermWiki higher than rotations without a wiki (8.12 vs 7.31) and residents reported unanimous increased satisfaction with the residency program after DermWiki institution. The faculty at the University of Pittsburgh Medical Center also used wiki as an interactive teaching tool for a resident didactic course in pathology in 2011.⁷ Residents' test scores improved 25% after the wiki course, compared to 16% improvement with the prior predecessor course that did not employ wikis ($P = .006$).

As the public increasingly turns to the Internet for medical information, several medical specialty groups have also developed their own wikis to organize and maintain core content. These include HemOnc.org (maintained by hematology-oncologists) and EyeWiki (maintained by the Academy of Ophthalmology). WikiEM, an emergency medicine wiki, was originally developed for residents at the Harbor-UCLA Medical Center emergency medicine program in 2009 and was also subsequently opened to the public in 2011.⁸ Of the residents who contributed to WikiEM, 74.6% reported a positive impact on their understanding of emergency medicine content and 72.9% noted an improvement in their clinical efficiency. This wiki phenomenon has also expanded internationally, with the successful implementation of a Wiki Guide for Obstetric and Gynecology Trainees in Ireland.⁹

Introduction

The Council on Resident Education in Obstetrics and Gynecology (CREOG) in-training examination was developed in 1967 with the intention of assisting program directors with evaluating both residents' cognitive knowledge and the effectiveness of individual programs.¹⁰ Both residents and program directors have found the CREOG ITE, which is administered yearly, to

accurately assess cognitive knowledge.¹¹ As such, it has become a standardized tool to assess the quality of training in obstetrics and gynecology.¹² The CREOG Test Item Summary booklet, which closely emulates the CREOG ITE, was subsequently developed. First released in 1993, it consists of several components: question categorization, focus points identified from key word phrases, and item-specific text references.¹³ As an educational resource, this booklet can allow each program to identify potential gaps specific to their own curriculum.

Performance on the CREOG ITE has also been correlated with U.S. Medical Licensure Examination (USMLE) step 1 scores,¹⁴ with USMLE scores >200 associated with both CREOG ITE performance and passing score on the American Board of Obstetrics and Gynecology (ABOG) written examination.¹² Furthermore, CREOG ITE scores of at least 200 have also been shown to predict success on the ABOG examination.¹⁵

In 2012, University of Hawai'i OBGYN resident CREOG ITE scores were noted to be discordant with their USMLE scores. In the same cohort of residents, 2 of 11 (18%) scored <200 on the USMLE step 1 while 9 of 11 (82%) scored <200 on the 2012 CREOG ITE. Residents perceived a lack of structure to the curriculum as a cause of the low CREOG ITE scores while faculty were concerned that residents were not invested in their own education. In an effort to increase CREOG ITE scores in our program, various options for our residents to learn CREOG topics were considered and a CREOG-review Wiki project was started.

The purpose of this study was to investigate whether the implementation of a targeted educational activity, in the form of a resident-run wiki website (CREOG Wiki Project), would have a positive effect on resident CREOG ITE scores.

Methods

This was a prospective cohort study conducted at the University of Hawai'i John A. Burns School of Medicine Residency Training Program in Obstetrics and Gynecology. OB/GYN faculty identified high-yield topics from the CREOG test-item summary booklet. Topics were identified as high-yield or as potential gaps in the UH OBGYN curriculum if >75% of UH residents answered the topic incorrectly during the 2012 CREOG ITE.

The CREOG Wiki project was started shortly after the 2012 CREOG ITE and each resident was assigned a topic to research to present at monthly teaching sessions. Each topic was entered as a single Wiki entry, which was searchable and accessible by our residents through an internally hosted department Wiki website. A Wiki Challenge was also implemented as a way to encourage participation in the project. Each month, a Jeopardy-

styled game, moderated by faculty, was played to encourage and incentivize residents to review the wiki entries. The CREOG Wiki project required considerable effort on the part of a few resident champions and was discontinued in August 2013, after the 2013 CREOG ITE was taken, with scores returned, and during the 2014 CREOG ITE preparation period, due to decreased interest.

CREOG ITE scores from 2012 to 2014 were examined and only the scores of the residents who were present for the entire three-year period were included. Test scores were obtained through a search of computerized program records by the principal investigator and were recorded on a password-protected Excel spreadsheet. All subjects were de-identified and a key with codes that linked the subjects to their individualized scores were kept in a separate password-protected Word document that only the principal investigator had access to. Only de-identified data was used for statistical analysis. In all, 11 residents were present for all three CREOG ITE administrations. Paired t-test analysis was performed on the 11 resident's level-specific standardized scores, using GraphPad's QuickCalcs (www.graphpad.com). The mean level-specific standardized scores over the three-year period was also analyzed using ANOVA statistical analysis, using the Social Science Statistical online calculator (www.socscistatistics.com).

Results

The raw scores for 11 residents from 2012-2014 are shown in Table 1. ANOVA analysis of the raw scores over the three-year period demonstrated a statistically significant difference ($P = .0018$). Figure 1 shows a pattern, in which most of the residents' scores increased in 2013 and decreased again in 2014 when the wiki project was discontinued. Paired t-test analysis of resident scores between 2012 and 2013 demonstrated significant difference ($P = .0014$). However, there was no statistical difference between 2013 and 2014 scores ($P = .075$) and also, no significant difference when comparing 2012 (before the wiki project was started) and 2014 scores ($P = .051$). This suggests that scores after the wiki project was discontinued approached baseline or pre-wiki 2012 project scores.

During the year of the study program (2012-2013), mean level-specific CREOG in-training exam standardized scores increased significantly in 2013 compared to 2012 (208.2 vs 194.7, $P < .05$) (as seen in Figure 2). The program was discontinued in the 2013-2014 academic year due to waning interest and mean level-specific standardized score for 2014 was shown to decrease to 201.6 from 208.2 although this was not significant ($P > .05$).

Table 1. Raw CREOG Test Scores from 2012-2014			
Resident	CREOG Scores		
	2012	2013	2014
1	191	199	189
2	186	194	189
3	196	205	216
4	184	188	192
5	196	227	208
6	186	208	188
7	179	204	210
8	195	191	191
9	211	228	220
10	223	232	222
11	195	214	193
Mean	194.7273	208.1818	201.6364
Standard Deviation	12.04605	14.65865	12.98442
ANOVA	<i>P</i> = .0018		

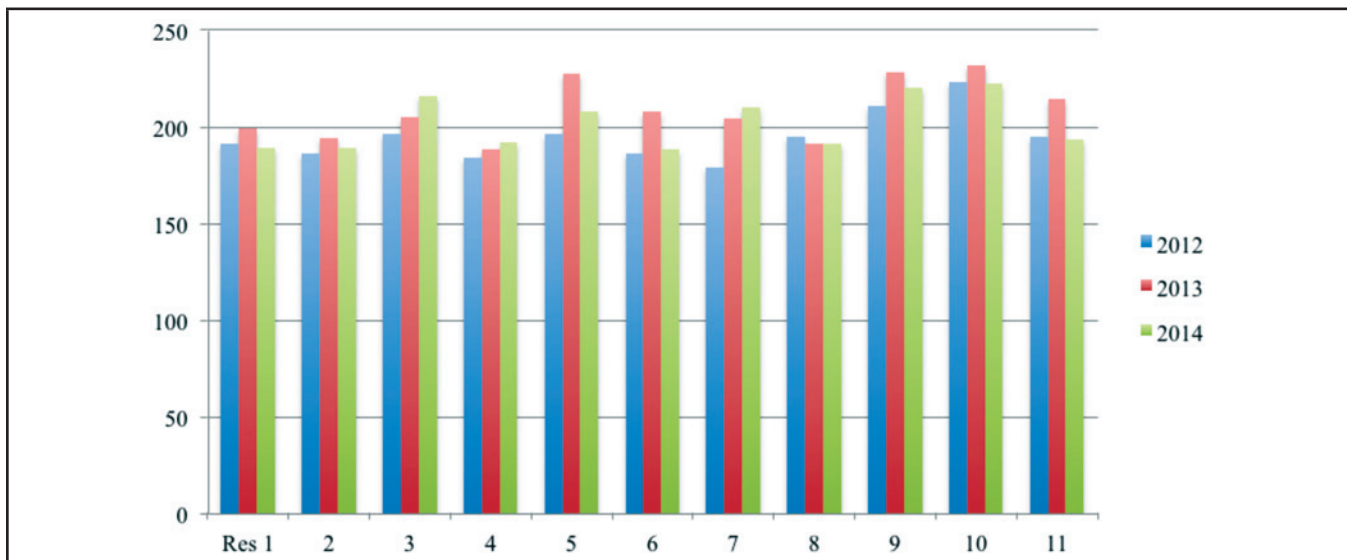


Figure 1. Individual Resident CREOG Test Scores from 2012-2014

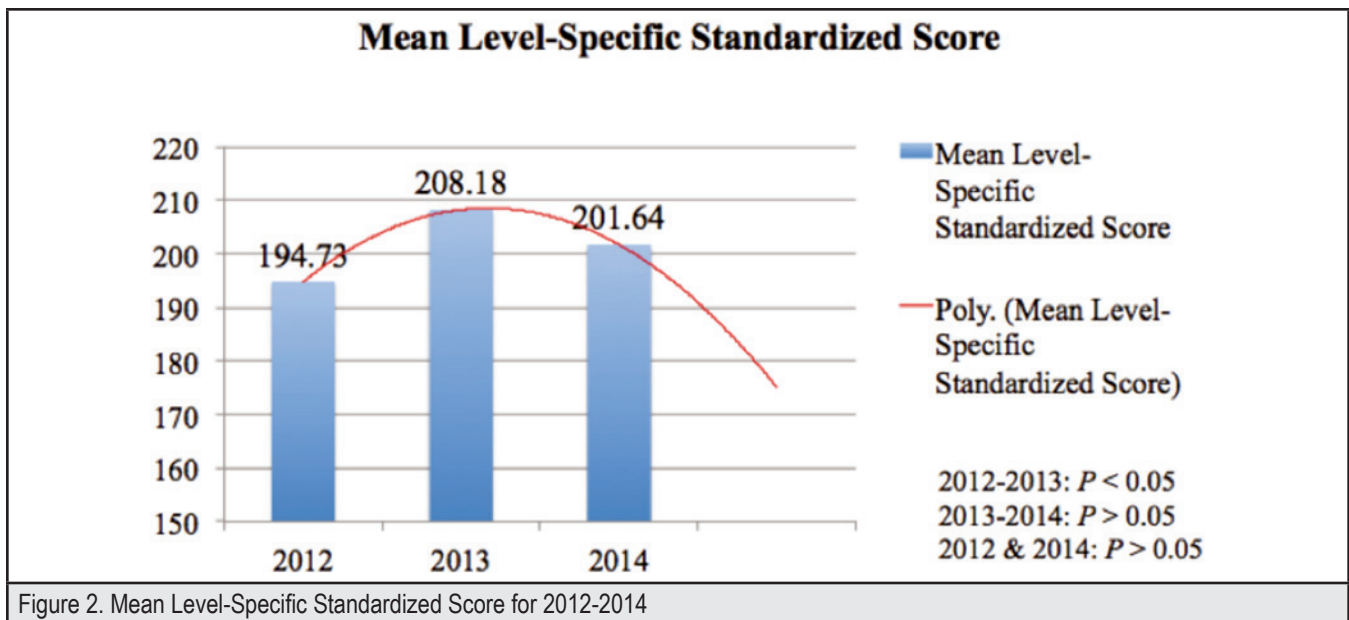


Figure 2. Mean Level-Specific Standardized Score for 2012-2014

Discussion

There have been previous studies documenting the utilization of various educational interventions to improve standardized in-training testing scores in internal medicine and surgery. These interventions include a multiple choice testing program coupled with a year-long elective experience,¹⁶ a directed postgraduate study,¹⁷ self-directed study; resident-directed study with weekly systematic textbook reviews; and faculty-directed study with additional formal basic science and clinical lectures. RESULTS Aggregate higher scores were observed when ABSITE results for the directed study period were compared with those observed during the independent study period in mid-level resident years (postgraduate year [PGY] 2 to 4 a problem-based learning conference,¹⁸ a multidisciplinary surgeon-directed integrated learning platform,¹⁹ review textbooks, weekly reading assignments, and slide and audio reviews integrated within an online LMS was made available to postgraduate year (PGY) a mandatory focused academic support program (with individual mentoring, personal learning plan, review session, self assessment, and feedback),²⁰ and individualized study plans.²¹ a program was initiated to improve American Board of Surgery In-Training Exam (ABSITE) All noted significant improvement in examination scores.

Use of the CREOG Test Item Summary booklet as an educational resource has been previously shown to improve CREOG ITE scores. After a resident-created study guide based on the test Item Summary booklet was introduced, improvement in CREOG ITE scores across residency levels 2-4 and across all topic areas was noted.¹³ Our study utilized wiki as an interactive medium for effective and collaborative review of the CREOG Test Item Summary booklet. With significant improvement in CREOG ITE scores, our results further validate the value of the booklet while also demonstrating the potential of utilizing wiki as an educational tool.

The importance of the CREOG ITE also stems from its predictive value for board certification. Previous studies have shown a statistically significant correlation between CREOG ITE scores and both outcomes and scores on the American Board of Obstetrics and Gynecology (ABOG) written examination. Lingenfelter et al¹⁵ noted that residents with a CREOG ITE score of at least 200 predicted successful performance on the ABOG written examination while Spellacy et al²² found that scores less than 190 were associated with an increased risk of failing. Similar correlations have also been documented between the In-Training Examination (ITE) performance in Internal Medicine and predicting American Board of Internal Medicine Certifying Examination (ABIMCE) scores²³ and who had also taken at least one ITE.

MEASUREMENTS: Scores for the composite and subspecialty sections of the ITE were compared with those for the ABIMCE. An R2 was obtained to relate the scores on the two examinations. A cutoff score was derived to maximize the ability of the ITE to discriminate between residents who were likely to pass and those who were likely to fail the ABIMCE.

MAIN RESULTS: ABIMCE scores were available for 109 residents who had also taken the ITE during PGY-2 (19²⁴ as well as for the American Board of Surgery In-Training Exam (ABSITE) and the qualifying examination of the American Board of Surgery.²⁵⁻²⁷ the American Board of Surgery In-Training Examination (ABSITE)

The strength of our study is that data was collected among the same pool of residents who took the CREOG ITE through all three years (2012-2014). Paired t-test showed statistical significant improvement between scores from 2012 and 2013 among individual resident scores. This analysis demonstrates that resident scores improved significantly without the mean of the group in 2013 being excessively skewed by a few outliers.

There are also limitations to this study. It is a prospective cohort study performed at a single institution with a small sample size

and short duration so the resulting significant improvement in CREOG ITE scores may not be applicable to other residency programs. The Wiki software also had a relatively steep learning curve and uploading tables and images was difficult. In addition, the wiki required a large amount of oversight and administration by the resident champions. These resident champions were tasked with running the Wiki, monitoring entries, editing entries, and leading the review sessions. This likely contributed to decreased champion effort and ultimate loss of resident interest. However, it is important to note that newer Wiki platforms make posting and editing entries much easier. While our study utilized wiki as our main interactive medium, we also implemented student-led lectures and a Jeopardy-styled quiz game. This design does not allow us to distinguish among the impacts of this multi-faceted approach.

Conclusion

Based on the analysis of level-specific CREOG in-training exam scores, we were able to demonstrate a positive and significant correlation between targeted education activity and improved CREOG ITE scores. Therefore, the use of the CREOG Test Item Summary booklet to identify high yield questions can help improve performance on the CREOG in-training exam when used in a structured manner.

Now that we have demonstrated the value of the wiki project, we hope our residents will show renewed interest and that we can revive the CREOG wiki-project. Currently, we have a similar project using Dropbox but it does not allow for the same level of collaboration as the wiki project. We hope that the use of a more user-friendly wiki platform will remove one of the major barriers to resident participation.

Conflict of Interest

None of the authors identify any conflict of interest.

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MEDICAL SCHOOL HOTLINE

Continuing Medical Education at the John A. Burns School of Medicine

Brenda Wong BA and Kathleen Kihmm Connolly PhD

In 1993, the Medical School Hotline was founded by Satoru Izutsu PhD (former vice-dean UH JABSOM), it is a monthly column from the University of Hawai'i John A. Burns School of Medicine and is edited by Kathleen Kihmm Connolly PhD; HJMPH Contributing Editor.

As the world of biological sciences advances with new techniques and innovations, and medical therapies, pharmaceuticals, and delivery of patient care evolve, the importance that physicians keep up-to-date is vital to ensuring the highest quality of care. Continuing Medical Education (CME) is a vehicle for lifelong learning and professional growth; it also provides physicians with a means to continue their medical education beyond medical school and residency. As such, CME is a requirement for the maintenance of medical licensing and certification, as well as specialty boards and membership in professional organizations.

As defined by the American Board of Medicine, Continuing Medical Education (CME) consists of educational activities for physicians to improve services for patients, the public, or the profession. Activities may include the maintenance or development, of knowledge, skills, professional performance, or relationships.¹ It is an expectation and requirement that the content of accredited CME be commercially unbiased, independent and objective information. CME activities must also be in compliance with the Accreditation Council for Continuing Medical Education (ACCME) Standards for Commercial SupportTM, which is regulated by the Physician Payments Sunshine Act. Passed in 2010, this healthcare legislation increases the transparency of financial relationships between health care providers and pharmaceutical manufacturers.²

Hawai'i Consortium for Continuing Medical Education

The Office of CME within the John A. Burns School of Medicine (JABSOM) is accredited as the Hawai'i Consortium for Continuing Medical Education (HCCME). Established in 1993 as a partnership between the Hawai'i Medical Association and JABSOM, the HCCME manages and administers the designation and awarding of educational activities for certified CME. In June 2016, the ACCME awarded the HCCME with Accreditation with Commendation for a period of six years. Commendation was awarded for demonstrating that the organization is a learning and change agent for physicians and patients. HCCME engages with the environment in support of physician learning and change, and is part of a system of quality improvement.³ Evidence for this commendation can be found

in the 25% growth in CME activities for HCCME from 2014 to 2016, and an over 35% growth in the number of CME credit hours offered over that same period.

JABSOM's Office of CME is also responsible for the administration of the Hawai'i Medical Association's Continuing Medical Education Facilities Accreditation Committee (HMA FAC). As a state medical society accreditor recognized by the ACCME, the HMA FAC accredits hospital CME providers in Hawai'i, Guam, and American Samoa.

CME Across Healthcare Disciplines

In Hawai'i, physicians are required to complete a minimum of 40 hours of *AMA PRA Category 1 CreditsTM* for renewal of state medical license.⁴ Additionally, American Board of Medical Specialties (ABMS) Board Certified physicians are required to meet ABMS standards for Maintenance of Certification (MOC). The MOC program is designed to ensure continuous learning, self-assessment, and clinical improvement among board-certified physicians. Increasingly, institutional CME providers are shaping quality, process, and practice improvement initiatives within programs that support MOC needs of physicians. For example, JABSOM's departments of medicine and surgery have incorporated MOC into select faculty development activities. Similarly, the department of pediatrics has initiated development of MOC CME this year for its faculty.

Hawai'i also requires licensed practical nurses, registered nurses, advanced practice registered nurses, psychologists, and social workers to complete continuing competency activities for license renewal. Similar requirements apply to pharmacists, physician assistants, and dentists. Although credit for CME can only be awarded to MDs and DOs, other health professionals are often able to apply their participation in CME activities towards their professional continuing education requirements. This is dependent on the activity's subject matter and its applicability to their area of practice.

Recognizing the value of a team-based approach to healthcare, JABSOM's Office of Medical Education hosts the Health Professions Education Conference biennially. The conference examines the intersection of faculty development, CME, and continuing professional development, while highlighting inter-

professional education (IPE). IPE is a term that refers to inclusive health education across disciplines that focus on collaboration and a team approach to patient care. Through the Area Health Education Center (AHEC), JABSOM also participates on the UHM IPE Committee along with the schools of Nursing and Dental Hygiene, Social Work, Public Health Studies, and College of Pharmacy.

Types of CME

The practice of healthcare has grown increasingly complex and the role of the physician continues to evolve, as does the face of CME. In the not so recent past CME was predominantly presented in a didactic format and focused on the acquisition of knowledge. Activities were consisted largely of lectures, conferences, scholarly meetings, or enduring materials. Scientific presentations were provided by representatives of the pharmaceutical industry and device manufacturers, and were often held in hospitals and medical schools.

In 2017, the American Medical Association (AMA) and ACCME simplified and aligned their expectations for activities certified for *AMA PRA Category 1 Credit™*. The revisions reduced learning format requirements, which allow providers greater flexibility in their design and delivery of CME activities. CME is now widely accessible, and passive learning environments have evolved to dynamic methods of learning. Interactive technologies and web-based learning is pushing CME to more effective methods of transmitting medical education. Activities acceptable by AMA now range from live activities; faculty learning, which includes, journal-based, manuscript review, test-item writing performance improvement, internet point-of-care, and learning from teaching; and a broad category of “other” for blended or other formats that do not fit in an established category.⁵

Live activities occur at a specific time as scheduled by an accredited provider, with learners participating in person or remotely, such as teleconferences or live internet webinars. In contrast, journal-based CME and enduring material do not require a specific time or location for participation. This includes web-based CME courses, which facilitate flexibility, accessibility, and self-directed learning opportunities. Manuscript review activities involve participation in the critical review of an assigned journal manuscript during the pre-publication review process. CME credit is also available for physicians involved in test-item writing and the learning they gain in the development of examinations or peer-reviewed, self-assessment activities. Internet point-of-care learning is a specific type of self-directed online learning activity where clinical questions are researched and reflected upon via web-based searching.⁶

Learning from teaching CME is individualized and self-directed learning for clinical faculty involved in providing medical education to medical residents, fellows, and/or medical students. This type of CME activity is practice-based, and can include teaching, clinical, or research activities. Individuals identify a specific skill, knowledge, or area of expertise that is needed in order to provide clinical instruction. An individualized

learning project is developed, and documentation of completion and self-evaluation of performance is reported. The following are some examples.⁷

- Personal learning to teach an interactive skill-based workshop
- Learning to operate a new surgical device to facilitate training
- Self-assessing knowledge and skills training to improve teaching
- Learning new medical coding knowledge and strategies to facilitate educational seminars

HCCME Supported CME

In accordance, JABSOM’s CME activities are no longer limited to didactic presentations. There are conferences that incorporate skills labs, shared patient presentations, utilization of audience response systems, webinar discussion groups, and the integration of simulation-based teaching. Most of the activities provided through HCCME are open to the physician community, other health professionals, and the general public. This is in addition to JABSOM’s faculty, residents and medical students. Activities include the following.

- Regularly scheduled series, such as grand rounds, lectures, journal clubs and clinical conferences, are held by JABSOM’s Departments of Geriatric Medicine, Medicine, Obstetrics, Gynecology, and Women’s Health, Pathology, Pediatrics, Psychiatry and Surgery, and the Office of Medical Education, at various locations on a monthly or weekly basis. Some offerings such as Hawai’i ECHO (Extension for Community Health Outcomes) discussion series for rural healthcare providers are also available online. (<https://www.echohawaii.org/the-program#echo>)
- Live courses and events include the Cross-Cultural Healthcare Conference, Healthcare Provider Education Conference, Native Hawaiian Health Conference, Hawai’i Addictions Conference, West Hawai’i Cancer Symposium, Women/Family Health Conference, Hawai’i to Zero HIV Cure and Prevention Efforts, Fundamentals of Critical Care Course, JABSOM Alumni activities, Hawai’i Physicians Workforce Summit, SimTiki simulation courses, and the Physician Leadership Academy of the Hawai’i Medical Association.
- Through its joint providership program, HCCME expands the availability of CME activities in Hawai’i by partnering with St. Francis Healthcare System, Rehabilitation Hospital of the Pacific, Pu’ulu Lapa’au Hawai’i Physician Health Program, Blood Bank of Hawai’i, Fertility Institute of Hawai’i, Shriner’s Hospital for Children, Mountain Pacific Quality Health, Hawai’i Dermatological Society, Hawai’i Neurological Society, Hawai’i Orthopaedic Association, and Hawai’i State Department of Health.

Conclusion

Strategic planning at JABSOM’s Office of CME towards new criteria that was adopted for ACCME’s Accreditation with Commendation in 2016 is ongoing. The criteria encompass demonstration of performance in five areas: Promotes Team-based Education (eg, interprofessional teams engaged in planning); Addresses Public Health Priorities (eg, collaboration with other organizations to address health issues); Enhances Skills (eg,

CME to help communication skill); Demonstrates Educational Leadership (eg, professional development for CME team); and Achieves Outcomes (eg, demonstrated improvement).¹

To address these and other CME issues JABSOM's dean, clinical chairs, and HCCME hold collaborative retreats biennially to provide updates on the status of HCCME, discuss national trends in CME, and to clarify the direction of CME at JABSOM. The last retreat was held in December 2017. Discussions and group breakout sessions included the following topics: recommendations to improve operations and business; academic partnerships that will broaden the reach and benefit of CME; new CME activities, products and services; and new joint providers and educational partners. It is HCCME's intention to maintain its status of Accreditation with Commendation when application for reaccreditation is made in 2022.

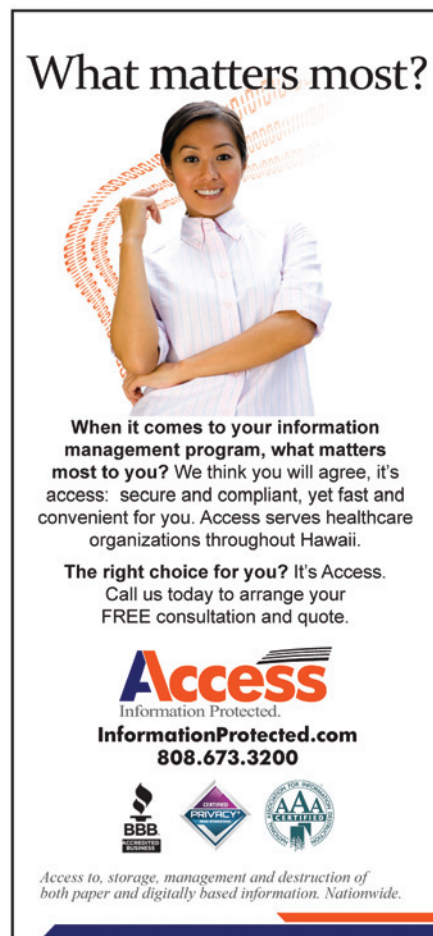
To consider the designation of CME for an upcoming activity, contact Brenda Wong: email brendaw@hawaii.edu; telephone (808) 692-0900; mailing address HCCME, 651 Ilalo Street, MEB 224, Honolulu, HI 96813.

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Equitable Access to Abortion Care in Hawai'i: Identifying Gaps and Solutions

Ghazaleh Moayedı DO, MPH and Chevelle Davis MPH

Insights in Public Health is a monthly solicited column from the public health community and is coordinated by HJMPH Contributing Editors Tetine L. Sentine PhD from the Office of Public Health Studies at the University of Hawai'i at Manoa and Donald Hayes MD, MPH from the Hawai'i Department of Health in collaboration with HJMPH Associate Editors Lance K. Ching PhD, MPH and Ranjani R. Starr MPH from the Hawai'i Department of Health.

Abstract

Despite a progressive legislative landscape, some women in Hawai'i lack access to abortion care. Those in the military, undocumented immigrants, and people living in rural areas and on neighbor islands face significant barriers to timely and affordable abortion care. Evaluating these gaps in access can help identify key areas for policy improvement to ensure health equity in Hawai'i.

Introduction

Induced abortion in the United States is safe, common, and constitutionally protected. With nearly half of all pregnancies in 2011 being unintended and 40% of those ending in abortion, abortion is one of the most common medical procedures performed in the United States.^{1,2} Although abortion rates have been declining over the past decade, one in four women in America will have at least one abortion by the age 45.³ In 2014, there were 2,147 abortions reported in Hawai'i at a rate of 8 abortions per 1,000 women aged 15-44.³ Abortion patients are not monolithic—they are diverse in race, family income, relationship status, sexuality, citizenship, and employment.³ The majority of abortion patients in 2014 had a previous birth, were in their 20's, and lived below the federal poverty level.³

In 1970, Hawai'i became the first state to legalize abortion and continues to lead the nation in access to abortion through public funding and insurance coverage.^{4,5} Despite a progressive legislative landscape, some women in Hawai'i still lack equitable access to abortion care. The barriers to abortion care in Hawai'i include cost, insurance coverage, geography, immigration status, and provider shortages. This article explains these gaps in access and proposes ideas to solve them locally and nationally.

Financial Barriers to Abortion Care in Hawai'i

The Hyde Amendment was first passed in 1976 and prevents the use of any federal funding for abortion care except in a few extreme circumstances.⁶ Therefore, any person with insurance funded by the federal government (TRICARE, Medicaid, CHIP, Medicare, federal employees, diplomats) must pay for their abortion out-of-pocket. Active duty military members, their

spouses, their children, military civilians, reservists, and veterans all receive health insurance through the federal government.⁷ The Hyde Amendment therefore excludes a large number of people in Hawai'i from abortion care coverage. The State of Hawai'i has eleven military bases and as of September 2017, there were 36,620 active duty service members, 9,402 reservists, and 18,739 military civilians stationed or living in Hawai'i.^{8,9} Although these statistics do not equate to the exact number of women of reproductive age insured through the military in Hawai'i, they do illustrate that a significant number of women in the state depend on military insurance for health care. This group of women also lack abortion benefits in their insurance coverage. With unintended pregnancy rates higher among servicewomen than the general population, this lack of coverage for an essential health service serves as a great injustice for service members and their families living in Hawai'i.¹⁰

Although the Hyde Amendment also bans the use of federal funds to pay for abortion through programs like Medicaid, Hawai'i uses state funds to cover abortion related expenses for Medicaid beneficiaries.¹¹ This state policy allows many of the women in Hawai'i living below the federal poverty level to have financial access to abortion care. However, not all women in Hawai'i living in poverty are eligible for Medicaid. Hawai'i not only requires that potential Medicaid beneficiaries be state residents, but also requires that they are US citizens or "qualified aliens."¹² In 2014, it was estimated that 3.2% of Hawai'i's population was undocumented, accounting for nearly 45,000 people.¹³ Therefore, undocumented immigrants in Hawai'i are ineligible for Medicaid benefits and must pay out-of-pocket for abortion care. This policy poses a significant injustice and financial burden for immigrant communities living below the poverty level. Nationally, out-of-pocket costs for abortion care range from almost \$400 for first-trimester abortions to \$1000 or more for second-trimester procedures.¹⁴ Hawai'i, however, has significantly higher out-of-pocket costs for abortion care. Abortion providers report that first-trimester procedures start at approximately \$800 - \$1000 and second-trimester procedures are \$2,000 - \$5,000 out-of-pocket. An abortion can cost

over one third of the monthly salary for many women.¹⁵ This significant financial barrier leads to delays in care, resulting in more expensive procedures at more advanced gestations or complete inability to access the desired abortion.¹⁵ Inability to access abortion care due to financial constraints is not only a public health concern, but is also a matter of considerable injustice in our communities.

Solutions to Address Financial Barriers to Abortion Access in Hawai'i

In 2018, the Hawai'i State Legislature introduced Senate Bill 2341 and House Bill 2121 as solutions to financial barriers to abortion in the state. These companion bills would require all health insurers in Hawai'i to cover comprehensive reproductive health care services for beneficiaries, including abortion care, and expand Medicaid coverage to include non-citizens living below the federal poverty level.¹⁶ This bill would close the coverage gap for some immigrants ensuring equitable access to abortion care, as well as other important reproductive health services like cancer screening, contraception, and prenatal care.

A similar bill, the Reproductive Health Equity Act, was successfully passed by Oregon's State Legislature in 2017. The Act was an expansive overhaul of Oregon's insurance code, reproductive health policies, and coverage requirements.¹⁷ Among the many important women's health protections of this Bill, the Reproductive Health Equity Act prevents exclusion of people from health benefit plans based on national origin. Therefore, Oregon was able to successfully expand their state Medicaid coverage to include undocumented immigrants for prenatal care as well as abortion care. Analysis of the full health and health equity-related outcomes of this bill with regard to abortion access has yet to be published. However, expanding Medicaid coverage to undocumented immigrants in Oregon was shown to increase their numbers of prenatal care visits and well-child visits.¹⁸ Therefore, reintroduction and passage of SB 2341/ HB 2121 to the 2019 Hawai'i State Legislature would not only expand abortion access in Hawai'i, but also improve maternal and child health.

Although SB 2341/ HB 2121 would require all health insurers in Hawai'i to cover abortion care, it is unlikely this requirement can be applied to the federally funded insurers of federal employees, service members, and their spouses. To address the abortion coverage gap for those with military or federal insurance, a novel approach to Medicaid coverage in Hawai'i could be undertaken. Specifically, eligibility requirements for Medicaid covering pregnancy could be changed to allow any person with insurance coverage that excludes abortion care to obtain emergency Medicaid coverage for those services. This approach to cover healthcare for service members has not been employed by any other state, but a healthcare policy that assists pregnant service members or their spouses in this way could be socially desirable.

Geographic Access Barriers

Approximately 90% of counties in the United States lack trained abortion providers, which contributes to the 26-43% of women nationwide who travel more than 50 miles to obtain these services.¹⁹ Nearly 50% of women who are having abortions in the second trimester report having difficulties in finding or obtaining an abortion provider.²⁰ Geographic barriers to abortion care are more pronounced in Hawai'i than in other US locations, as patients cannot routinely drive to the closest clinic. Of the seven inhabited islands of Hawai'i, only 2 have abortion providers: O'ahu and Maui. Therefore, patients living on many neighbor islands also undergo significant geographic barriers to accessing abortion care.

In general, Hawai'i has a high cost of living with lower physician reimbursement in rural areas.²¹ Rural communities on O'ahu and neighbor islands have significant primary care provider shortages.²² Increasing health services in low population density areas of Hawai'i has been an ongoing struggle.²³ Lack of physicians in rural areas significantly reduces access to abortion services for women living in these areas of the state and requires air travel to obtain abortion care. Although advanced practice clinicians (APCs) can skillfully provide abortion care, Hawai'i lacks a diversification of its abortion provider workforce due to state level policies. Hawai'i is one of forty-one states that has a "physician only" law, stipulating that only physicians can perform surgical abortions.²⁴ This physicians-only law effectively decreases access to abortion services in rural areas of the state, which have marked physician shortages.

Lack of service availability on neighbor islands can require expensive airfare and accommodations on O'ahu to receive needed care.²³ While some insurance plans may cover the cost of travel and accommodations, this does not account for the cost of additional family members to accompany the patient, the cost of lost time from work, the cost of childcare, or other travel associated costs such as food and ground transportation. While distance to specialized services is a barrier for many people across the United States, Hawai'i faces unique barriers regarding distance due to separation from services by the ocean in this island state.

Solutions for Access to Care Issues in Rural Communities

One option to address the challenges for rural areas would be to expand the abortion provider workforce to include APCs such as nurse practitioners (NPs), certified nurse midwives (CNMs), and physician assistants (PAs).²⁰ These clinicians are more likely to care for underserved populations in rural areas, making them critical players in expanding healthcare services.²⁰ Abortion care by APCs is supported by the World Health Organization and evidence shows first-trimester abortion services provided by APCs are as safe as obtaining them from a physician trained in abortion care.^{19,25,26} Currently, the District of Columbia and

nine states (California, Colorado, Connecticut, Montana, New Hampshire, Oregon, Rhode Island, Vermont, and West Virginia) within the United States have no criminal laws or regulations that restrict first-trimester abortions to physicians only.¹⁹ APCs in the U.S. who specialize in reproductive health services can acquire advanced skills through educational programs like those offered by the Association of Reproductive Health Professionals.²⁷ Provision of abortion services by APCs increases continuity of care, facilitates earlier diagnosis and termination of unintended pregnancies and increases the health and well-being of women.²⁷ The Hawai'i State Legislature routinely introduces a measure to remove physician only requirements for abortion care and adding this as a legislative priority for 2019 will work to expand abortion access to the geographically diverse areas of Hawai'i.

Modern approaches to administering medical abortion can also increase abortion access in rural areas without the need of surgical training for new providers. Medical abortion is a two-drug process where the medications mifepristone and misoprostol are taken orally to terminate a pregnancy within the first ten weeks.²⁸⁻³⁰ The first medication, mifepristone, must be dispensed directly by a clinician in their office. The second medication, misoprostol, can be dispensed by a pharmacy and taken at home.²⁸ While this method increases access by eliminating the need for surgical facilities or trained surgical abortion providers, it still does not address access issues for women who have difficulties getting to a facility to obtain mifepristone. For example, the only abortion providers registered to dispense mifepristone in the state are located on the islands of O'ahu and Maui, which restricts medical abortion access to women living on neighbor islands.^{29,30} Given the geography of the state, various models of telemedicine abortion are a good mechanism for administering mifepristone from registered providers at a distance through information and communication technology.³¹

There are two current models for telemedicine abortion: the clinic-to-clinic model and the direct-to-consumer model, also called TelAbortion. In the clinic-to-clinic model, the provider licensed to dispense mifepristone is at one clinic and the patient is at another clinic, usually in a more rural area. The patient has a routine diagnostic work-up at their rural facility and they complete a video-conference consultation with the provider who is at another location. Once the consultation is complete, and the medication is dispensed to the patient at the rural facility. A seven-year, retrospective cohort study done in Iowa using a clinic-to-clinic telemedicine model found the occurrence of an adverse event utilizing telemedicine abortion to be 0.18% (N=8,765) versus 0.32% (N=10,405) using the standard clinic model.³² Another study in Iowa assessing changes in abortion services rendered after the introduction of telemedicine abortion, found high acceptability and uptake of medical abortion using the telemedicine model.³¹ The findings also indicate that increased access to telemedicine abortion increases overall access and uptake of abortion in the 1st trimester.³¹ While clinic-to-clinic telemedicine abortion may be effective in increasing access to abortion services in other states with different medical

infrastructures, this model might not currently be effective in Hawai'i as it requires healthcare institutions that deliver care across multiple islands. The unique geography of Hawai'i requires a service delivery model that can easily adapt to the current medical infrastructure.

The direct-to-consumer model of medical abortion, termed TelAbortion, is another promising way of increasing abortion access in Hawai'i. This model removes the necessity of two clinical settings as previously described. The patient and provider can be anywhere in the state and video conference with any internet capable device using a secure connection. The diagnostic work up is completed by the patient in outpatient settings on their home island. Once the patient completes the diagnostic work-up and the consultation, both medications are mailed directly to their home, preventing the need for an in-person visit. This model is currently being studied in Hawai'i by Gynuity, a non-profit research group.^{29,30} This successful demonstration project has served over 100 women in Hawai'i, over the past two years, from every island in the state. However, this project is limited to the confines of research due to the Mifeprex Risk Evaluation and Mitigation Strategy (REMS).³³ The REMS prevents dispensing of mifepristone from a pharmacy and requires special registration of providers that dispense the medication in their offices. While the intention of the REMS is to ensure patient safety, mifepristone is a safe medication that does not require special monitoring to ensure public welfare.³⁴

The final option for removing geographic barriers to abortion access in Hawai'i is overturning the REMS. The REMS prevents providers from being able to write a prescription for this safe medication and compounds geographic barriers to abortion in Hawai'i. Although overturning the REMS is a national strategy, the ground-work for this effort is starting in Hawai'i. In 2017, the American Civil Liberties Union sued the FDA on behalf of Dr. Graham Chelius in Kaua'i to remove the REMS from mifepristone.³⁵⁻³⁷ Dr. Chelius would like to provide abortion care via medical abortion, but is barred from stocking the medication in his practice. He is suing the FDA for the right to write a prescription for the medication so his patients on Kaua'i have access to medical abortion near their homes. If Dr. Chelius is successful in his lawsuit against the FDA, geographic barriers to abortion care in Hawai'i could be vastly alleviated.

Conclusions

Although Hawai'i has progressive health policies overall, not all people in Hawai'i have equitable access to reproductive health care. Undocumented immigrants, service members and their spouses, and those covered by insurance through the federal government are left without insurance coverage for abortion care. Women living in rural areas do not have access to sufficient providers.

These gaps in abortion coverage and care in Hawai'i can be addressed. Some options to address the financial issues would be expanding Hawai'i's Medicaid program to cover abortion for anyone who has insurance that does not cover abortion or reintroducing and passing SB 2341/ HB 2121 to the 2019

Hawai‘i State Legislature. Some ways to address the access to care for rural communities would be expand the abortion provider workforce through ending “physician-only laws,” continue TelAbortion services, and to overturn the REMS for Mifeprex at the national level.

Women in Hawai‘i deserve access to full-spectrum reproductive healthcare, including abortion care. Financial and geographic barriers to abortion access make abortion technically legal for all, but out-of-reach for many. This unjust practice must end in Hawai‘i and nationwide.

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NOW CONCUSSIONS CAN BE MORE CLOSELY MEASURED AND EVALUATED.

The Food and Drug Administration (FDA) has approved the first blood test to evaluate concussions, (mild traumatic brain injuries) in patients after accidents, military wounds, sports collisions or other causes. *Banyan Biomakers, Inc.*, could be effective in evaluating brain injuries. An estimated 2.5 million emergency department visits are checked each year for cognitive assessments followed by a CT scan to hone in on damaged cranial neurons. The diagnostic tool measures proteins released from the brain within 12 hours following a head injury. The levels of these proteins can help predict patients more likely to have cranial lesions. Now perhaps our neuro-scientists can learn how to measure blood levels of THC for driving safety, and get threatening marijuana users off the road.

THESE OLD (NEW) DRUGS CAN REBOOT THE BRAIN.

If you were alive during the 1960s you recall how LSD, mescaline and psilocybin (magic mushrooms) were psychedelic drugs that often caused bad trips and sent people to the psych wards. Who would have guessed that 50 years later these same compounds when administered in a therapeutic setting can relieve depression where Prozac failed, and can help smokers and alcoholics break the hold of a lifelong habit. In some cases they can help cancer patients deal with their “existential distress” at the prospect of impending doom. Researchers at New York University, Johns Hopkins, UCLA and imperial college in London have found psychedelics can actually make one sane. The value of psychedelic meds was first recognized 70 years ago, but ran head on into a nationwide moral panic about LSD. Flamboyant Harvard psychology professor Timothy Leary helped the drug escape the lab and brought it into the waiting arms of counterculture. The therapeutic value was pushed aside, where it has lingered. In the 1990s a small band of researchers tried using LSD for the treatment of alcoholism, and found success. A pilot study at Johns Hopkins using psychedelics to treat tobacco addiction produced amazing results when 80% of the volunteers were confirmed to have quit smoking. That figure fell to 67% at one year, still much better than best treatment available. The major value of these findings is it opens a new science of psychedelics.

OH, YES. LET'S FIGHT AGAINST CLIMATE CHANGE.

To the list of subsidies for elite life styles we can now add charging stations for luxury plug-in cars and electric vehicles. The fleet of battery-powered cars is rising and their owners are more than twice as wealthy as the average American. Historically, public utility commissions established systems for “user pays.” Now regulators are demolishing this barrier and inserting the tab for charging stations into higher electric rates, irrespective of a consumer’s income or type of car one happens to drive. Oregon pushed this through in 2012 with the justification that the public benefits with improved air quality, and putting in more outlets will promote electric sales. Washington state followed Oregon’s cost shifting, and California is set to do the same. Even with millions in tax credits and emissions rebates manufacturers receive, at an average price of \$33,000, electric vehicles are still far beyond the average price most Americans can afford. This west coast cost shifting is moving east, but Indiana and Kansas rejected proposals as unfair. Let’s hope similar wisdom prevails as this contagion spreads.

THE HAIRY LEGS CAN STICK IN YOUR TEETH.

In Durham, North Carolina, the Bull City Burger and Brewery named April as exotic meat month. This year the restaurant offered a tarantula challenge. Customers were invited to take part in a raffle, and if chosen could claim a \$30 tarantula burger. The burger included a beef patty with cheese, spicy chili sauce and an oven-roasted zebra tarantula. Those who finished the burger could claim a tarantula challenge T-shirt.

ADDENDA

- Two thirds of women under age 30 think it is okay to text during lunch.
- After a year of studying Ian Fleming’s James Bond books, liver specialist Dr. Indra Neil Guha calculated 007’s daily cocktail intake to be six to seven drinks.
- 70% of women surveyed said smartphones interfere with sex.
- Sex while driving was admitted by 11% of people surveyed.
- There are two kinds of air travel in the United States, first class and third world.

ALOHA AND KEEP THE FAITH rts

(Editorial comment is strictly that of the writer.)

General Recommendations on Data Presentation and Statistical Reporting (Biostatistical Guideline for HJM&PH) [Adapted from Annals of Internal Medicine & American Journal of Public Health]

The following guidelines are developed based on many common errors we see in manuscripts submitted to HJMPH. They are not meant to be all encompassing, or be restrictive to authors who feel that their data must be presented differently for legitimate reasons. We hope they are helpful to you; in turn, following these guidelines will reduce or eliminate the common errors we address with authors later in the publication process.

Percentages: Report percentages to one decimal place (eg, 26.7%) when sample size is ≥ 200 . For smaller samples (< 200), do not use decimal places (eg, 26%, not 26.7%), to avoid the appearance of a level of precision that is not present.

Standard deviations (SD)/standard errors (SE): Please specify the measures used: using “mean (SD)” for data summary and description; to show sampling variability, consider reporting confidence intervals, rather than standard errors, when possible to avoid confusion.

Population parameters versus sample statistics: Using Greek letters to represent population parameters and Roman letters to represent estimates of those parameters in tables and text. For example, when reporting regression analysis results, Greek symbol (β), or Beta (b) should only be used in the text when describing the equations or parameters being estimated, never in reference to the results based on sample data. Instead, one can use “b” or β for unstandardized regression parameter estimates, and “B” or β for standardized regression parameter estimates.

P values: Using *P* values to present statistical significance, the actual observed *P* value should be presented. For *P* values between .001 and .20, please report the value to the nearest thousandth (eg, $P = .123$). For *P* values greater than .20, please report the value to the nearest hundredth (eg, $P = .34$). If the observed *P* value is greater than .999, it should be expressed as “ $P > .99$ ”. For a *P* value less than .001, report as “ $P < .001$ ”. Under no circumstance should the symbol “NS” or “ns” (for not significant) be used in place of actual *P* values.

“Trend”: Use the word trend when describing a test for trend or dose-response. Avoid using it to refer to *P* values near but not below .05. In such instances, simply report a difference and the confidence interval of the difference (if appropriate), with or without the *P* value.

One-sided tests: There are very rare circumstances where a “one-sided” significance test is appropriate, eg, non-inferiority trials. Therefore, “two-sided” significance tests are the rule, not the exception. Do not report one-sided significance test unless it can be justified and presented in the experimental design section.

Statistical software: Specify in the statistical analysis section the statistical software used for analysis (version, manufacturer, and manufacturer’s location), eg, SAS software, version 9.2 (SAS Institute Inc., Cary, NC).

Comparisons of interventions: Focus on between-group differences, with 95% confidence intervals of the differences, and not on within-group differences.

Post-hoc pairwise comparisons: It is important to first test the overall hypothesis. One should conduct *post-hoc* analysis if and only if the overall hypothesis is rejected.

Clinically meaningful estimates: Report results using meaningful metrics rather than reporting raw results. For example, instead of the log odds ratio from a logistic regression, authors should transform coefficients into the appropriate measure of effect size, eg, odds ratio. Avoid using an estimate, such as an odds ratio or relative risk, for a one unit change in the factor of interest when a 1-unit change lacks clinical meaning (age, mm Hg of blood pressure, or any other continuous or interval measurement with small units). Instead, reporting effort for a clinically meaningful change (eg, for every 10 years of increase of age, for an increase of one standard deviation (or interquartile range) of blood pressure), along with 95% confidence intervals.

Risk ratios: Describe the risk ratio accurately. For instance, an odds ratio of 3.94 indicates that the outcome is almost 4 times as likely to occur, compared with the reference group, and indicates a nearly 3-fold increase in risk, not a nearly 4-fold increase in risk.

Longitudinal data: Consider appropriate longitudinal data analyses if the outcome variables were measured at multiple time points, such as mixed-effects models or generalized estimating equation approaches, which can address the within-subject variability.

Sample size, response rate, attrition rate: Please clearly indicate in the methods section: the total number of participants, the time period of the study, response rate (if any), and attrition rate (if any).

Tables (general): Avoid the presentation of raw parameter estimates, if such parameters have no clear interpretation. For instance, the results from Cox proportional hazard models should be presented as the exponentiated parameter estimates, (ie, the hazard ratios) and their corresponding 95% confidence intervals, rather than the raw estimates. The inclusion of *P*-values in tables is unnecessary in the presence of 95% confidence intervals.

Descriptive tables: In tables that simply describe characteristics of 2 or more groups (eg, Table 1 of a clinical trial), report averages with standard deviations, not standard errors, when data are normally distributed. Report median (minimum, maximum) or median (25th, 75th percentile [interquartile range, or IQR]) when data are not normally distributed.

Figures (general): Avoid using pie charts; avoid using simple bar plots or histograms without measures of variability; provide raw data (numerators and denominators) in the margins of meta-analysis forest plots; provide numbers of subjects at risk at different times in survival plots.

Missing values: Always report the frequency of missing variables and how missing data was handled in the analysis. Consider adding a column to tables or a footnote that makes clear the amount of missing data.

Removal of data points: Unless fully justifiable, all subjects included in the study should be analyzed. Any exclusion of values or subjects should be reported and justified. When influential observations exist, it is suggested that the data is analyzed both with and without such influential observations, and the difference in results discussed.

Guidelines for Publication of HJM&PH Supplements

The following are general guidelines for publication of supplements:

1. Organizations, university divisions, and other research units considering publication of a sponsored supplement should consult with the editorial staff of HJM&PH to make certain the educational objectives and value of the supplement are optimized during the planning process. It is important that the sponsoring editor is aware of all steps to its publication. Please contact Drs. Kalani Brady or Michael Meagher for further information.
2. Supplements must have educational value, be useful to HJM&PH readership, and contain data not previously published to be considered for publication.
3. Supplements must have a sponsoring editor who will be involved in every step of the development, editing, and marketing of the publication since HJM&PH staff will only be reviewing final proofs.
4. Supplements should treat broad topics in an impartial, unbiased manner. Please prefer specific classes of drugs, rather than products, unless there are compelling reasons or unique properties of the drug (product) that justifies its treatment.
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