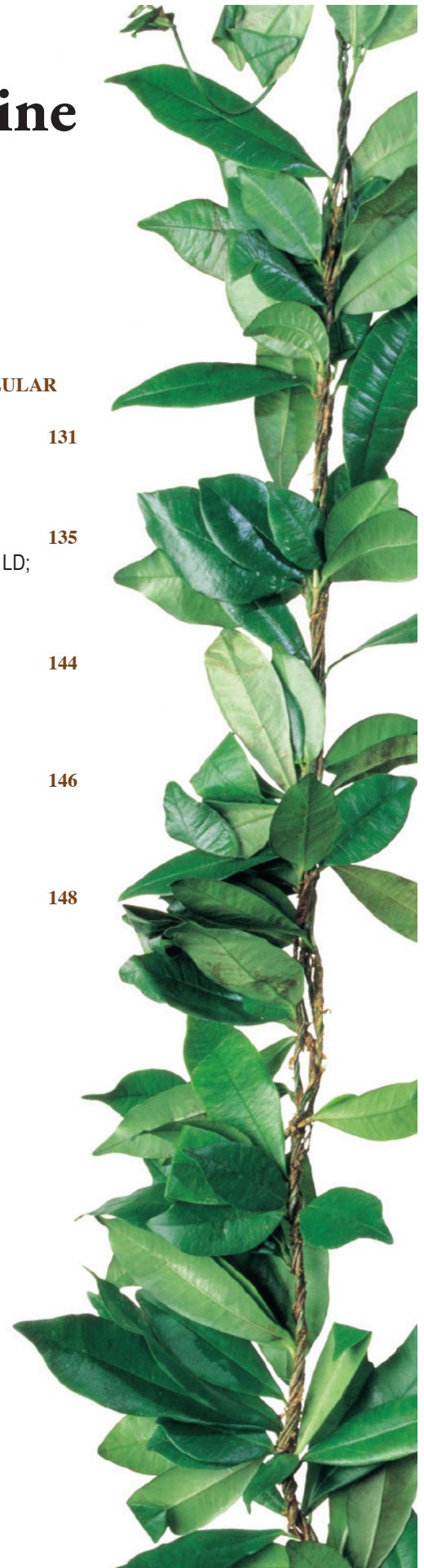


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A Journal of Pacific Medicine & Public Health

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Right Atrium Invasion of Tumor Thrombus from Hepatocellular Carcinoma Incidentally Found on Transthoracic Echocardiogram

Tomoki Sempokuya MD and Dennis T. Bolger, Jr. MD, MPH

Abstract

Hepatocellular carcinoma (HCC) is a highly aggressive malignancy in which tumor thrombus can invade portal and hepatic veins in late stages. However, an antemortem diagnosis of right atrial invasion by tumor thrombus is very rare and confers a poor prognosis. We report a patient with antemortem diagnosis of tumor thrombus in the right atrium incidentally found by transthoracic echocardiogram which was later confirmed with CT scan of abdomen with IV contrast. The patient was also noted to have an acute increase in alpha-fetoprotein (AFP). Our case suggests the importance of imaging studies and monitoring AFP levels in patients with long standing HCC.

Keywords

Hepatocellular carcinoma, hepatoma, tumor thrombus, transthoracic echocardiogram

Abbreviations

AFP: Alpha-fetoprotein

AKI: Acute kidney injury

CT: Computed tomography

HCC: Hepatocellular carcinoma

IV: Intra venous

MRI: Magnetic resonance imaging

TACE: Trans-arterial chemoembolization

Introduction

Worldwide, more than 780,000 cases of new primary liver cancer arise yearly and about 70 to 90 percent of the primary liver cancers are due to hepatocellular carcinoma (HCC).¹ Globally, primary liver cancer is the second leading cause of cancer mortality among men.¹ Age-adjusted incidence rates for primary liver cancer in the United States (U.S.) have tripled over the past three decades due to increasing chronic hepatitis C infections.¹ More importantly, Hawai'i has one of the highest age-adjusted HCC rates among all states in the U.S.² HCC is a highly aggressive malignancy in which tumor thrombus is known to invade portal and hepatic veins in late stages.^{3,4} Rarely, tumor thrombus can extend into the right atrium conferring a poor prognosis.³⁻⁷ Massive bilateral pulmonary emboli attributable to tumor thrombi have also been reported at the time of autopsy in previous studies.⁸ Another study found that 4.1% of patients with HCC had thrombi that extended into and invaded the right atrium at the time of autopsy.⁶ Therefore, premortem diagnosis of HCC with intra-atrial invasion is very rare. We report a case with rare antemortem diagnosis of tumor thrombus into the right atrium incidentally found by transthoracic echocardiogram.

Case Report

A 72-year-old Japanese woman with a history of HCC secondary to long-standing autoimmune hepatitis presented with generalized weakness, dyspnea, abdominal distention, cachexia, and bilateral lower extremities edema. The patient was diagnosed with HCC 12 years prior to presentation and was treated with sorafenib, two courses of radiofrequency ablation, and 3 courses of trans-arterial chemoembolization (TACE). The patient was off sorafenib at the time of presentation. Three weeks prior to admission, alpha-fetoprotein (AFP) level was 13,182 ng/mL (reference range: 0.0 to 9.0 ng/mL) which increased from 3,232 ng/mL eleven weeks prior to admission. MRI with and without IV contrast obtained 4 weeks prior to admission showed interval increase in hepatic lesion, new right portal vein thrombosis, and right hepatic vein thrombosis. Initially, ultrasound guided paracentesis was performed, however, only minimal fluid was found. Ascitic fluid analysis was unremarkable. Due to the recent MRI result of the portal vein, extension of tumor thrombus was suspected. The patient had acute kidney injury (AKI) which precluded the use of IV contrast for a CT scan. Instead we obtained Doppler ultrasound of the liver and transthoracic echocardiogram. Doppler ultrasound showed main and bilateral portal vein thromboses, right hepatic vein thrombosis, thrombus in the inferior vena cava (IVC), and small volume ascites. Echocardiogram showed a large (at least 4.0 x 3.3 cm) mass nearly obliterating the right atrial cavity which extended to the level of the tricuspid valve (Figure 1) with mild tricuspid regurgitation. The IVC mass or thrombus was also noted on the echocardiogram. After resolution of AKI, CT scan of abdomen and lower chest with IV contrast was obtained and confirmed a large tumor thrombus extending from the IVC into the right atrium (Figure 2). Intra-atrial tumor thrombus extended adjacent to the tricuspid valve (Figure 3). In addition, interval progression of multifocal HCC throughout the liver was noted.

Discussion

Acute progression of HCC tumor thrombus can present with non-specific complaints, even when the right atrium is involved. Ascites due to cirrhosis is common with about 10 percent of patients with cirrhosis also having ascites.⁹ Therefore, it was our initial suspicion that the patient's symptoms were due to severe ascites as her clinical presentation mimicked severe ascites. As heart failure can also explain the patient's symptoms, it was important to assess global cardiac function with an echocardiogram. To achieve the correct diagnosis, two important tests were performed, imaging studies and AFP levels.

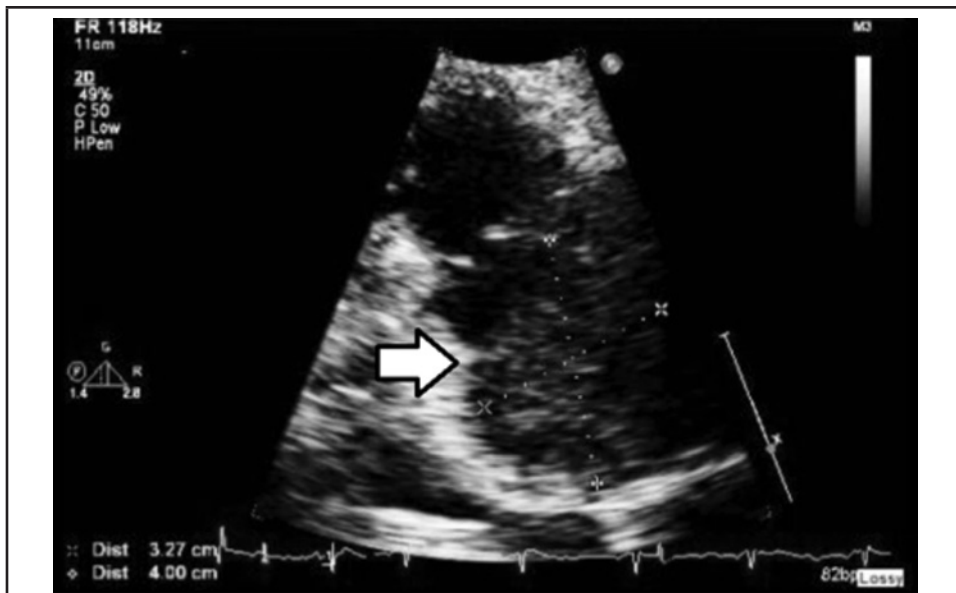


Figure 1. Transthoracic echocardiographic image of right atrium shows 4.0 x 3.27 cm mass (arrow) nearly obliterating the right atrial cavity.



Figure 2. Coronal image of CT scan of abdomen and lower chest with contrast shows large tumor thrombus extending from the IVC into the right atrium which appears to occlude or nearly occlude the IVC and atrial junction (arrow).

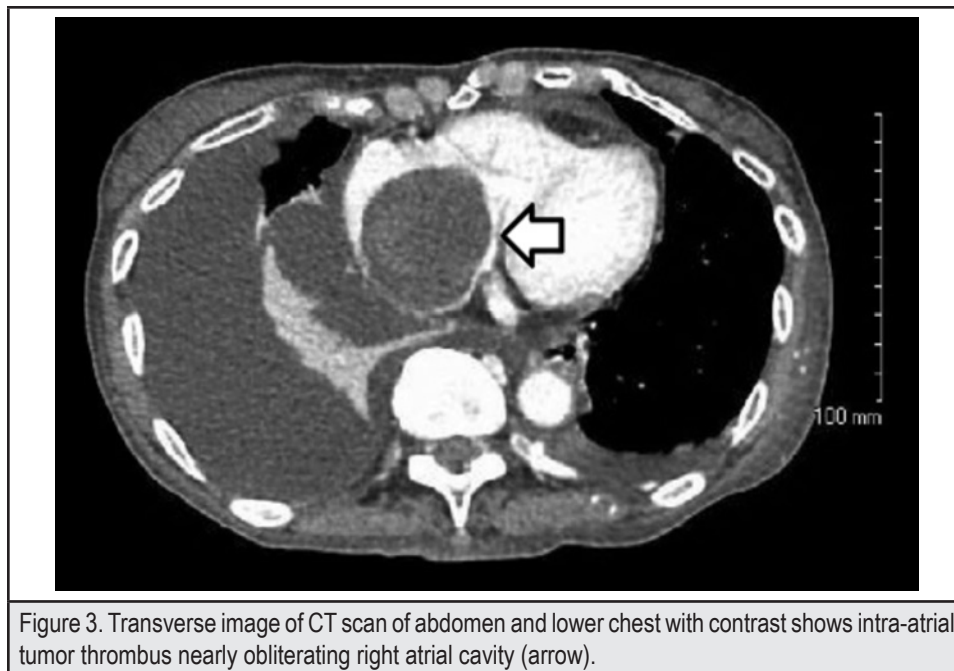


Figure 3. Transverse image of CT scan of abdomen and lower chest with contrast shows intra-atrial tumor thrombus nearly obliterating right atrial cavity (arrow).

An abdominal ultrasound quickly ruled out large volume ascites. Abdominal CT scan with IV contrast was a good study to evaluate tumor thrombus, but initial evaluation with transthoracic echocardiogram was helpful in diagnosing tumor thrombus invading into the right atrium. This can be helpful in patients with contraindications to CT scanning with IV contrast.^{3,5} As long-term survival rates of patients with autoimmune hepatitis increase, so too may incident cases of resultant HCC.¹⁰⁻¹³ HCC is a highly aggressive malignancy, and known to invade the vasculature at late stages. Therefore, increasing numbers of aggressive tumor thrombus invasion may be reported in the future.^{3,4}

Our case also noted the importance of routine AFP monitoring. A previous case noted that sudden increase in AFP was observed in rapidly progressive HCC in an autoimmune hepatitis patient despite the regular HCC imaging surveillance.¹¹

Previous case reports suggested that optimal management of HCC with extensive tumor thrombus included removal with hepatic resection.^{3,14-19} Because of recent acute extension of tumor thrombus with rapidly increasing AFP, large size of atrial tumor thrombus, and progression of primary HCC lesion despite the use of sorafenib, radiofrequency ablation, and TACE, the patient was a poor surgical candidate. Therefore, the patient decided to pursue hospice care.

Our case highlights the importance of echocardiography and CT scanning of the abdomen and chest with contrast in advanced HCC patients with any suspicion for intracardiac involvement by tumor thrombus. Routine echocardiography in advanced HCC patients with rapidly increasing AFP may be beneficial in early detection of intracardiac involvement.

Conflict of Interest

None of the authors identify a conflict of Interest.

Disclosure

Informed consent was not obtained for this case report because the patient died and we were unable to contact the next of kin. No identifiable data was presented in this case. This case report was approved by the Queen's Medical Center's Institutional Review Board.

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Dietetics Practice in the Unique, Culturally Diverse Pacific Island Region

Cynthia L. Endrizal PhD, MPH, RDN, FAND; Marie Kainoa Fialkowski PhD, MS, RDN, LD; Jim Davis PhD, MS; Sarah Yuan PhD; Rachel Novotny PhD, RDN, LD; Treena Wasontio Delormier PhD, PDt; and Beatriz Rodriguez PhD, MD

Abstract

The Pacific Island region is geographically the most isolated region in the world representing a diverse population of indigenous peoples, migrated groups and new-comers. Rates of chronic disease are predominately high in populations identified as Pacific Islander. The practice of dietetics, defined as nutrition education for the prevention of disease and medical nutrition therapy for the treatment of chronic diseases, proves challenging with the unique cultural diversity in the region. There is a need to describe dietetics practice, populations served, and needs for resources identified by nutrition-related topic and cultural relevance for Registered Dietitian Nutritionists in the Pacific Island region. An online survey was distributed to all members of the Hawai'i Affiliate of the Academy of Nutrition and Dietetics in 2013-2014. The online survey yielded 104 usable responses. Most participants were female and lived and worked in the Hawaiian Island region. One-third of practicing Registered Dietitian Nutritionists saw >100 patients or clients per month. Most prevalent populations served were identified as Asian and Pacific Islanders. Culturally relevant resources of the highest need were relevant to Asian and Pacific Islander cultures, specifically addressing weight control and diabetes. Dietetics practice in the Pacific Island region is unique given the prevalence of Asians and Pacific Islanders served by Registered Dietitian Nutritionists. Findings will inform the development of new, culturally appropriate online nutrition resources, to enhance dietetics practice in the region. Making these resources available online will be useful for Registered Dietitian Nutritionists and other health care practitioners working in the Pacific Island region.

Keywords

Chronic Disease, Cultural Competency, Dietetics Practice, Pacific Islands

Abbreviations

AND = Academy of Nutrition and Dietetics

DTR = Dietetic Technicians-Registered

HAND = Hawai'i Academy of Nutrition and Dietetics

RDN = Registered Dietitian Nutritionists

USAPI = United States Affiliated Pacific Islands

USAPI-HI = United States Affiliated Pacific Islands and Hawai'i

Introduction

The “practice of dietetics” is defined by the Academy of Nutrition and Dietetics (AND) as “[Registered Dietitian Nutritionists] RDNs [who] provide medical nutrition therapy, nutrition education and counseling, care coordination and management to address prevention and treatment of one or more acute or chronic conditions.”¹ Practicing dietetics in the Pacific proves challenging with the high prevalence of nutrition related chronic diseases such as obesity, diabetes, cardiovascular disease and hypertension, particularly in indigenous, Pacific Island populations.²⁻³

For thousands of years, the Pacific was a region of healthy, self-sustaining, food-sovereign, hard-working, indigenous communities. As navigators and explorers, indigenous people migrated, sharing food crops, fishing and farming techniques, and ways of cooking and storing food. Hughes and Marks describe these Pacific Island communities as:

...wide social networks and subsistence livelihoods that made the Pacific view of food and land very different...social networks and land were more important for determining identity and traditional ties than for providing food...health was a group concept—a shared sense of well-being.⁴

Starting in the 1500's, colonization in the Pacific Island region led to significant and irreversible changes for all indigenous ways of life. Traditional cultures and their sovereign food systems were replaced by new foods and cooking methods, influenced by foreign trade and food aid.⁴ A region, once free of processed foods, adopted a dependency on easy-to-get, high fat, high sugar imported foods.⁴ Thus, the people of the Pacific Island region experience high rates of chronic diseases, such as diabetes, hypertension, obesity and cardiovascular diseases. On May 4, 2010, The Pacific Islands Health Officers Association (PIHOA) declared “...a regional state of health emergency due to the epidemic of non-communicable diseases in the United States-Affiliated Pacific Islands.”⁵ This declaration suggests a sense of urgency for all healthcare workers to rethink and ramp up their services and address health disparities in this region.

Given the high rates of chronic (non-communicable) disease and the cultural milieu in the Pacific, it is imperative that the practice of dietetics be culturally appropriate and relevant to the populations served. Cultural competency is a well-known concept integrated into the standard of care in Western healthcare systems.

Culturally competent dietetics practice is defined by the AND as nutrition counseling and intervention skills relevant to each population served. It demonstrates knowledge and sensitivity to a population's history, culture and food systems.⁷

To provide culturally appropriate care, RDNs must have the necessary tools and resources to practice in this region. Evaluating the needs for relevant resources in parts of the region where RDNs are practicing would be beneficial in identifying existing as well as potential gaps in nutrition related resources.

The “Compensation and Benefits Survey of the Dietetics Profession” which is conducted every other year by the AND, most recently in 2015, provides rich data on the practice of dietetics. Practitioner demographics and areas of practice are divided by nine geographic regions.⁸ The AND defines the “Pacific Region” as including California, Oregon, Washington, Alaska, and Hawai‘i, and thus does not yield data specific to the United States Affiliated Pacific Islands (USAPI) region. Of the 5229 respondents currently working as dietetics practitioners, 727 (14%) were from the AND defined Pacific Region. From the total usable survey responses, including those not currently working as practitioners (N=6385), nine respondents self-identified as “Native Hawaiian/Pacific Islander”, of which six were RDNs.⁸ However, given the small number of RDNs (n=390) in the US Pacific (Islands) region,⁹ most survey respondents are more likely from the ‘Pacific Region’ states on the contiguous US. In addition, the survey does not inquire about practitioner needs for resources. This led to the development of a region-specific survey of dietetics practitioners conducted in December 2013 through January 2014. The survey targeted members of the Hawai‘i Academy of Nutrition and Dietetics (HAND) who are RDNs, Dietetic Technicians-Registered (DTRs), dietetic interns, students and other nutrition professionals (non-RDNs) that typically live and work in Hawai‘i and in the USAPI (American Samoa, Commonwealth of the Northern Mariana Islands, Federated States of Micronesia, Guam, Republic of Palau, and the Republic of the Marshall Islands).¹⁰ For the purposes of this research, the region under study will be defined as the USAPI-HI region to include American Samoa, Commonwealth of the Northern Mariana Islands, the Freely Associated States of Micronesia (including the countries of the Federated States of Micronesia, the Republic of Palau, and the Republic of the Marshall Islands), Guam, and Hawai‘i.

This study uses the HAND 2014 member survey results to describe RDN practice, the populations that they serve, and the needs for topic- and race/ethnic-specific resources. Findings will inform opportunities to enhance dietetics practice in the USAPI-HI region, such as the development of new, culturally relevant resources.

Methods

HAND is a non-profit voluntary professional organization with 280 members and is an affiliate of the AND.⁹ The criteria for HAND membership is payment of AND annual dues (approximately \$300.00/year) and intention to select the “Hawai‘i Region” as their local affiliate organization.

In December 2013, a partnership was formed between HAND and the Hawai‘i Foods Website Project, which provides nutrition information relevant to the foods in the region to the people of Hawai‘i.¹¹ The Hawai‘i Foods Website project sought to identify needs for new and culturally relevant resources. HAND board members were interested in collecting data on members, specific to the USAPI-HI region. In partnership with HAND, the Hawai‘i Foods Website Project created the “Hawai‘i Foods Survey”. For purposes of this paper, the survey will be referred to as the

“HAND 2014 Survey” as the results describe the perceptions of the HAND members. This survey collected demographic data of HAND members and the populations that they served in the USAPI-HI region. HAND members were asked about their needs for race/ethnic-specific and/or topic-specific resources – relevant to the populations that they served.

The HAND 2014 survey instrument contained 31 questions, and was developed under the advisement of the HAND Board of Directors and the Hawai‘i Foods Website Advisory Committee. The 2013 AND Compensation and Benefits Survey of the Dietetics Profession Survey also informed the development of the HAND 2014 survey.⁸ Additional questions specific to populations served in the USAPI-HI region were adapted from the Hawai‘i Behavioral Risk Factor Surveillance System.¹² The HAND board members and other practicing RDNs in the region were invited to participate in the pretesting of the survey tool. Thirty-six RDNs participated in the pretesting. Pretesting indicated that the questions were clear and interpreted correctly.

The HAND Board of Directors approved the use of the HAND membership email list to solicit survey participants. The membership email list was obtained through the Academy’s Data Management Information System (DMIS) available to the board in managing identification and contact information of their members. An email was sent to all HAND members using the HAND master email list. The email briefly explained the survey and provided a link to the online survey using SurveyMonkey®. During the study period of December 1, 2013- January 30, 2014, three reminder emails were sent to solicit additional responses from those who had not yet responded. Although, it is unclear whether the member contacted was the member who responded to the survey, more than half of the response pool, 72 respondents (68%), responded to the sender of the email, thanking them for the opportunity.

Respondents consented to participating after reading the informational email, clicking on the URL, and answering “yes” to the first question: “Do you consent to participate in the Hawai‘i Academy of Nutrition and Dietetics (HAND) 2014 Survey?” Once the survey continued there was an option for respondents to opt out at any time. Respondents were encouraged to call or email with any questions regarding the clarity of the survey. There were no questions from any of the respondents.

The survey response rate was considered high at 38% (106 out of 280), in comparison to HAND membership response rates of yearly leadership elections as 11.6% (2016) and 13% (2015), though low for survey research.

After the close of the survey, in January 2014, data was exported from SurveyMonkey® into Microsoft Excel 2010®. Once the data was exported, it was deleted from SurveyMonkey® and saved on a password protected computer. The sample size was too small to find significance using Chi-Square testing; therefore, descriptive analysis (counts and percentages) was conducted on those HAND members who responded to the survey. For analysis purposes, race/ethnicity of the populations served from the HAND 2014 survey was categorized as follows: (1) “Pacific Islanders” which includes all indigenous groups

within the USAPI-HI region to include “Samoan”, “Native Hawaiian”, and “Micronesian”; (2) “Asian” includes groups identified as “Filipino”, “Japanese”, “Chinese”, “Vietnamese” and “Korean”; and (3) “White” includes individuals identified as “Caucasian”. See Appendix A for the original survey, including the original race/ethnic categories used to define the populations served by RDNs.

For the purposes of this study, data from questions #1-21 was examined. Questions #22-31 were not pertinent to this study. See Appendix A for the original survey.

Ethics Approval

An exemption was obtained from the Office of Research Compliance, Human Studies Program at the University of Hawai‘i at Manoa, Approval Number: 21702.

Results

Characteristics of RDNs in the USAPI-HI Region

The HAND 2014 member survey yielded 106 responses (38% response rate). Two respondents lived and practiced outside of the USAPI-HI region, and therefore, were excluded, resulting in a final sample of 104. Most respondents were female (97%) and had one or more years of work experience in the nutrition field (90%) (Table 1). Out of those currently working (85%), almost half of RDNs worked in Hospital/Acute Care and Out-patient Care or Ambulatory Care (such as dialysis clinics). One third (34%) of those currently working saw over 100 patients, monthly (Table 2). The majority saw patients on a one-to-one basis and in-person. Most practitioners had access and utilized the internet to gather nutrition information and other practice resources for work.

Populations Served

Populations (clients and/or patients) served most frequently were identified as Asian, followed by Pacific Islanders, and then White (Table 2). Ages ranged from birth to seniors (>60 years) with adults (18-59 years) the most prevalent group served. Clients and/or patients lived throughout the USAPI-HI region, including American Samoa, Guam, Hawai‘i and Saipan. Many respondents had access to the internet for nutrition information.

Need for Nutrition Resources

When practitioners were asked about the level of need for more race/ethnic-specific nutrition resources, the highest resource needs were identified for Asians, followed by Pacific Islanders (Table 3). Nutrition topics ranking the highest level of need were weight control, diabetes, low sodium, followed by low fat/low cholesterol, renal, nutrition in the aging/elderly, and fiber (high or low) diets, respectively. Practitioners ranked level of needs for modes of nutrition resources with printable fact sheets (Portable Document Format or PDFs) and recipes being most desirable.

Table 1. Characteristics of the Hawai‘i Academy of Nutrition and Dietetics (HAND) 2014 Survey Respondents (n=104)

Survey Item	Response Category	n (%)
Sex	Female	101 (97%)
	Male	3 (3%)
County of residence	Honolulu	78 (75%)
	Hawai‘i	12 (12%)
	Maui	5 (5%)
	Kaua‘i	3 (3%)
	Outside Hawai‘i (American Samoa-2, Guam-4)	6 (6%)
Member of HAND ^a	Yes	101 (97%)
	No	3 (3%)
Professional status	Registered Dietitian Nutritionist (RDN)	92 (88%)
	Student	5 (5%)
	Other	7 (7%)
Work experience in the field	0 to < 1 year	10 (10%)
	1 or more years	94 (90%)
Currently working in nutrition field	Yes	88 (85%)
	No ^b	16 (15%)
Work setting ^c	Teaching Facility	11 (13%)
	Public Health Program	5 (6%)
	Contract Company	1 (1%)
	Government Agency	12 (14%)
	Hospital/Acute Care	21 (24%)
	Long Term Care	12 (14%)
	Non-Profit Organization	2 (2%)
	Out-patient	19 (22%)
	Private Practice	3 (3%)
Provides direct services ^c	Yes	69 (80%)
	No	17 (20%)

^aThe HAND master email list used to solicit survey participation may have included non-members. ^bDefaulted to non-practice related questions. ^cn=86, 2 skipped question. Percentages may not add up to 100% due to rounding.

Table 2. Hawai'i Academy of Nutrition and Dietetics (HAND) 2014 Survey RDN Respondents Description of the Populations Served in the Pacific Region (n=69)^a

Survey Item	Response Category	n (%)	
Number of clients/patients served on a monthly basis ^b	0-10	3 (5%)	
	11-25	8 (13%)	
	26-50	14 (23%)	
	51-100	15 (25%)	
	>100	21 (34%)	
Areas that typical clients/patients live ^c	O'ahu		
	City of Honolulu	39 (63%)	
	Windward	25 (40%)	
	Central	26 (42%)	
	Leeward	24 (39%)	
	West	20 (32%)	
	North	15 (24%)	
	Hawai'i Island	14 (23%)	
	Kaua'i	9 (14%)	
Maui, Moloka'i, Lana'i	17 (27%)		
Outside Hawai'i (Pacific Region-4, Guam-3, American Samoa-2)	9 (14%)		
Age groups served ^c	Children (0-12 years)	29 (47%)	
	Teens (13-17 years)	32 (52%)	
	Adults (18-59 years)	58 (94%)	
	Seniors (> 60 years)	51 (82%)	
Top three ethnic groups that best describe clients/patients served most often ^d	Asian		
	Filipino	39 (63%)	
	Japanese	31 (50%)	
	Other Asian	12 (19%)	
	Pacific Islanders		
	Native Hawaiian	30 (48%)	
	Micronesian	12 (19%)	
Samoaan	8 (13%)		
White (Caucasian)	22 (35%)		
Other	10 (16%)		
Survey Item	Response Category	Frequency	n (%)
Modes of communication used with clients/patients	In-person	Always/Sometimes	62 (100%)
		Rarely/Never	0 (0%)
	Telephone/text	Always/Sometimes	43 (69%)
		Rarely/Never	19 (31%)
Internet	Always/Sometimes	29 (47%)	
	Rarely/Never	33 (53%)	
Postal mail	Always/Sometimes	15 (24%)	
	Rarely/Never	47 (76%)	
Services provided in following settings	One-on-One	Always/Sometimes	57 (92%)
		Rarely/Never	5 (8%)
	Small Groups (<10)	Always/Sometimes	39 (63%)
Rarely/Never		23 (37%)	
Large Groups (>10)	Always/Sometimes	28 (45%)	
	Rarely/Never	34 (55%)	

^aOut of 69 respondents who identified as currently practicing and providing direct services, 7 did not respond to these questions. Percentages are based on total responses for each question. ^b1 skipped this question. ^cRespondents instructed to select "all that apply". ^dRespondents ranked top 3 only.

Discussion

This descriptive analysis of the HAND 2014 survey is unique and helpful in describing the practice of dietetics specific to the Pacific Island region. The demographics of populations served are important to consider when evaluating the practice of dietetics as culturally competent. Identified needs for resources that are culturally relevant and topic specific can inform the development of new resources, particularly those related to the prevention and treatment of chronic diseases. The importance of recognizing cultural differences throughout the US and the world for dietetics practices was addressed by the AND through a series of articles in the Journal of the Academy of Nutrition and Dietetics; with the first article in the series published in March 2015.¹³⁻¹⁵ The AND recognizes and declares that culturally competent dietetics practice is essential when serving (minority) populations with health disparities.¹⁶ This declaration applies to other organizations such as The Joint Commission and World Health Organization.¹⁷⁻¹⁸

Many references describing culturally competent practice suggest the first step in cultural competency training is to self-reflect and become more aware of one's own cultural identity, including learned values and worldviews.¹⁹⁻²¹ It may be interesting to know more about the demographics of the RDN practitioners in the USAPI-HI region, such as their self-identified ethnicities. Additionally, evaluation of the differences and similarities in cultural values and worldviews between practitioner and patients or clients could serve to uncover potential interactive challenges and/or culturally safe interventions. This could inform future practice of more culturally competent and safe care.²¹⁻²⁹

Populations served and the need for resources were primarily for Asian and Pacific Island cultures. It is not surprising that needs for resources in chronic, non-communicable disease topics were ranked as "high need" given the high rates within the USAPI-HI region, especially for the Asian and Pacific Islander populations.²⁻³ Future research could inform evaluation of RDNs interventions and experiences given the potential for cultural differences and histories of colonization, historical trauma, nutrition transition, and chronic disease patterns. Evaluating aspects of cultural safety (including the potential for power imbalances) may be informative in evaluating RDN interventions and experiences with populations served.³⁰

The AND survey, "Compensation and Benefits Survey of the Dietetics Profession", conducted in 2015, drew a large probability sample of active Academy members (N = 51,909) plus nonmembers (N = 42,277). Unfortunately, it was not representative of the USAPI-HI region.⁸ Although the number of credentialed RDNs in the USAPI-HI region is small (n=390),⁹ data collection specific to the USAPI-HI region can be helpful to inform a better understanding of dietetics practice and the needs identified when addressing the high rates of health disparities and chronic disease.

Table 3. Hawai'i Academy of Nutrition and Dietetics (HAND) 2014 Survey RDN Respondents' Identified Needs for Practicing in the Pacific Region (n=69)^a

Survey Item	Response Category	Level of Need	n (%)
Level of need for more culturally relevant nutrition resources ranked by race/ethnicity category	Asian		
	Filipino	High/Moderate Low/Don't Know/No Answer	51 (82%) 11 (18%)
	Japanese	High/Moderate Low/Don't Know/No Answer	38 (62%) 24 (38%)
	Pacific Islanders		
	Native Hawaiian	High/Moderate Low/Don't Know/No Answer	41 (66%) 21 (34%)
	Micronesian	High/Moderate Low/Don't Know/No Answer	45 (73%) 17 (27%)
	Samoan	High/Moderate Low/Don't Know/No Answer	43 (70%) 19 (30%)
	White		
	Caucasian	High/Moderate Low/Don't Know/No Answer	15 (24%) 47 (76%)
	Level of need for more nutrition resources ranked by nutrition education topic	Pregnancy & Nutrition	High/Moderate Low/Don't Know/No Answer
Infant/Toddler Nutrition		High/Moderate Low/Don't Know/No Answer	29 (47%) 33 (53%)
Childhood Nutrition		High/Moderate Low/Don't Know/No Answer	33 (53%) 29 (47%)
Nutrition for Teens		High/Moderate Low/Don't Know/No Answer	35 (56%) 27 (44%)
Aging/Elderly Nutrition		High/Moderate Low/Don't Know/No Answer	45 (73%) 17 (27%)
Low Fat/Low Cholesterol		High/Moderate Low/Don't Know/No Answer	49 (79%) 13 (21%)
Low Sodium		High/Moderate Low/Don't Know/No Answer	52 (84%) 10 (16%)
Renal		High/Moderate Low/Don't Know/No Answer	49 (79%) 13 (21%)
Weight Control		High/Moderate Low/Don't Know/No Answer	54 (87%) 8 (13%)
Diabetes		High/Moderate Low/Don't Know/No Answer	53 (86%) 9 (14%)
Fiber		High/Moderate Low/Don't Know/No Answer	45 (73%) 17 (27%)
Gluten Restricted		High/Moderate Low/Don't Know/No Answer	21 (34%) 41 (66%)
Level of need ranked for mode of educational tool most desirable		Educational Modules	High/Moderate Low/Don't Know/No Answer
	Printable Frequently Asked Questions (FAQs) sheets	High/Moderate Low/Don't Know/No Answer	47 (76%) 15 (24%)
	Printable Fact Sheets (in Portable Document Format)	High/Moderate Low/Don't Know/No Answer	58 (94%) 4 (6%)
	Recipes Using Local Foods	High/Moderate Low/Don't Know/No Answer	60 (97%) 2 (3%)
	Videos	High/Moderate Low/Don't Know/No Answer	43 (70%) 19 (30%)

Furthermore, what we learn from the USAPI-HI region can have an impact in other areas of the world where Asian and Pacific Island populations have migrated. For example, an estimated 10,000 Marshallese have migrated and currently reside in Springdale, Arkansas, now thought to be the largest population of Marshallese living in the contiguous US.³¹

Lastly, many RDNs and the populations served have access to, and use, the internet for nutrition related resources. This knowledge is informative for creating and disseminating more relevant resources for the region and, potentially, throughout the world via the internet. The HAND 2014 survey also provides data on the use of the internet, Hawai'i Foods Website and related nutrient analysis activities. Those data were not examined in this study.

Limitations

The number of usable responses (n=104) from the HAND 2014 survey does not necessarily reflect the demographics, practice characteristics, and identified needs of all practitioners in the USAPI-HI region. Although it is not representative of all RDNs, with a response rate of 38%, it contributes new knowledge about dietetics practice in the region. In addition, RDN practitioners working in settings where patient interaction is their primary role, such as in clinical or acute care, community nutrition and long-term care, may have been more inclined to complete the HAND 2014 survey given its intent to identify needs for new, culturally relevant nutrition resources. Another limitation is that the RDNs identified the ethnicity of populations served. Populations who self-identify their own ethnicities would likely result in more accurate results of demographic data of populations served. Further study in the accurate identification of population demographics would better inform the needs related to culturally relevant care and resources. For example, the survey used the term "Micronesian" to categorize a vastly diverse group of people. To provide ethnic-specific relevant care, clear distinction should be made for populations served. Grouping of smaller ethnic groups into one generalized group may discount distinct differences such as language, food systems and diet, cultural values and beliefs around food and health. It would have been more useful to understand which specific ethnic group(s) within the "Micronesian" group were being identified by the RDNs and how they determined the ethnicity of the populations they serve. Lastly, conducting surveys online in the USAPI-HI region may be a limitation due to lack of internet access, particularly in the more rural, isolated and traditional areas. Sending an invitation via email can be problematic as unfamiliar emails may be blocked by user settings or deleted.

Conclusions

Describing RDN practice needs and the populations served in the USAPI-HI region is critical as a first step to inform the potential for improving the practice of dietetics in relation to addressing the high rates of chronic disease in this region. The Pacific is socio-culturally, environmentally and geographically unique. This uniqueness necessitates dietetics practice that is culturally relevant to the region. Further research in the practice of dietetics in the USAPI-HI region could include exploring interactions and interventions of RDNs and the people they serve. With the diversity of cultures within the USAPI-HI region and the need for nutrition services, further research could inform recommendations for practice that is culturally relevant.

Conflict of Interest

None of the authors identify any conflict of interest.

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Appendix A

Hawai'i Academy of Nutrition and Dietetics (HAND) 2014 Survey

Thank you for completing this survey. Your responses will assist University of Hawai'i and The UH Cancer Center to improve the Hawai'i Foods Website. Knowing more about you and your work will enable us to better meet the needs of nutrition educators and others as we develop resources to help people make healthier food choices.

PART A: The following items relate to you and your work. Please check the best response for the questions below.

*Questions #1-7 are mandatory questions to be answered, otherwise survey discontinues.

*1. Are you a member of the Hawai'i Dietetics Association?

- Yes
- No

*2. What is your gender?

- Male
- Female
- Other:

*3. What county do you live in?

- Hawai'i
- Honolulu
- Kaua'i
- Maui
- Outside of Hawai'i (please specify)

*4. Which best describes your current status?

- Registered Dietitian (RD) / Registered Dietitian Nutritionist (RDN)
- Dietetic Technician Registered (DTR)
- Student
- Other (please specify)

*5. In the field of nutrition, how many years of work experience do you have?

- I have no experience
- I have little experience (less than 1 year)
- I have one or more years of work experience (please indicate # of years: _____)

*6. Are you currently working in the field of nutrition?

- Yes
- No
- Other (please specify)

PART B: The following items relate to the focus of your work. Please check the best response for the questions below.

*7. Which best describes your current work setting?

- College/University/Teaching Facility
- Community or Public Health Program
- Contract Food Management Company
- Food or Equipment Manufacturer, Distributor or Retailer
- Government Agency or Department
- Hospital/Acute Care
- Long Term Care/Extended Care/Assisted Living/Rehabilitation
- Nonprofit Agency/Organization
- Outpatient Care or Ambulatory Care
- Pharmaceutical or Nutrition Products Manufacturer, Distributor or Retailer
- Private Practice
- School Food Service
- Other (please specify)

8. Do you currently provide direct nutrition-related services to individuals and/or groups?

- Yes
- No

[For the following two questions, #9 and #10, participants were asked to rank each categorical choice as always, most of the time, sometimes, rarely, or never]

9. How often do you provide services in each of the following SETTINGS?

- One-on-one
- Small groups (10 people or less)
- Larger groups (>10 people)

10. How often do you provide services in each of the following MODES OF COMMUNICATION?

- In-person
- Telephone (including texting)
- Internet (including email, Skype, etc.)

11. Which age groups do you serve in your work? (check all that apply)

- Children (0-12 years old)
- Teens (13-17 years old)
- Adults (18-59 years old)
- Seniors (60+ years old)

12. Which age group do you serve more? (check all that apply)

- I don't serve a particular age group more than others
- Children (0-12 years old)
- Teens (13-17 years old)
- Adults (18-59 years old)
- Seniors (60+ years old)
- Other (please specify)

13. In what areas do your TYPICAL clients/patients live? (check all that apply)

- O'ahu City of Honolulu, including Hawaii Kai, Waikiki, Salt Lake, Moanalua
- O'ahu Windward, includes Waimanalo, Kailua, Kaneohe
- O'ahu Central, includes Aiea, Pearl City, Waipahu, Mililani, Wahiawa
- O'ahu Leeward, includes Ewa, Kapolei, Makakilo
- O'ahu West, includes Nanakuli, Waianae
- Hawai'i Island
- Kaua'i Island
- Lana'i Island
- Maui Island
- Moloka'i Island
- Outside Hawai'i (please specify)

14. Over the past 12 months, approximately how many clients/patients did you serve on a MONTHLY basis?

- 1-10
- 11-25
- 26-50
- 51-100
- >100

15. Check TOP THREE ethnic groups which best describe your clients/patients served most often: (check only three)

- Black/African American
- Caucasian
- Chinese
- Filipino
- Hispanic/Latino/Spanish
- Japanese
- Korean
- Native Hawaiian/Part-Hawaiian
- Samoan
- Micronesian
- Vietnamese
- Other (please specify)

[For Question #16, participants are asked to rank their needs as high need, moderate need, low need or not applicable/don't know]

16. Among ALL ethnic groups you serve, identify level of need for MORE culturally relevant nutrition resources for each group:

- Black/African American
- Caucasian
- Chinese
- Filipino
- Hispanic/Latino/Spanish
- Japanese
- Korean
- Native Hawaiian/Part-Hawaiian
- Samoan
- Micronesian
- Vietnamese
- Other (please specify group and level of need)

[For Question #17, participants are asked to rank their needs as high need, moderate need, low need or no need]

17. In your work, identify the level of need for the following nutrition education topics:

- Nutrition in Pregnancy
- Infant and Toddler
- Nutrition
- Childhood Nutrition
- Nutrition for Teens
- Nutrition in the Aging and
- Elderly
- Low Fat/Low Cholesterol
- Low Sodium
- Renal
- Weight Control
- Diabetes
- Fiber (high or low)
- Gluten Restricted
- Other (please specify topic and level of need)

[For Question #18, participants are asked to rank their needs as high need, moderate need, low need or don't know]

18. Given the following choices of education tools, please indicate your level of need for each:

- Educational Modules (or Lesson Plans)
- Printable FAQs (Frequently Asked Questions)
- Printable (PDFs) Fact Sheets
- Recipes using Local Foods (with nutrient analysis)
- Videos (i.e. short demos on how to prepare local produce)

19. Do your clients/patients have access to the internet?

- Yes
- No
- If yes, please specify, where:

20. Do your clients/patients seek nutrition information on the internet?

- Yes
- No
- Other (please specify)

21. Do you use the internet to gather nutrition information and/or resources for your work?

- Yes
- No

22. In the past 12 months, estimate how often you used the internet for your nutrition related work:

- Daily
- Almost daily (2-6 times/week)
- Weekly (at least once/week)
- Almost weekly (at least once every other week)
- Monthly (at least once/month)
- Bimonthly (at least once every other month)
- Quarterly (at least once/3 months)
- Rarely (at least once or twice/year)
- Never

23. Which of the following resources do you typically use for nutrient analysis? (check all that apply)

- Bowes and Church's: Food Values of Portions Commonly Used
- Food Processor
- Hawai'i Foods Website
- Nutritionist IV or V
- USDA Food Surveys Research Group: "What's in the Foods You Eat" Search Tool
- USDA Nutrient Data Laboratory National Nutrient Database for Standard Reference
- USDA SuperTracker
- I don't typically use any of the above resources
- Other (please specify)

24. Have you ever visited the Hawai'i Foods Website?

- Yes
- No

25. In the past 12 months, how often have you visited Hawai'i Foods Website?

- Daily
- Almost daily (2-6 times/week)
- Weekly (at least once/week)
- Almost weekly (at least once every other week)
- Monthly (at least once/month)
- Bimonthly (at least once every other month)
- Quarterly (at least once/3 months)
- Rarely (at least once or twice/year)
- Never

[For Question #26, participants are asked to rank the usefulness as most useful, somewhat useful, not useful, don't know]

26. For each of the following tools in the Hawai'i Foods Website, rate the usefulness of each in your work:

- Ability to search individual foods by category or group (Browse tab)
- Nutrient content of individual foods (Search tab)
- Nutrient analysis of more than one food (24-hour recall, etc. Learn tab)
- Photos of food
- Publications (Discover tab)
- Recipes (Discover tab)
- List of related web links (Discover tab)
- Other (please specify tool and level of usefulness)

27. Have you referred others to the Hawai'i Foods Website?

- Yes
- No

28. To whom have you referred to the Hawai'i Foods Website? (check all that apply)

- Clients/Patients
- Family
- Friends
- Professional colleagues
- Students
- Other (please specify)

29. How can the Hawai'i Foods Website (www.hawaiifoods.hawaii.edu) be improved?

30. Any other comments/suggestions?

31. To better understand the needs of nutrition educators and their clients, we intend to conduct a follow up telephone survey which will require about 10 minutes. Information provided in the follow up survey will be confidential, and participation is voluntary. If you are willing to assist with the telephone survey, please provide the following information so that we can schedule a convenient time for the interview.

We will contact you via email to confirm the time and date of the interview.
Mahalo for your assistance!

MEDICAL SCHOOL HOTLINE

“Duty” – John A. Burns School of Medicine University of Hawai‘i at Manoa, Convocation Ceremony Keynote Address, May 13, 2018

Arthur L. Kellermann MD, MPH

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.

Some of you might reasonably wonder why John A. Burns School of Medicine reached to the other side of the country to invite the dean of the School of Medicine at the Uniformed Services University (USU)—the only medical school owned and operated by the United States (U.S.) government—to speak at your convocation. In fact, the similarities between our medical schools far outweigh our structural differences.

For starters, I don’t know any medical school, other than USU, that has as strong and visible connection to the U.S. military as JABSOM. Pearl Harbor, Hickam Field, and the Punchbowl are easily seen as you drive around Honolulu. Hikers to Diamond Head can see the former emplacements of the gun batteries and observation posts that once ringed the crater. The sense of Hawaii’s pivotal role in American military history is reinforced by the equally visible (and audible) evidence of its ongoing support of our nation’s defense.

Our medical schools share a teaching hospital - Tripler Army Medical Center. In addition to our med students interacting with each other on Tripler’s wards and clinics, many of USU’s national faculty members at Tripler hold joint appointments at JABSOM. When it comes time for them to take off the uniform at the end of their military careers, a significant number of them opt to stay in Hawai‘i and become full-time, civilian faculty at the John A. Burns School of Medicine.

Both of our schools excel at educating students who are underrepresented in other medical schools. Consistent with your school’s Hawaiian, Asian, and Pacific values, you have a far higher percentage of students with these ethnic and cultural backgrounds than mainland medical schools.

At USU, our priority group is current and former military service members. In fact, more than a third of USU’s medical students had a connection to the U.S. military prior to enrolling. In addition to ROTC (Reserve Officers’ Training Corps) students and graduates of the service academies, we enroll former fighter pilots, naval surface and undersea warfare officers, infantry officers, and a growing number of prior enlisted, including Special Forces medics. They are joined by college grads, former Peace Corps and Teach for America volunteers, and former NCAA (National Collegiate Athletic Association) athletes. It’s quite a mix.

Another quality we share is a deep respect for our institution’s history and culture. This is most visibly reflected in our distinctive approach to our respective academic ceremonies. Of course, you use a lot more flowers, and we use a lot more ribbons!

Although both schools are widely respected for meeting their educational missions, neither institution gets the national recognition it deserves for the quality and impact of our science. In fact, statistics show that JABSOM and USU faculty members hit well above their weight in terms of scientific research. In addition, both schools target highly important problems that affect the health of the populations we serve and our nation.

Finally—and this is important—both schools were created to educate a critically-needed physician workforce that has the knowledge, skills, and *sense of mission* required to meet the healthcare needs of our respective sponsors – the state of Hawai‘i in your case, and the U.S. Department of Defense in mine.

This brings me to the core of my remarks:

Duty.

Every medical student who attends USU commits to seven years of national service after residency training. It’s a fair price to pay for an outstanding medical education, leadership development, no tuition or fees, plus a monthly salary and benefits.

Most JABSOM students will have no legal obligation to state or national service following graduation, other than repayment of any student loans. Nevertheless, it is obvious that many of the more than 4,000 medical doctors who have graduated from JABSOM to date, or completed residency training here, feel a sense of duty to Hawai‘i. The statistics bear that out:

- Fully half of all practicing physicians in Hawai‘i are graduates of this school, one of its residency programs, or are faculty members.
- You are in the top 10% of accredited schools whose graduates practice primary care and the top 25% for the percentage of graduates who end up practicing in state.

- One-third of all babies born in Hawai‘i each year are delivered by JABSOM residents and faculty, including virtually all high risk births and those of financially -needy families.

But duty doesn’t end with where one chooses to practice. It’s mainly focused on HOW.

As a physician, your primary duty will always be to your patients. Medicine is an ancient and honorable profession. As a physician, your “duty to treat” transcends your patients’ ability to pay. If the situation is an emergency or a colleague asks for your help, do your duty. The financial stuff can be worked out later if required. That newly-minted MD after your name is not a license to print money; it’s an ethical obligation to serve.

Your second duty is to practice wisely. The annual cost of healthcare in the U.S. has reached \$3.4 trillion dollars – roughly \$10,000 per year for every man, woman, and child, and a whopping 18% of our nation’s GDP. All of us who practice medicine must teach our patients (and remind ourselves) that over-testing and over-treatment are not only a huge waste of money, they often are more harm than good by causing unwanted side effects and serious or even life-threatening complications, including healthcare-associated infections.

Your third duty, as a 21st century physician, is to consider the health of the community as well as the health of your individual patient. Good physicians not only focus on the *treatment* of injuries and disease; they seek to recognize and address the *causes* of the injuries and diseases they treat. Because physicians witness the human and economic toll of society’s failure to address preventable health problems, we can be powerful advocates for public health.

Your fourth duty is to Pay it Forward. Other than taking time after this ceremony to say “thank you” to your favorite faculty members, there is little you can do to repay them for what they’ve done. You can, however, pass along the gifts of insight, inspiration, support, and consolation you’ve received to the medical students you will teach as an intern, resident, and one day soon, an attending physician. None of us got here on our own.

Your fifth and final duty is to take care of your family and yourself. Sleep, nutrition, recreation, and love aren’t indulgences. They are vital to keep your body, brain, and spirit healthy and on an even keel. Maintaining a respectful balance between work and life - between those you treat and those you love – will significantly increase the probability that you will enjoy a long and productive career.

Besides, your loved ones deserve it! Because if truth be told, the most important teachers you have encountered in life aren’t the ones up here on stage in flowing gowns and medieval hats, or the other JABSOM faculty in the audience.

Although they taught you the “who, what, when, where, and hows” of medicine, you learned the most important lesson for doctors before you came to medical school. It was taught to you by your parents and grandparents, aunts and uncles, spouses and significant others, former teachers, coaches, and perhaps some childhood friends who helped you along the way:

That lesson is WHY.

Medicine is not a job. It’s a calling. Whether you fully realize that yet or not, it’s why you’re here.

So today is not just your day – it’s your family and friends’ day too!

To them, to you, and to the Great State of Hawai‘i, Hulo!
I mua!

(Dr. Kellermann is dean of the F. Edward Hébert School of Medicine at the Uniformed Services University of the Health Sciences in Bethesda, Maryland. His views are his own, and do not necessarily represent those of the Uniformed Services University, the U.S. Department of Defense or the U.S. government.)

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INSIGHTS IN PUBLIC HEALTH

The Built Environment and Health: How the Places We Live, Work, and Play Shape Our Wellbeing

Danielle Schaeffner MPH; Lola H. Irvin MEd; and Heidi Hansen Smith BA

Insights in Public Health is a monthly solicited column from the public health community and is coordinated by HJMPH Contributing Editors Tetine L. Sentell 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.

Hawaii's environment is perfectly suited for spending time outdoors and being physically active. Unfortunately, it is also a place where factors such as car dependency, time constraints, and inadequate infrastructure, contribute to a prevalence of unhealthy behaviors, including sedentary lifestyles. Physical inactivity is an important issue in the State of Hawai'i, where only 1 in 2 (56.6%) adults engage in regular physical activity.¹ In addition, only 27% of middle school and 20% of high school students meet federal guidelines for physical activity, with one in four being overweight/obese.² Physical inactivity increases the risk of cardiovascular diseases, diabetes, obesity, and some cancers.³⁻⁵ Being physically active can be an effective tool in both the prevention and treatment of these conditions and related risk factors.⁶

The environment encompasses more than the natural resources and tropical climate of Hawai'i; it includes the design of gathering spaces, buildings, and streets. This "built environment," as it is commonly referred to, impacts people's travel mode options, access to services, and opportunities to connect and interact with one another. The places people live, work, and play all have an impact on overall health and physical activity. One aspect of the built environment is the concept of Complete Streets. This term refers to the idea and routine practice in design, that all streets should be (re)constructed for all users, of all ages and abilities, with consideration given to all modes of transportation, including forms of active transportation such as biking and walking.

There is evidence 'that a safe, accessible, affordable, and well-built transportation network with a range of alternatives can enhance community health and wellbeing. Residents of mixed-use livable communities with transit options weigh less, are more physically active, and experience less chronic disease'.⁷ Community members who walked to and from transit added a median of 21 minutes of physical activity daily.⁸ Furthermore, persons who consistently used active forms of transportation saw reductions in Body Mass Index (BMI).⁹ The Department of Health, Chronic Disease Prevention and Health Promotion Division (CDPHPD), prioritizes supporting improvements to the built environment that increase opportunities for active transportation.

Built Environment Efforts to Promote Health in Hawai'i

Built environment efforts in Hawai'i have spanned policy change, systems evaluation, and environmental improvements. Act 54 was passed by the State Legislature in 2009, requiring that the Hawai'i Department of Transportation (HDOT) and Hawai'i's four county transportation departments adopt Complete Streets policies.¹⁰ Complete Streets resolutions were subsequently passed by Kaua'i, Maui and Hawai'i counties from 2010 to 2012, with the City and County of Honolulu passing Bill 26, an ordinance, in May of 2012. In partnership with a wide range of stakeholders, CDPHPD supported these policy efforts. Utilizing funding sources that included grant funding from the Centers for Disease Control and Prevention (CDC), Tobacco Settlement Special Funds, along with general funds, CDPHPD provided implementation support and capacity building, including: consultants to facilitate Complete Streets trainings and Safe Routes to School workshops; and providing technical assistance on road design guidelines and related analyses to transportation and planning agencies.

Over the last few years, CDPHPD has continued to facilitate opportunities for collaboration and capacity building, supporting the ongoing efforts around Complete Streets implementation strategies. Some of these highlights are elaborated upon below: As a follow-up to the Hawai'i Physical Activity and Nutrition Plan 2013-2020, CDPHPD hosted the 2015 Physical Activity and Nutrition Forum in May of 2015, bringing together over one hundred statewide partners and experts to determine the next action priorities. Attendees identified nineteen top strategies spanning healthy communities, schools, worksites and health care systems sectors; these included goals around active transportation and Complete Streets.¹¹

CDPHPD led an application for a Planners4Health grant in October of 2016, along with the American Planning Association partners, the University of Hawai'i, and Hawai'i Public Health Institute (HIPHI). The cohort was awarded the grant in January 2017. As part of this effort, CDPHPD brought national walkability expert Mark Fenton to Hawaii to present, hold workshops and provide trainings for all four counties, increasing awareness, capacity and connections among public works, planning and

health partners. This project brought critical technical assistance and added momentum to existing built environment strategies, resulting in stronger connections and efforts between planners and health professionals in Hawai'i.

Just a month after the Planners4Health application, in November of 2016, CDPHPD led a competitive application for the Walkability Action Institute. The purpose of this institute was to create a multisector team (including an elected official, O'ahu Metropolitan Planning Organization planner, transportation engineer, advocate, and CDPHPD staff) with the goal of creating a regional walkability plan for O'ahu. CDPHPD and the proposed team were awarded the training opportunity, which included traveling to Decatur, Georgia in April 2017 to learn from other teams across the country and from experienced course faculty about national and local walkability strategies. The product of this experience was the creation of Oahu's first walkability action plan. This plan serves as an actionable and accountable way to move walkability efforts forward on O'ahu. The hope is that this model will assist other counties in the state as well, and add momentum and resources for peer-to-peer learning and complete streets implementation.

In April and October of 2015 and in July of 2017, CDPHPD funded and coordinated Mobile Study Tours to the Pacific Northwest, bringing engineers, planners, decision makers, public health professionals, and community members to the cities of Seattle and Portland to experience the design of the communities and interact and share ideas with their peers. These tours have been instrumental in creating opportunity for capacity building and partnership amongst the attendees, bringing renewed momentum and new ideas back to the islands of Hawai'i.

Successful Partnerships

Supporting partnerships have been essential to various built environment efforts including policy creation, increasing capacity through workshops, trainings and mobile tours, as well as implementing increased multimodal opportunities such as Biki, the now year-old thriving bikeshare system in Honolulu. CDPHPD has been integral in supporting and advising bikeshare efforts in Hawai'i and was responsible for funding the establishment of the first Hawai'i bikeshare system pilot in Kailua, on O'ahu, in May of 2011. CDPHPD continues to be a critical part of the team effort to see Hawai'i Bikeshare successfully launched (June of 2017) and sustainably growing and moving forward.

CDPHPD is actively involved in several planning efforts, including Transit-Oriented Development (TOD) state land use strategies and the O'ahu Bike Plan Update process. The role of CDPHPD is to ensure that strategies and processes include health and equity, further supporting population level wellbeing and prioritizing underserved communities in efforts to increase access to active transportation.

Actively Moving Forward

Due to the ongoing efforts of CDPHPD and its partners, visible progress has been accomplished in Hawai'i's built environment. However, there is much work left to do. With some foundational policies in place at the state and county level, jurisdictions are looking to update and improve these existing policies, including updating and aligning relevant guidelines and land use codes, moving forward with supportive implementation strategies, and prioritizing funding. CDPHPD's efforts are focused on supporting the advancement of these county and state policies and their translation into routine project accommodation through increasing partner capacity, aligning performance measures with local and state priorities, and continuing to help integrate health and equity into planning and engineering efforts.

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THE WEATHERVANE

RUSSELL T. STODD MD; CONTRIBUTING EDITOR

THE FUTURE OF HOSPITALS IS RADICALLY CHANGING.

Large inpatient health care facilities are almost certain to disappear. Due to economics they are disappearing all across America. Newer, smaller, more digital is becoming the world of cheaper and better care. It's a shift away from traditional care and providers are investing in outpatient clinics, same-day surgery centers, free-standing emergency rooms and micro-hospitals. They are providing programs that monitor patients 24/7 in their homes. Already the United States has more hospital beds than it needs in most markets. The average hospital- occupancy rate dropped to just 62% in 2015. Studies at Johns Hopkins University School of Medicine show that care at home for certain conditions can be provided with lower complications, lower mortality rates and higher patient satisfaction. Hang on to your family doctors. If they are hip, they will guide you through the rocks and shoals, and your care will be better than ever.

AN IMPENDING DISASTER— GET READY.

For deadliness, the 1918-19 Spanish flu pandemic killed more than 50 million people, and dwarfs any infectious outbreak of the past 100 years. Beginning in the spring of 1918, the flu virus had evolved to be both highly contagious and extraordinarily lethal. Often passing by the old and infirm and children, the virus most often killed healthy adults in the prime of life. I recall photos of my parents and their friends wearing masks for protection during gatherings. Now the 21st century version of a similar attack looms in the minds of smart people. The actuaries at Merrill Lynch estimate that a similar event today would cause 180 to 360 million deaths. Bill Gates rated the likelihood of a major epidemic in his lifetime at “well over 50%.” The threat has never been greater, according to physician and public health expert Jonathan D. Quick MD, with 40 years experience fighting disease in more than 70 countries. In “The end of Epidemics,” he explains that population pressure and clear-cutting whether for farming or industrial agriculture, are bringing people into ever closer contact with primates, rodents and bats that carry dangerous diseases. Stir in deforestation that also causes floods that provide breeding grounds for mosquitoes that transmit Zika, Dengue and malaria. Example: scientists believe that Ebola epidemic—a ‘mere’ 11,000 deaths—began when a 2-year-old boy in a remote Guinean village played with a bat in a

tree stump. The boy was dead a few days later. Adding to the risk is a network of international air travel that was beyond imagination 100 years ago. The most frightening risk that Dr. Quick describes is his potential for a new, highly, contagious and deadly flu to arise from a “viral stirring pot” of DNA from avian, animal and human-infecting flu viruses. Infectious disease experts agree that under present conditions the question is not whether a superbug will occur and create a global pandemic but when.

WE LIVE IN A BUSY IMPATIENT WORLD.

We all know this person. He (she) is driving in the far left lane of the four or six lane highway and poking along. Yes, the driver is steady and not threatening, but definitely obstructive at 40 mph while the traffic is moving at 55 or 60 mph. The state of Virginia struck a blow for other motorists by imposing \$100 tickets for drivers who slowpoke along in the fast lane. For sure, civil libertarians will attack this almost draconian policy, but civil libertarians are commonly upset about something. Still the state's logic seems impeccable; these slow drivers can cause accidents by making other drivers angry and sometimes reckless. On the same subject; the person at the cash register after all the items have been totaled, cannot find the credit card or cash in his wallet, or in her purse while you shift from one foot to the other, or the goofball who tries to cram an oversize bag in the upper airplane rack making everyone stand in the aisle, or the driver waiting for the left turn signal, then almost misses it, turns as the red reappears, making you miss it. Oh, sh**!

ADDENDA

- More than half of retinal detachments occur in myopic eyes, and the risk increases with the axial length (worsening myopia).
- If it tastes good, it's trying to kill you.
- Smoking is one of the leading causes of statistics.
- Remember, no matter what she says, all women want it. But probably not with you.
- If God had wanted us to vote, He would have given us candidates.

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 HJM&PH. 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.

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11. Timing of a supplement issue publication will be formalized once all required materials have been submitted to the production manager and payment made.





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