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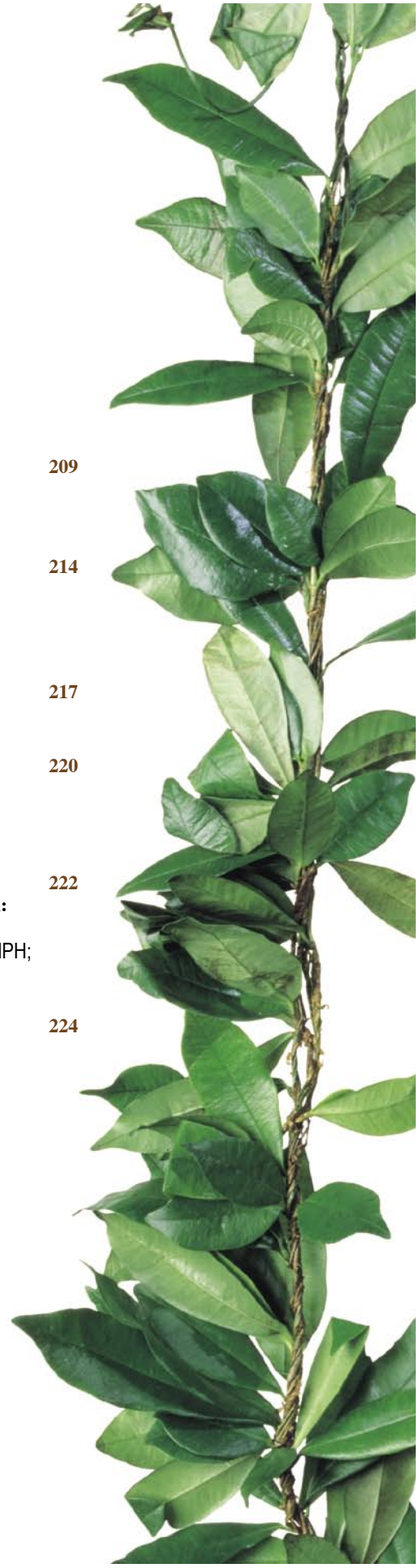

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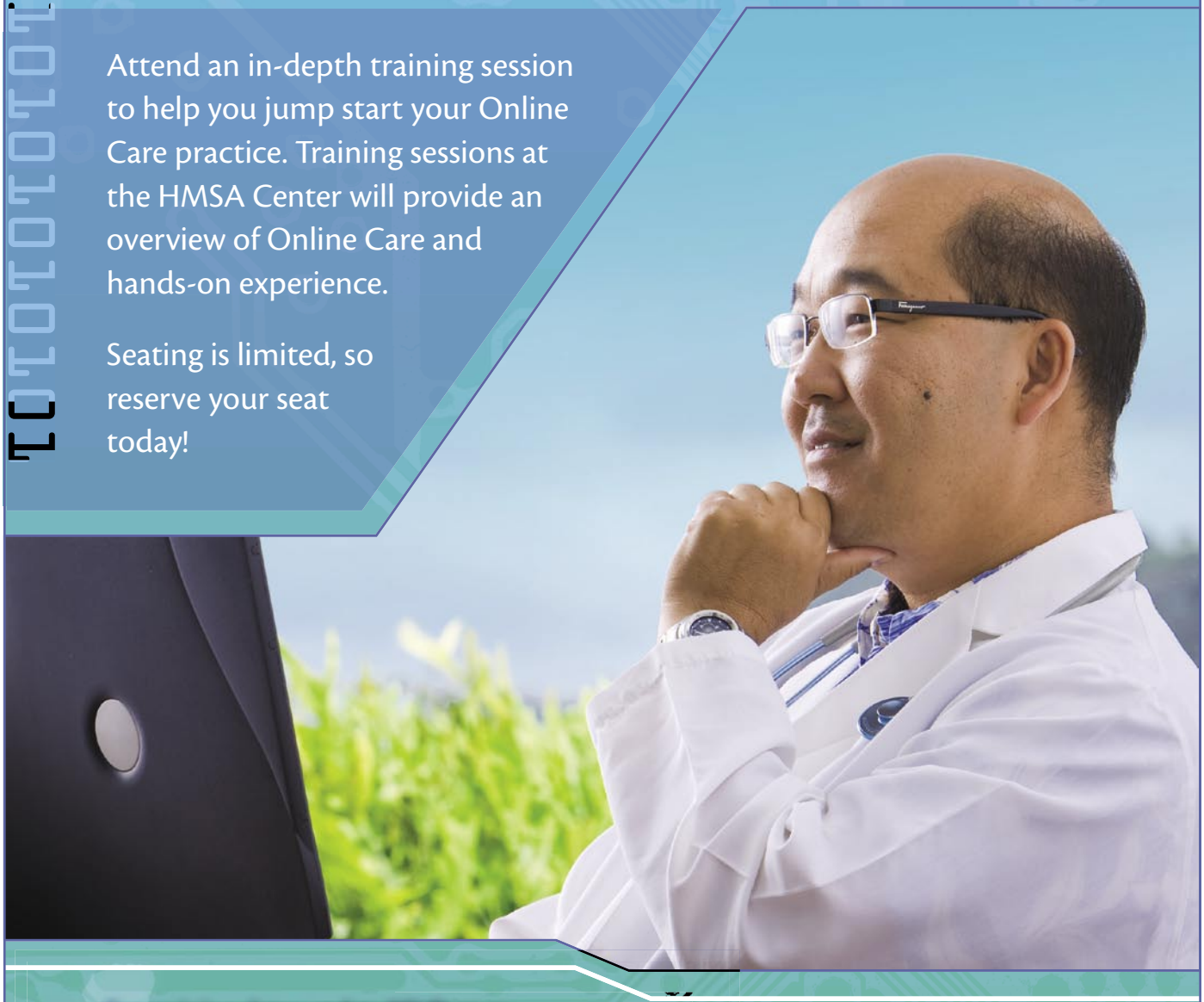

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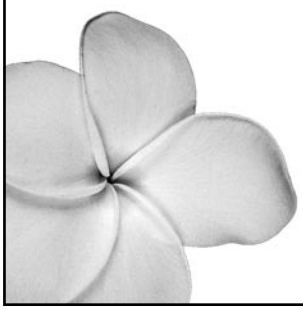

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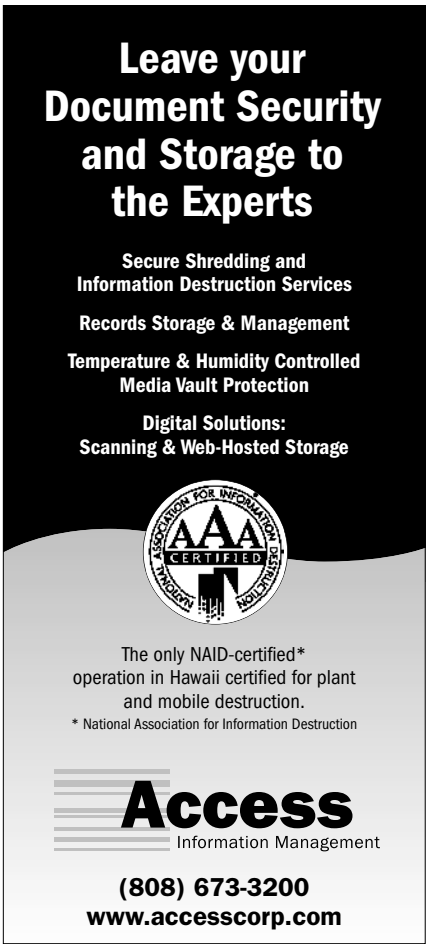

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The Journal's aim is to provide new scientific information in a scholarly manner, with a focus on the unique, multicultural, and environmental aspects of the Hawaiian Islands and Pacific Rim region.

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Prevalence of Comorbid Conditions with Aging Among Patients with Diabetes and Cardiovascular Disease

James W. Davis PhD; Richard Chung MD; and Deborah T. Juarez ScD

Abstract

Objectives: *The objectives were to develop a methodology to understand the prevalence of medically complex patients, and to apply the methodology to examine patients with one or more of hypertension, hyperlipidemia, diabetes, and heart disease.*

Methods: *Prevalence was measured using insurance data by calculating the proportion of days patients in a health state of interest contributed to the total days of enrollment. Graphs summarized the prevalence patterns within age and morbidity categories. Results by age and gender were supplemented with cubic spline curves that closely fit the prevalence data.*

Results: *The study provides basic epidemiologic information on changes with aging in the prevalence of patients with one or more comorbid conditions. Patients such as those with hyperlipidemia alone rose in prevalence at younger ages and fell at older ages, whereas the prevalence of other patients, such as patients having hypertension, diabetes, and heart disease, progressively increased with age. With straightforward extensions of the methodology other issues such as the incidence of emergency department visits and hospitalizations might be investigated.*

Keywords

Medically complex patients, diabetes, hypertension, hyperlipidemia, heart disease

Introduction

The 2009 American Recovery and Reinvestment Act identified patients with multiple chronic conditions as a priority population for patient-centered health research (Department of Health and Human Services Agency for Healthcare Research and Quality, 2009).[1] Approximately 75 million people in the United States have two or more conditions that last a year or more and require ongoing medical attention or limit activities of daily living, or both.[2,3] Among Medicare beneficiaries 83% have at least one chronic condition.[4] The 23% who have five or more such conditions account for 68% of Medicare expenditures. A survey of members of a health maintenance organization ages 65 and over found the average person had 8.7 chronic diseases.[5] Patients with multiple chronic conditions have on average a higher level of morbidity, poorer physical functioning and quality of life, a greater likelihood of persistent depression, and lower levels of social well being.[5-8] Such patients incur increased risks of adverse drug events and mortality.[9]

Despite the recent emphasis to conduct research on patients with multiple morbidities, even basic epidemiologic information such as prevalence is not well known. Wolff and colleagues did explore the clustering of major diagnostic categories among Medicare patients and reported the frequency of clustering at this level.[10] Typically, however, categories grouped by organ system include a number of chronic conditions. The change in prevalence with aging among patients with even the most common combinations of chronic conditions is largely unknown.[11] At the population level projecting expenditures and planning to address future medical needs would benefit from estimates of the number of people with existing combinations of morbidities, and how long they remain in their current states.[12-14] For disease management understanding the prevalence of complex patients and their risks could help align health care services with patient needs.

This article reports analyses of administrative data from patients with four chronic conditions of high prevalence among older adults: hypertension, dyslipidemia, diabetes, and heart disease. These conditions were selected because they are commonly managed together. Age and gender specific prevalence curves are presented for everyone with each of the four conditions as well as for patients with specific combinations of the conditions.

Methods

Study Population

The eligible population was members between the ages of 18 and 84 who were enrolled with the largest insurer in Hawai'i during the decade from 2000 to 2009. Members with chronic diseases were identified from claims data that were available for the years 1999 to 2009, thus giving an additional year prior to the start of the study period to identify patients with the study conditions. Patients with diabetes or heart disease, or both, were identified by algorithms employed by disease management programs. The diseases were confirmed whenever possible through contact of members and their physicians. A physician's confirmation was required to exclude false positives. Either two claims with a diagnosis or one claim with a diagnosis and one claim for a treatment medication in a 12 month interval were required to classify patients as having hypertension or hyperlipidemia. Women with a claim for gestational hypertension, however, were excluded from the identification algorithm during the interval containing the claim. Identification algorithms were run quarterly examining claims in the past 12 months. Patients were considered to have hypertension or hyperlipidemia from the first date of diagnosis or medication use in the defining interval, and assumed to have the condition from that date forward.

Institutional Review Board

The study only included a limited dataset without personal identifying information. For this reason, the study was granted an exemption from institutional review by the University of Hawai'i institutional review board.

Prevalence Calculations

Prevalence was calculated for all members with a condition such as hypertension or diabetes as well as for patients with specific combinations of comorbidities, such as patients with hypertension, hyperlipidemia, and diabetes. Prevalence was calculated by one year age intervals. The terms state and health state are used in this article to refer to the prevalence conditions examined. The days enrolled among the total eligible population by year of age provided the prevalence denominators. Numerators were calculated as the number of days enrolled by year of age while in a health state. Prevalence, as a consequence, is a ratio of the days of enrollment among patients

in a health state divided by the days of enrollment for the entire study population. For some analyses prevalence by age and gender was calculated using an analogous procedure.

Data Analysis

Prevalence by age for the various health states is presented graphically. Prevalence by age and gender was estimated using cubic splines that fit smooth curves both before and after a designated break point called the knot.[15] Age 50 was chosen as the knot for the regression models. Prevalence was the dependent variable in the models and age or age and gender with interactions between them were the independent variables. Interaction terms between age and gender were removed from regression models if not statistically significant ($P < 0.05$). Main effects for significant interaction terms were retained even if not themselves significant, although main effects without statistically significant interaction terms were removed from the models.

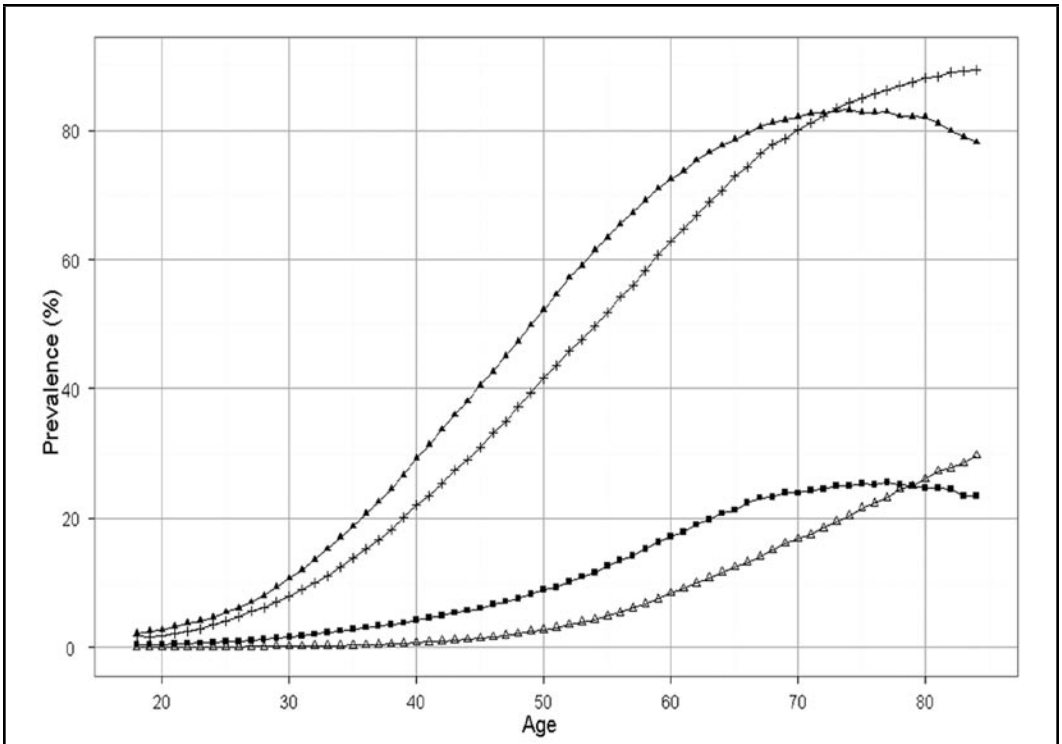

Figure 1. Patients with hyperlipidemia (▲ – ▲), hypertension (+ – +), diabetes (■ – ■), and heart disease (Δ – Δ)

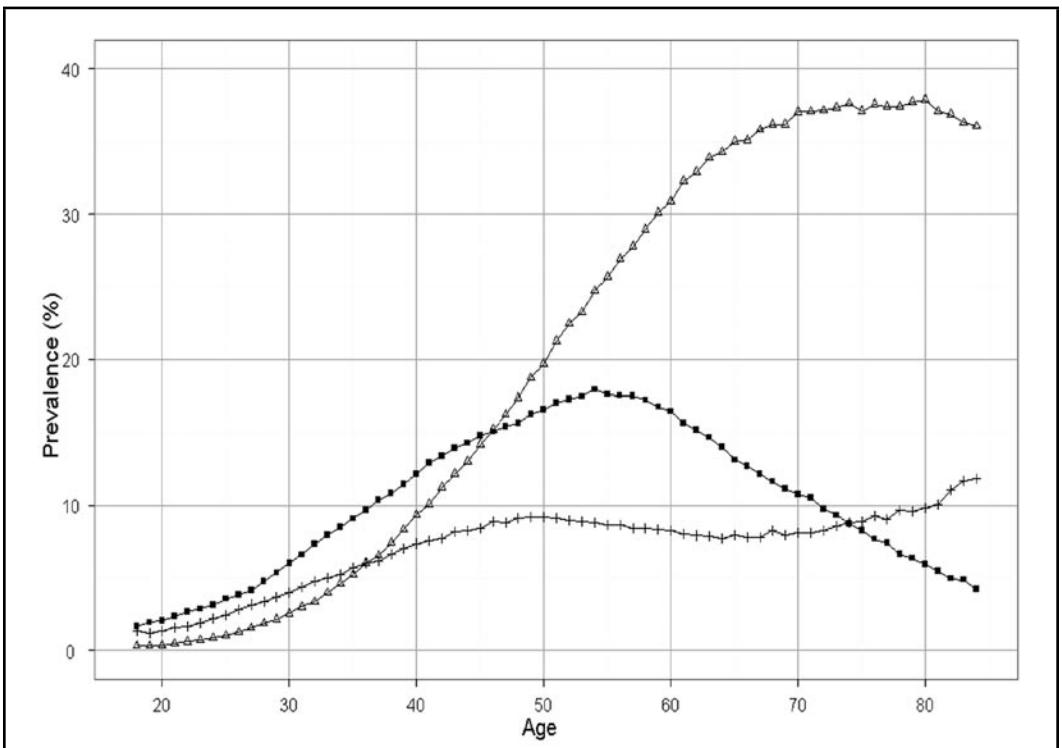

Figure 2. Prevalence by age among patients with hyperlipidemia alone (■ – ■), hypertension alone (+ – +), and both hyperlipidemia and hypertension (Δ – Δ)

Results

The study population included 883 982 people of whom at some time during follow-up 308 484 had hyperlipidemia, 285 872 had hypertension, 87 525 had diabetes, and 62 146 had heart disease. Of patients with hypertension 73.9% were identified by having both a diagnosis code and a prescription. The corresponding percentage for hyperlipidemia was 54.1%. The 10 most common states for patients at some point during follow-up were hypertension and hyperlipidemia (173 650); hyperlipidemia only (143 942); hypertension only (111 291); hypertension, hyperlipidemia, and diabetes (57 255); hypertension, hyperlipidemia, and heart disease (29 990); hypertension, hyperlipidemia, diabetes, and heart disease (21 922); hyperlipidemia and diabetes (13 656); hypertension and diabetes (13 281); diabetes only (9 675); and hyperlipidemia and heart disease (4 416).

Prevalence with age for all patients with hyperlipidemia and for all patients with hypertension exhibited s-shaped curves (Figure 1). For both conditions, prevalence increased rapidly from age 20 up to about age 70. Hypertension maintained gradual increases at older

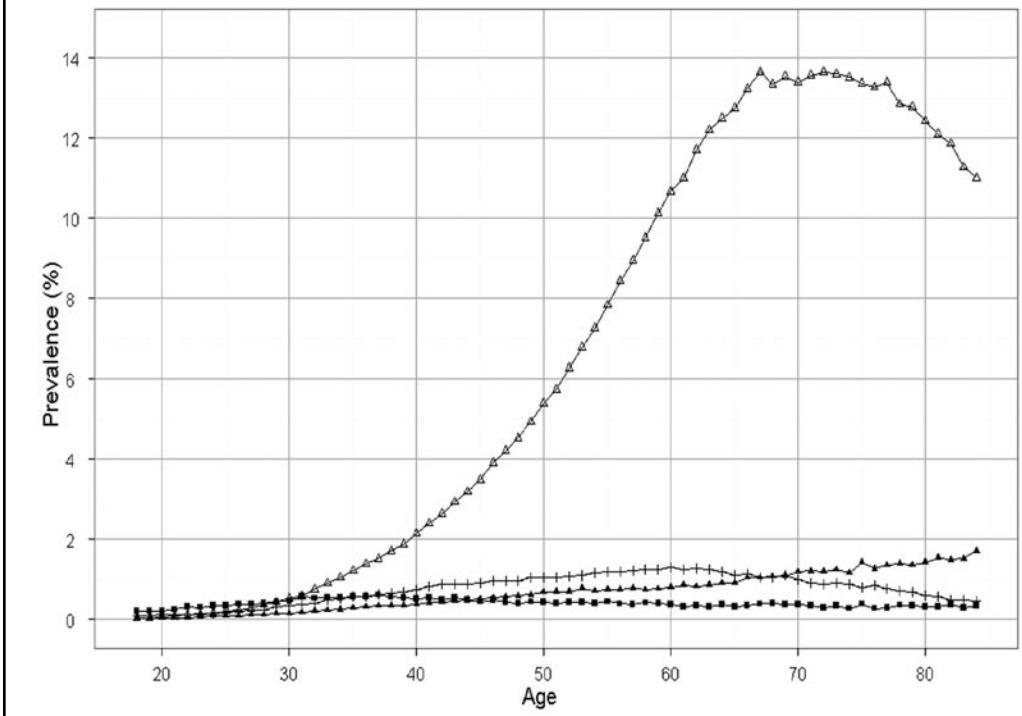

Figure 3. Prevalence with age among patients with hyperlipidemia, hypertension, and diabetes (Δ – Δ); hyperlipidemia and diabetes (+ – +); hypertension and diabetes (▲ – ▲); and diabetes (■ – ■) alone

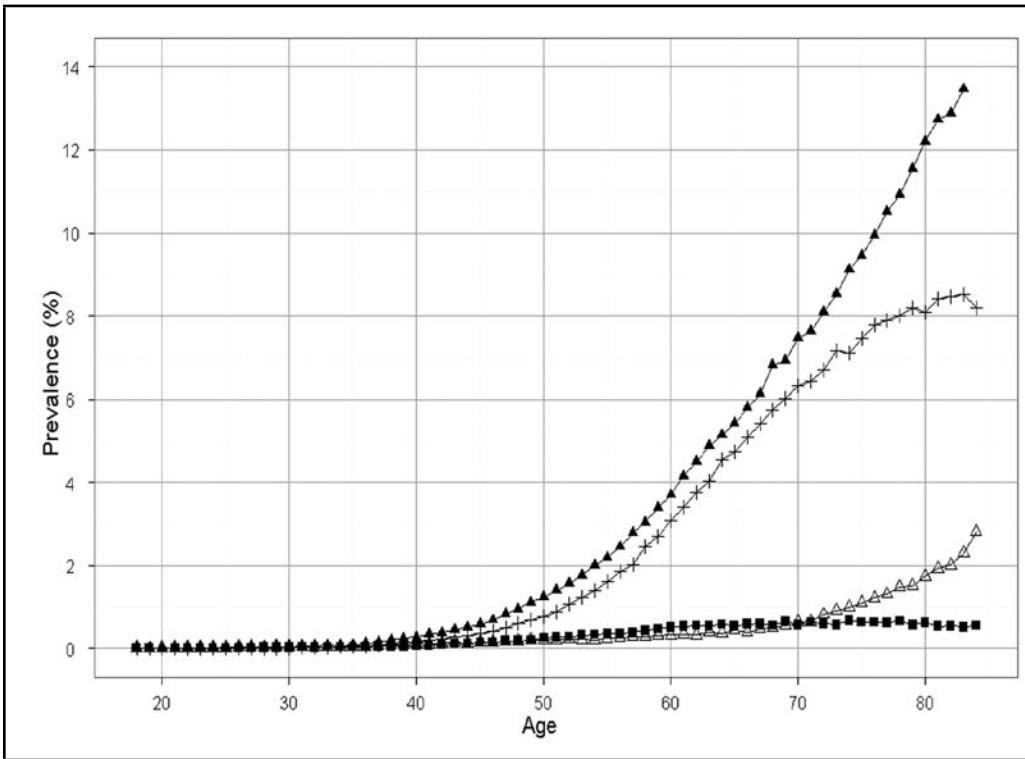

Figure 4. Prevalence with age among patients with hyperlipidemia, hypertension, and heart disease (▲ – ▲); hyperlipidemia, hypertension, diabetes and heart disease (+ – +); hypertension and heart disease (Δ – Δ); and hyperlipidemia and heart disease (■ – ■)

ages whereas hyperlipidemia decreased slightly in prevalence at the oldest ages. Both hypertension and hyperlipidemia peaked with prevalence greater than 80%. The prevalence of diabetes with age also exhibited an s-shaped curve, but one that plateaued at a prevalence of about 25% around age 70. The prevalence for all patients with heart disease, by contrast, rose at an accelerating rate with age reaching a prevalence of close to 30% at the oldest study age of eighty four.

Prevalence with age by health state revealed very different patterns among subgroups of patients with the same condition such as patients having hypertension. Prevalence curves for patients with hypertension, hyperlipidemia, or both, but who do not have diabetes or heart disease, are presented in Figure 2. Before age forty five, hyperlipidemia was the most prevalent state; however, from the middle forties onward, patients with hyperlipidemia and hypertension became the most prevalent. Patients having both conditions sustained a prevalence of over 35% from age 65 onward. The prevalence of patients with hyperlipidemia alone declined substantially from the middle fifties. The prevalence of patients with hypertension alone increased until about age fifty and thereafter fluctuated within a few percentages of 10%.

Most patients with diabetes and without heart disease also had hypertension and hyperlipidemia (Figure 3). Prevalence of patients having all three conditions increased rapidly with age until near age 65, was relatively level for about a decade, then subsequently declined a few percent. The prevalence of patients with diabetes alone or in combination with either hypertension or hyperlipidemia did not reach 2% at any age.

Among patients with heart disease three disease states predominated in prevalence: the state with hypertension and hyperlipidemia as comorbidities, the state with diabetes in conjunction with hypertension and hyperlipidemia, and the state with hypertension and heart disease (Figure 4). Prevalence of health states including heart disease remained under 2% before age 50. The three most common states subsequently climbed markedly in prevalence. By age 85, 3%

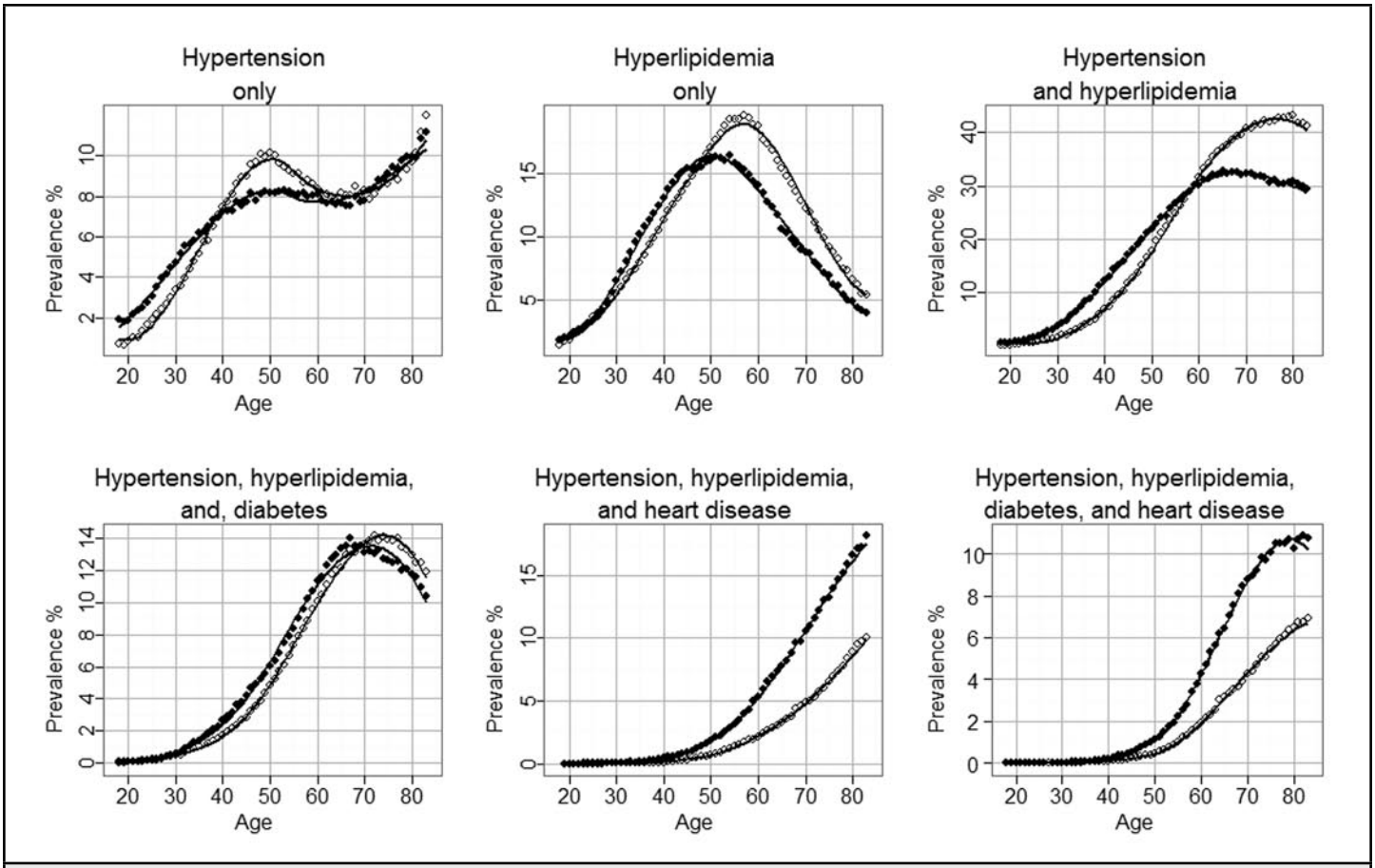

Figure 5. Prevalence by age and comorbid conditions for females (❒ – ❒) and males (■ – ■). The curves fit to the data had high R2 values ranging from 96.43 for patients with hypertension, hyperlipidemia, and heart disease to 99.91 for patients with hypertension and hyperlipidemia.

of the study population had heart disease and hypertension, 8% had heart disease, diabetes, and hyperlipidemia, and over 13% lived with heart disease, hypertension, and hyperlipidemia.

Prevalence by age and gender for the six most common health states is illustrated in Figure 5. Cubic spline curves fit to the data closely follow the prevalence points calculated by one year age intervals. For the four states without heart disease, male prevalence exceeded female prevalence at younger ages and female exceeded male prevalence at older ages. By contrast, with the two states that included heart disease male prevalence was invariably greater than female prevalence across the range of ages.

Discussion

The results illustrate how changes in prevalence by age derive from diverse prevalence patterns among patients who differ in their comorbidities. For instance, by age 50, patients are more likely to have both hypertension and hyperlipidemia than either condition alone. The results make apparent that approaches to improve the health of older Americans should be comprehensive, targeting multiple conditions. The dramatic increase in prevalence of both hypertension and hyperlipidemia among patients with diabetes further emphasizes this point. The results, by quantifying the prevalence of comorbid conditions at specific ages, offer a starting point toward characterizing medically complex patients beyond enumerating the number of morbidities they might have. The characterization could easily be extended to include other information for the same patients such as rates of hospitalizations and emergency department visits. The numerators from the prevalence calculations reported in this article would become the denominators for such rate calculations. The characterization could also be extended to examine other conditions the patients may have. Patients with diabetes and cardiovascular disease often have other health problems that complicate their management.

Although not explored in this article, creating more homogenous subgroups of patients may help to identify poorly managed patients. By examining factors such as recommended screening tests, medication adherence, emergency department use, preventable hospitalizations, and office visit patterns among patients with similar conditions, a subgroup of especially poorly managed individuals might be recognized.

The study results illustrate the increased prevalence of patients with multiple chronic conditions that is projected to occur with the aging of the Baby Boomers. Aging populations challenge existing health care systems and will increasingly do so in the future. In Western countries the proportions of the population 65 years and older were 11 to 18% in 1990 and are expected to increase to 19-26% by 2025.[16] The most rapid rate of increase will occur between 2000 and 2035 when the Baby Boomers enter retirement.[12] In the United States, one study projected health care costs due to aging will increase 20% from 2000 to 2030.[17] With aging, more patients present with multiple chronic conditions that require appropriate management.

The broader healthcare implications of an aging population are harder to anticipate. New technologies and treatments may partially reduce the consequences of morbidity.[18,19] Recent evidence suggests illness burden in many developed countries has been decreasing as evidenced by self-reported ratings of health status, as well as reports of activities of daily living and instrumental activities of daily living among the elderly.[13,20,21] With longer average live spans an increasing proportion of the population will live for greater years with morbidities. Complications from morbidities preceding death often requires acute care that comes with exceptional costs. A recent review concluded that in recent years this critical phase may be shrinking (Payne, Laportte, Deber, & Coyte, 2007).[13] The pattern in the future may be longer years of life spent with chronic diseases but with lower rates of acute events, and a shorter acute period near death. The extent this pattern unfolds has substantial health care consequences as the most rapid shifts toward older populations are still ahead.[12]

Recent articles have questioned if the current evidence is adequate to guide the management of the most complex patients.[22-24] Guidelines are often developed by specialty-dominated committees, and based upon clinical trials from which complex patients are often excluded. Combining recommendations from multiple guidelines may not lead to optimal care, and in some situations, adverse reactions from interactions among drugs and diseases may result.[13,22] By extending the approach of this article, investigators might examine variations in current management practices among medically complex patients.

This article's results should be interpreted with respect to a number of limitations. Prevalence will vary by the population studied and the results can not be generalized to other populations. The methodological approach, however, could be applied in other settings. The identification of chronic conditions was based on diagnoses and prescriptions from administrative data, at best indirect measures of clinical diagnoses. With administrative data the number of people identified with a condition can depend on the algorithm used. Using algorithms employed in disease management programs, however, can help link results to practical applications. For this article, patient starting states – their initial combinations of conditions – were determined from their first year of claims activity. Previous clinical histories were unknown. Disease diagnosed before enrolling with the insurer would not be known, and asymptomatic disease may not have been coded. The results, however, do offer a health plan's view of the health of its members.

Conclusions

Health plans use their administrative data for planning prevention and disease management programs, programs that often range in intensity from reminder letters for health screening to case management. Understanding the prevalence of members with differing conditions, their management, and risks of adverse outcomes could help in planning appropriate strategies. For populations identified, as in this article, medical needs might be assessed and variations in health practices could be explored such as adherence with medications and health screening rates. Other aspects of patient complexity beyond the presence of chronic conditions might also be examined.[25-27] Economic factors, ethnic variations, and geographical differences, as examples, may differentially affect patients who vary in the combinations of chronic conditions they have to manage. Future studies, in addition, might examine acute outcomes and rates of progression comparing well managed versus poorly managed patients.

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Barriers to Healthcare of Homeless Residents of Three Honolulu Shelters

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Abstract

In Honolulu, health insurance rates amongst the homeless are one of the highest in the nation, yet significant health care needs are still unmet. In a previous model, health care barriers have been divided into four domains: bureaucratic, personal, programmatic, and financial. This study aimed to determine the risk factors associated with the domains of health care barriers amongst the study's sample of 128 subjects across three Honolulu homeless shelters. Univariate models revealed health care barriers; but only the lack of health insurance was a significant financial barrier to health care in multivariate analyses (Odds ratio: 2.12; 95% Confidence Interval: 1.09-4.16). The identification of barriers should guide how health care programs approach Honolulu's homeless population to better serve their health care needs.

Introduction

In 2005, there were approximately 3,498 homeless residents in the City and County of Honolulu (44% of whom resided in a shelter).[1] At the state-level, Hawai'i is tied for 4th in the nation with the most homeless residents per capita. Despite a high per-capita of homelessness in Hawai'i, a previous study reported that 77% of homeless adults in Honolulu have some form of health insurance, compared to 45% in the continental United States.[1,2]

A Honolulu study of the homeless reported that common health problems requiring hospitalization, among the local homeless population, are decompensated psychiatric illness, trauma, substance abuse, and infections. In addition, the study has showed that the homeless are five times more likely to be admitted to acute care hospitals compared to the general public; and 100 times more likely to be admitted to the state psychiatric hospital. The authors concluded that despite the increased likelihood of hospital admissions, the state of being homeless was probably contributory rather than causal.[3]

Health disparities in the homeless exist due to a perpetual, correlative triad. First, health problems cause homelessness. Second, homelessness causes health problems. Third, homelessness complicates efforts to treat health problems.[4] We are interested in understanding the risk factors that may exist in the barriers that cause each, and working towards ending the perpetuity of the downward health spiral.

Previously, barriers to health care among American homeless were divided into four separate domains: bureaucratic, personal, programmatic, and financial.[5]

Examples of bureaucratic barriers in health care can come in the form of paperwork that is complicated, extensive, or difficult to understand due to language barriers or illiteracy. Other examples of bureaucratic barriers include long waits for insurance programs, inflexible scheduling of doctor appointments, restricted clinic hours, and the lack of transportation to and from doctor visits.

Examples of personal barriers include the lack of perceived importance or priority of health care. The homeless population are often preoccupied with survival and obtaining the basic needs (eg, food and shelter), and may not put health care at as high a priority as they should.

Examples of programmatic barriers in health care for the homeless come in the form of discontinuous/fragmented health care and negative attitudes, skepticism, or mistrust of the health care system.

Examples of financial barriers include unaffordable health care, unaffordable health insurance premiums, restrictive eligibility for insurance programs, and restrictive services in health care secondary to the lack of affordability.

Studies examining the barriers to healthcare of Honolulu's homeless population are limited. The purpose of this study is to discover the risk-factors associated with the theorized health-care barriers that may exist in Honolulu's homeless population.

Methods

In September 2009, a cross-sectional survey was developed and conducted among homeless subjects of three Honolulu homeless shelters serviced by the University of Hawai'i John A. Burns School of Medicine. These three shelters include the Next Step, Paiolu Kaiaulu, and Onelau'ena shelters.

Next Step Shelter is an emergency transitional night-shelter located in central Honolulu which accommodates up to 300 residents. Paiolu Kaiaulu is an emergency transitional shelter located in Waianae, Hawai'i, that also holds up to 300 residents. Onelau'ena Shelter is an emergency transitional shelter located in Kalaeloa, Hawai'i, that houses up to 200 residents. All shelters receive funding through the State of Hawai'i Department of Human Services, but are run by private organizations and charities.

This study was approved by the University of Hawai'i Committee on Human Subjects. Three study administrators from the University of Hawai'i John A. Burns School of Medicine and the Myron B. Thompson School of Social Work administered the surveys. The surveys were anonymous and voluntary. Verbal consent was obtained prior to participation, and we confirmed that each subject had not already completed a survey. Hygiene kits were provided as an incentive for survey completion. Surveys were available in both English and Chuukese, the two most common languages of the homeless population at these shelters.

The survey was developed de novo. It was comprised of self-reported demographic questions and 29 statements by which subjects self-reported on a Likert scale. Subjects could either strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, strongly disagree, or abstain from answering each survey statement. Subjects answered the surveys on their own, without guidance or surveillance by the study administrators. Each statement was concordant with one of the four domains of health care barriers: bureaucratic, personal, programmatic, and financial.

Data were compiled and subsequently analyzed by Statistical Analysis Software (Cary, North Carolina). Univariate and multivariate logistic regression models were used to determine the risk factors associated with health care barriers in four domains.

Results

A convenience sample of 128 total adult subjects participated in the survey. Demographic data of the sample are listed in Table 1.

Univariate analysis of individual risk factors was performed to determine their strength of association with health care barriers. Risk factors that achieved significance in the 95% confidence interval were carried into a multivariate logistic regression analysis to control for potential confounding variables. Univariate analysis of the risk factors associated with each barrier is included in table 2.

In the univariate analysis for bureaucratic barriers, female gender (Odds Ratio=2.18; 95% Confidence Interval: 1.09-4.37) and black ethnicity/race (0.05; 0.01-0.58) were significant variables. In the multivariate analysis (table 3), only black ethnicity/race showed statistical significance (0.05; 0.01-0.67); however, with only 2 black subjects in the sample size of 128, it would be unreasonable to draw significant conclusions from this result.

In the univariate analysis for personal barriers, subjects at the Onelau'ena shelter (2.39; CI: 1.12-5.07) and female gender (2.08; 1.04-4.16) were significant variables. These risk factors were not significant in the multivariate analysis (table 4).

There were no significant risk factors associated with programmatic barriers in the univariate analysis, and thus, no multivariate analysis was performed.

Subjects without health insurance (2.12; 1.09-4.16) were the only statistically significant risk factor in the univariate analysis for personal barriers, and thus, no multivariate analysis was performed.

Table 1. Description of our Study Participants by Demographic Data (N=128)

	n	%
Shelter		
Paiolu Kaiaulu	38	30
Onelau'ena	47	37
Next Step Shelter	43	34
Age Group		
18-30	40	35
31-50	56	50
51+	17	15
Health Insurance Status		
Yes	89	70
No	38	30
Gender		
Female	65	62
Male	40	38
Ethnicity/Race		
Pacific Islander	66	53
Asian	2	2
Black	2	2
Caucasian	20	16
Filipino	2	2
Hispanic	4	3
Mix	28	23

Discussion

This study revealed specific barriers to health care in our homeless population. As we expected, financial barriers exist amongst homeless subjects without health insurance. Numerous studies have concluded the same.[6-9] Not surprisingly, the cost of health care becomes an issue, especially when health insurance is not available to absorb some of the expenses. However, subjects without insurance appear to be unaffected by bureaucratic, programmatic, and personal barriers to health care; which may indicate that these barriers associated with health insurance enrollment were not a factor in accessing health care. Conversely, it could mean that the homeless subjects were not exposed to the barriers that may exist when being insured. Nonetheless, this study revealed that only financial barriers were perceived, given the lack of health insurance.

Limitations exist in this study. Length of shelter residency was not asked in the survey. A study has shown that "shelterization," or the undesirable task of independent living, is especially high among people with increased dependency on others.[10] We predict that a longer length of shelter residency may predict complacency, which would translate into a favorable opinion of healthcare.

"Pacific Islander" could have been too broad as a racial category in this study. Study administrators noted that the cultures of Micronesia and native Hawaiian people are different, and thus could have hidden underlying risk factors in either racial group.

Another limitation is that we only examined health care barriers in sheltered homeless subjects. We did not examine unsheltered homeless adults. We predict that results of this study underestimate the barriers for unsheltered homeless adults.

Despite limitations, strengths do exist in the study. Our multiethnic homeless population has seldom been studied. The Pacific Islander population has been notoriously underserved, and studies on Pacific Islanders have been scant. Another strength is that we examined a homeless population where 70% of subjects had health insurance, compared to 45% in the continental United States.[1] Surveying subjects with health insurance gave us an opportunity to discover what barriers exist among the insured; and can allow us to secondarily look at why, despite the abundance of local affordable health insurance programs, homeless subjects still go without health insurance.

The results of this study reveal a prominent deficiency in accessing health care for the homeless, ie, health insurance. Despite the wide availability of government-assisted health insurance plans in Hawai'i, a subset of homeless individuals still go without insurance. It would be important for future studies to focus on what is preventing this subset of individuals to live without health insurance. Additionally, we must ascertain their cognizance of the financial benefits associated with having health insurance. Furthermore, we must discover the barriers to health insurance now that we have revealed the barriers to health care among Honolulu's homeless population. Once better elucidated, specific recommendations for the rectification of financial barriers associated with the lack of health insurance can be made.

Future studies should also examine health care barriers throughout all socio-economic groups. Such analysis would allow a comparison between lower, middle, and upper class subjects to reveal what health care barriers are truly unique to the homeless. In addition, children should be included in future studies to determine health care barriers in the pediatric population.

Table 2. Univariate Analysis of Survey Data Amongst the Barriers to Healthcare (N=128)								
	Bureaucratic		Personal		Programmatic		Financial	
Risk Factor	**OR[a]**	**95% CI[b]**	**OR[a]**	**95% CI[b]**	**OR[a]**	**95% CI[b]**	**OR[a]**	**95% CI[b]**
Shelter								
Paiolu Kaiaulu	1.00		1.00		1.00		1.00	
Onelau'ena	1.78	0.84-3.77	2.39[c]	1.12-5.07	1.60	0.76-3.36	1.02	0.48-2.15
Next Step Shelter	0.69	0.32-1.48	1.06	0.50-2.26	0.69	0.32-1.47	1.43	0.67-3.06
Age Group								
18-30	1.00		1.00		1.00		1.00	
31-50	0.51	0.25-1.05	0.99	0.49-2.01	0.83	0.41-1.67	0.70	0.34-1.42
51+	0.47	0.18-1.28	0.54	0.20-1.45	1.23	0.47-3.36	1.06	0.39-2.84
Health Insurance Status								
Yes	1.00		1.00		1.00		1.00	
No	0.92	0.47-1.77	1.23	0.64-2.39	1.71	0.88-3.32	2.12[c]	1.09-4.16
Gender								
Male	1.00		1.00		1.00		1.00	
Female	2.18[c]	1.09-4.37	2.08[c]	1.04-4.16	1.79	0.90-3.55	1.38	0.69-2.74
Ethnicity/Race								
Pacific Islander	1.00		1.00		1.00		1.00	
Asian	0.14	0.01-1.66	0.31	0.03-3.57	0.80	0.07-9.12	3.07	0.26-36.03
Black	0.04[c]	0.01-0.58	0.79	0.01-1.06	0.29	0.03-3.35	<0.01	0 - ∞
Caucasian	0.42	0.17-1.01	0.42	0.17-1.01	0.45	0.19-1.09	0.44	0.18-1.08
Filipino	2.43	0.21-28.09	2.45	0.21-28.29	2.52	0.22-29.06	0.68	0.06-7.89
Hispanic	0.72	1.20-4.14	0.31	0.05-1.79	0.64	0.11-3.66	0.46	0.08-2.71
Mix	0.74	0.34-1.60	0.65	0.31-1.41	0.61	0.28-1.32	0.52	0.24-1.13

[a]OR = Odds Ratio; [b]CI = Confidence Interval; [c]significant to the 95% confidence interval

Table 3. Multivariate Analysis of Bureaucratic Barriers		
Risk Factor	**OR[a]**	**95% CI[b]**
Gender		
Male	1.00	
Female	0.51	0.95-4.11
Ethnicity/Race		
Pacific Islander	1.00	
Asian	0.16	0.01-1.90
Black	0.05c	0.01-0.67
Caucasian	0.62	0.24-1.62
Filipino	3.45	0.29-40.89
Hispanic	1.04	0.17-6.33
Mix	1.05	0.45-2.43

[a]OR = Odds Ratio; [b]CI = Confidence Interval; [c]significant to the 95% confidence interval

Table 4. Multivariate Analysis of Personal Barriers		
Risk Factor	**OR[a]**	**95% CI[b]**
Gender		
Male	1.00	
Female	1.96	0.96-4.01
Shelter		
Paiolu Kaiaulu	1.00	
Onelau'ena	1.39	0.61-3.17
Next Step Shelter	0.95	0.41-2.17

[a]OR = Odds Ratio; [b]CI = Confidence Interval; [c]significant to the 95% confidence interval

The authors identify no conflict of interest.

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Epidemiology of Jellyfish Stings Presented to an American Urban Emergency Department

Jennifer Ping MD and Neil Onizuka BA

Abstract

Introduction: Cnidarian, or jellyfish, stings are a common malady in tropical Emergency Departments. There are limited studies examining cnidarian stings in the United States. The team investigated the epidemiology and treatments for jellyfish stings presenting to an urban emergency department (ED) in Honolulu, Hawai'i.

Methods: The team performed a retrospective chart analysis of stings presented between 2000 and 2008. A total of 116 patients were identified. Charts were reviewed for patient demographics, incident characteristics, patient arrival condition, and treatments given in the emergency department.

Results: The median age was 24 years (range 9-85). Of patients 58% were men, 64% were Hawai'i non-residents, and 23 % arrived between the hours of 10pm and 2 am. Emergency Medical System transported 64%, and 65% arrived with normal vital signs. Twenty-four different types of IV/PO medications were administered and patients received up to 5 different medications per visit. Intravenous medications were given to 64%. All patients were eventually discharged home from the ED.

Discussion: Risk factors for cnidarian stings include being men, being a Hawai'i non-resident, and nighttime ocean activities. Stings were treated with various medications and routes suggesting that there is no current standard of care for stings. This study suggests that there is a need for public health interventions tailored to tourists. Prevention and education of home treatment could decrease the cost of health care by decreasing ambulance transports and total number of ED visits for a non-urgent disease.

Introduction

Cnidarians, more commonly known as "jellyfish," are responsible for a number of cases annually presented to emergency departments in tropical settings. In Hawai'i, the most common cnidarian stings arise from two particular species: the box jellyfish (Carybdea alata) and Portuguese man-of-war (Physalia physalis). These species have a considerable impact on Hawai'i's beach-going culture. During influxes, as many as 1000 jellyfish may appear per day with reported stings reaching over 800 at a single beach.[1,2]

Cnidarians have tentacles containing billions of nematocytes — stinging cells that fire toxins upon physical or chemical stimulation. Local effects of stings include intense pain, blistering and skin necrosis. Less common symptoms such as malaise, weakness, fever, chills, muscle spasms, nausea, and vomiting may also occur.[3-5] On rare occasions, unique to Australia, death has also been reported.

Despite the multiplicity and adverse effects of cnidarian stings, literature on treatment and epidemiology are limited. Moreover, sting treatment information published in available journals can be conflicting. The use of hot water immersions or hot compress was supported by several studies as a useful practice in relieving pain.[6-8] However, contrary studies report cold packs and ice to be effective in relieving pain while heat was ineffective.[2] A current guideline from the Australian Resuscitation Council (ARC) also recommends cold wrap applications following cnidarian stings.[7]

Popular home remedies such as alcohol, urine, or sand can actually worsen symptoms for the victim. Physical rubbing or pressure of the affected area and certain topical chemicals may cause both "fired" and "unfired" nematocytes on the skin to release toxins.[3,9-11] It is therefore important for sting victims to have accurate wound care instruction to prevent further exacerbation.

The lack of available knowledge about cnidarian stings and a published consensus on its treatment may be sources of confusion in the emergency department. In this study, the team investigated the epidemiology, severity, and treatments of cnidarian stings presenting to an urban community emergency department (ED) in Honolulu, Hawai'i.

Methods

The team conducted a retrospective chart review of all patients presenting to the ED with jellyfish stings between January 2000 and June 2008. The team compiled a database using the International Classification of Disease, Ninth Revision, (ICD-9) and search of the hospital electronic medical records for charts coded for "marine envenomtion." This yielded 133 cases. The query was further narrowed to charts listing causes as "jellyfish" or "man-of-war sting." Seventeen patients were excluded because of non-jellyfish envenomations such as sea urchin stings.

The final 116 charts were reviewed for patient demographics and incident characteristics. Times of envenomation were categorized into six periods: 10pm-2am, 2am-6am, 6pm-10am, 10am-2pm, 2pm-6pm, and 6pm-10pm. Two cases did not have a listed time of occurrence. Additionally, the team evaluated patient arrival conditions, vital signs, treatments given prior to arrival and in the ED. The different topical, intravenous and oral medications were recorded and categorized.

Results

The hospital treated 116 patients with jellyfish envenomations in an eight year period. The patients' age ranged from 9-85 years with the median age being 24. Sixty-seven of 116 were men (58%) and 76 were Hawai'i non-residents (64%). There were 70 patients (61%) presenting to the ED between 6am to 2pm and 26 (23%) presented between the hours of 10pm and 2am.

Of the total, 74 (64%) patients arrived at the emergency room by Emergency Medical System (EMS). Of these patients 24 (21%) received care prior to arrival. On arrival in the ED 75 (65%) had normal vital signs and no patients were admitted to the hospital after treatment in the emergency department. In the ED, 74 (64%) patients received IV treatment. Over the course of this study, 24 different types of intravenous therapy (IV) or oral medications were used. In a single visit, a patient received up to five medications which included anti-histamines, anti-inflammatories, steroids, narcotics, and muscle relaxants. Twenty-five (22%) patients received some form of topical treatment in the ED.

Discussion

Each year, cnidarian sting cases are presented to the ED in tropical settings. Published literature on stings has been both limited and

conflicting. The results of this study may aid in prevention efforts as well as more efficient ways of treating future cnidarian stings in emergency departments.

Patient Demographics

Of the cases presented to the ED, a slight majority were men at 58% versus 42% for women. Forrester published a comparable survey performed in Texas and reported similar results with men accounting for 52% of the stings and women accounting for 47%.[5] This would suggest men are at higher risk of contracting a cnidarian sting.

Many evenomations occurred in patients who were Hawai'i non-residents. Newcomers unfamiliar with Hawai'i's marine life may run a higher risk of being stung due to a lack of knowledge on sting prevention measures that include predictable box jellyfish influxes such as the cyclic occurrence of box jellyfish on Hawai'i's beaches 9-10 days after a full moon.[2] Currently, beaches in Waikiki post warning signs during jellyfish influxes, but stings may still proliferate as swimmers often ignore the posted warnings. One reason may be that jellyfish are often difficult to see even during the day and cause no perceived threat.[1] Tourists might benefit from a more proactive form of caution such as sting education provided by lifeguards and hotel staff.

While it is assumed that the majority of people would go to the beach during the day, there were a relatively large number of envenomations presenting during the nighttime hours from 10pm to 2am. Increased beach patrols during the night time hours and warning signs, might decrease the number of night time swimmers and subsequent marine envenomations.

Treatment Standards

There is a lack of consensus on an acceptable treatment regimen among ED physicians. In the ED, cnidarian stings were treated with topical, intravenous, and oral medications. The study found significant variation of treatment with 24 different intravenous medications used over the course of the study. These included narcotic pain medications, antihistamines, anti-inflammatories, steroids, and muscle relaxant drugs among many others. A study of 107 patients conducted by the Western Australian Poison Centre produced similar results, citing the use of 12 different first aid treatments.[7,11]

Current information on cnidarian sting care only provides recommendations, albeit inconsistent, for over-the-counter drugs and topical remedies. Few, if any, describe the intravenous drugs for more severe cases presented to emergency departments. With no established medications, emergency physicians appear to be resorting to treatment unspecific to cnidarian stings or administering drugs based on personal preference. Future consolidation of medications and a protocol for jellyfish stings used to treat stings will help to decrease cost for patients and streamline treatment in the ED.

Injury Severity and Associated Cost

A report by Currie et al. mentions a vast majority of patients presented to the ED with cnidarian stings suffer from local injury, but are not systemically poisoned.[12] The Straub study confirmed that most of the patients have normal vital signs and non-systemic injuries. More importantly, none were admitted to hospital after treatment in the emergency department. These statistics suggest cnidarian stings are a non-severe injury and may not warrant emergency services. But despite the apparent low severity, several expensive emergency services were administered in the Straub study, such as arrival by EMS and IV medications. In addition to the cost of physician examination, a single cnidarian sting treatment can become very costly for the patient.

To avert these expensive services, patients can be treated beachside with lower-cost, over-the-counter remedies that include oral medications or topical therapies. While a few available studies may disagree, there seems to be a general agreement on oral analgesics, topical acetic acid (vinegar), and hot compress in relieving pain. Although acetic acid will not neutralize the toxins that have already been fired, acetic acid will deactivate unfired nematocytes left behind by both box jellyfish and man-of-war tentacles.[3,7,13]

While there is some argument over the efficacy of heat, hot water immersions were shown to considerably reduce pain in clinical trials conducted with both box jellyfish and Portuguese man-of-war stings.[6-8] Heat is often prescribed in literature, citing its effect to denature polypeptide toxins beneath the skin and render the proteins harmless. In one prospective study by Nomura et al, box jellyfish sting victims reported a mean difference of 1.6 less pain on a 10 visual analog scale (VAS) when evaluating hot water treatment versus a comparison treatment of vinegar/meat tenderizer.[6] In a prospective study by Loten et al, involving Portuguese man-o'-war stings, the effectiveness of hot water immersions versus ice packs were compared. After 20 minutes of treatment, 87% of the hot water group reported lessened pain compared to 33% treated with ice and radiating pain occurred less at 10% and 30% respectively.[8]

Local injury caused by envenomation may be painful, but it certainly does not merit an emergency situation. To avoid a costly trip to the emergency department and the unnecessary use of resources, the Straub study recommends onsite treatment for marine envenomation. While this approach may not prevent all ED cases, treating stings immediately may significantly reduce pain and lessen the need for medical attention.

Limitations of Study

The scope of this study was limited to one emergency department near Waikiki, a tourist destination, and does not represent all tropical emergency departments. As a result, the types of patients and cnidarian species will differ with location. The species under study may be different from ones found on the mainland United States and other continents, thus treatments may also be different.

Future Directions

This study indicates that, although painful, cnidarian stings generally do not require extensive and costly Emergency Department treatment. Additionally, the Hawai'i non-resident demographic is especially prone to cnidarian stings and would benefit from a proactive sting prevention and education program, such as beach signs during jellyfish influxes, education of protective swimwear, and first aid and on-site treatment pamphlets. A community-based education effort can potentially decrease frequency, provide better outcomes, and lower costs of cnidarian stings in Hawai'i.

Conclusion

The results of this study show Hawai'i non-residents, men, and nighttime swimmers are the most at risk for cnidarian stings. Future

efforts should target these groups which may include education about jellyfish influxes and treatments. Hospital admittance rate and patient vital signs suggested cnidarian stings are rarely more than a minor affliction, but used costly emergency services for treatment. The study also revealed a variance in the treatment given by emergency physicians. An established treatment protocol or an algorithm may be able to combat the sheer number of drugs given in the ED. Furthermore, supplemental research is needed to address the efficacy of IV and topical/oral treatments. Hopeful outcomes of supplemental research are to reduce the number of sting patients presented and to streamline performance in the ED.

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Hawaiian: "Hana hou" / English: "Do it again; Encore"

Tobacco Dependence and the Management of Tobacco-Related Disorders: How John A. Burns School of Medicine is Preparing Our Future Physicians

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Tobacco use is the most significant modifiable risk factor leading to mortality, accounting for over 18% of total deaths in the United States.[1] Both the National Cancer Institute and the Agency for Health Care Policy and Research have recommended that all medical schools incorporate curriculum addressing smoking cessation and tobacco prevention strategies.[2] A survey published in 1999 showed that approximately 69% of medical schools did not require any clinical experience in smoking cessation, and the remaining 31% of schools averaged less than one hour of smoking cessation/tobacco prevention education across all four years of medical school.[2] Despite curricular improvements, training still remains suboptimal at many institutions.[3-5] In contrast, at the John A. Burns School of Medicine (JABSOM), future doctors are prepared to address the spectrum of tobacco problems, from educating Hawai'i's youth regarding the dangers of tobacco use and promoting prevention, to helping their patients with tobacco dependence, and treating the complications of long term tobacco use. These content areas are present throughout the curriculum in the form of Problem-Based Learning (PBL) cases, lectures, standardized patient encounters, clinical experiences, and community outreach programs.

PBL and Lectures

The main educational platform in the pre-clinical years at JABSOM is PBL. Each of the six PBL units in the first two years of medical school contains cases with content relating to tobacco dependence and/or the management of tobacco-related medical complications such as coronary artery disease, chronic obstructive pulmonary disease, and various cancers. In addition to learning about the pathogenesis and management of these tobacco-related problems, the students also learn a great deal about the behavioral aspects of tobacco dependence and how to work effectively with patients to help them with smoking cessation. The PBL cases in each unit are supplemented by six to eight hours per week of lectures. The lectures that accompany the tobacco-related PBL cases include topics such as "Smoking Cessation," "Motivational Interviewing," "Pathophysiology, Clinical, and Psychosocial Aspects of Addiction," "Pathology of Cancer," and "Endothelial Function and Mechanisms of Vascular Injury."

Standardize Patients and Clinical Experience

JABSOM along with many medical schools has started to utilize simulated patient encounters as a means to both teach and assess students in a standardized fashion. These standardized patient scenarios have proven to be an effective way to provide both supplemental clinical experiences as well as evaluate both clinical performance and communication skills.[6,7] The JABSOM Center for Clinical Skills is a state-of-the-art facility that is utilized in all four years of the curriculum to provide simulated patient experiences and examinations for our medical students. The center has a bank of over 20 patient scenarios related to smoking and smoking cessation. An example of one of these experiences occurs in the first year of the curriculum in which students are asked to counsel a patient about lifestyle modifications, including smoking cessation, as the patient recovers from a recent myocardial infarction. This experience is designed as a learning tool and the students receive feedback regarding their performance from faculty observing the encounter.

As a part of their Family Medicine clerkship in the third year, all students complete an online module focusing on tobacco dependence and smoking cessation. After completing the module, they are required to provide smoking cessation counseling for at least two of their clinic patients. The students then undergo Observed Structured Clinical Exams (OSCEs) at the end of the clerkship as a means to evaluate their competence in smoking cessation counseling.

Community Outreach Experiences

JABSOM students are extremely active in the community. Many of the outreach projects involve educating Hawai'i's youth about the dangers of tobacco use or helping the underserved fight their tobacco dependence. Three examples of these efforts are the School Health Education Program (SHEP), the Hawai'i Homeless Outreach and Medical Education (H.O.M.E.) Project, and the Tar Wars program.

The SHEP program is a joint venture between JABSOM and the State of Hawai'i Department of Education that places premedical and medical students into public high school health classes. The students serve as health educators and focus on six priority areas, one of which is tobacco awareness. The SHEP program has proven to be an effective means of educating high school students about health issues while providing the medical students with a valuable educational experience.[8] This year, the SHEP team of three medical students and one pre-medical student discussed the influence of tobacco advertising on perpetuating myths about tobacco with the 9th grade health class at McKinley High School. This led to a discussion on the health effects of long-term tobacco use and ways to effectively say "no" when offered a tobacco product. The session ended with an interactive quiz to test the high school students' acquired knowledge. Each student also received a take-home handout on how tobacco affects his or her body.

Smoking is a big problem among the homeless, with prevalence rates much higher than in the general population.[9] Managing tobacco dependence in this underserved population poses special challenges, including limited access to health care and the prohibitive costs of nicotine replacement tools and other pharmaceutical treatments. The Hawai'i H.O.M.E. Project provides free student-run medical clinics at three homeless shelters on the island of O'ahu each week. Medical students from all four years participate in the care of patients under

the supervision of faculty and volunteer community physicians. One of the services provided is a smoking cessation program, targeted at those patients that have had difficulty accessing other smoking cessation resources. The students provide weekly counseling and support for patients trying to quit smoking and are able to offer free pharmaceutical treatments such as buproprion and various forms of nicotine replacement. While the smoking cessation success rates of this program have not been formally evaluated, similar programs at other student-run homeless clinics have been shown to be highly effective and beneficial for both the patients and the students involved.[9,10]

Each day in the United States, more than 3,500 children try their first cigarette and around 1,000 of them will become regular smokers.[11] The Tar Wars program was developed by the American Academy of Family Physicians to educate children about the dangers of tobacco use and to encourage them to make positive decisions regarding their health and well-being. Through the Family Medicine Interest Group at JABSOM, students in all four levels of training go out to 4th grade classrooms throughout the State to engage children in this tobacco awareness program. The program is interactive and includes activities that focus on the short-term and image-based consequences of tobacco use, the cost associated with using tobacco products, and the advertising techniques used by the tobacco industry to market their products to youth. The medical students and the 4th grade students both give the Tar Wars program high ratings on evaluations and nationally the program has shown positive and sustained improvements in students' knowledge and attitudes of the health effects, cost, and image distortion associated with tobacco use.[12,13]

Summary

Tobacco dependence, smoking cessation/prevention, and tobacco-related illnesses are prominently addressed throughout the JABSOM curriculum. JABSOM students are gaining the knowledge and experience they need to be effective counselors and providers for their patients facing tobacco dependence and the medical consequences of this addiction problem. Future efforts can be directed towards evaluating the effectiveness of the current curricula and developing curricula targeted at special populations.

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Hawaiian: "Pau hana" / English: "Quitting time for work"

Recruiting Cancer Survivors for an Online Health-Behavior Change Intervention: Are Different Strategies More Beneficial?

Gabriela Layi MPH; Cheryl A. Albright PhD, MPH; Jeffrey Berenberg MD; Katy Plant MPH; Phil Ritter PhD; Diana Laurent MPH; Kate Lorig DrPH, RN; and Erin O. Bantum PhD

Introduction

Due to advances in medical treatment and screening, in the United States alone, there are over 12 million people who have survived cancer.[1] Although these numbers demonstrate marked improvement, they also suggest that many people live with side-effects from treatment.[2] Diagnosis and treatment have been described as a "teachable moment,"[3] in that many people are interested in positively impacting their health.

In attempting to provide services for people outside of urban settings where support may be more readily available, online interventions can prove to be useful. In addition, many people who have survived cancer have physical limitations that make participating in an online intervention a desirable option. Recent advances in the use of social media have set the stage for both the creation of online interventions involving social networking, as well as potential mechanisms for recruitment.

The University of Hawai'i Cancer Center (UHCC) and Tripler Army Medical Center (TAMC) partnered with Stanford University (SU) to modify and test a web-based patient-education intervention developed specifically for cancer survivors to help survivors adopt positive lifestyles to improve their quality of life and cancer related outcomes. The web-based intervention was based on the highly successful Internet Chronic Disease Self-Management (CDSMP) program developed by Kate Lorig.[4]

The purpose of this paper is to compare the various recruiting methods utilized and assess the effectiveness of website recruitment versus recruitment through community settings and tumor registry-based targeted mailings.

Methods

The study protocol was approved by the Human Use Committee at Tripler Army Medical Center. Investigators adhered to the policies for protection of human subjects as prescribed in 45 Code of Federal Regulation 46.

Brief Description of Parent Study

The Thriving and Surviving with Cancer intervention consisted of 6-week workshops that included 20-25 participants, led by two people who had also survived cancer. Each week participants were invited to independently engage in materials related to a number of health behaviors (ie, diet, exercise, and stress management) by reading materials and identifying a health behavior that they would like to change. This information was posted so that all participants could see and were encouraged to provide feedback to fellow participants.

Eligibility criteria included cancer survivors who were diagnosed within the previous five years, had completed primary cancer treatment, did not presently have cancer recurrence or a second primary, were not pregnant, were 18 years or older, and had access to the Internet. Due to IRB policy, participants from TAMC filled out the screening materials online and were then mailed an informed consent. All institutions obtained IRB approvals to recruit participants through various means.

Recruitment Sources and Results

Between September 2009 and April 2010 a total of 352 subjects were screened and recruited to participate in this randomized-controlled study. The University of Hawai'i/TAMC collaboration recruited 146 participants and Stanford University recruited 206 participants. The mean age of participants was 52 years (± 10.2), and eighty-two percent were women. The ethnic distribution was 85% Caucasian, 5% Asian, 2% African American, 1% American Indian/Alaskan Native, 1% Native Hawaiian/Pacific Islander (see Table 1 for more details).

HAWAI'I

Traditional Recruiting Efforts

For the initial four months of recruitment traditional recruitment methods were utilized. These included distributing brochures to numerous oncology offices (approximately 700), oncology nurses describing the intervention to potential participants in these offices, recruiting at local events geared towards people who had survived cancer (eg, Relay for Life), and attendance at local face-to-face support groups. Health care providers on the islands of Hawai'i, Maui, and Kaua'i agreed to identify subjects for the study, which included mailing brochures to those islands. Through all these efforts 25% (n=36) of Hawai'i participants were recruited.

IRB approval for use of the Tripler Tumor Registry was also received. It took two months to obtain approval and mail letters to eligible subjects. These letters were signed by one of the principal investigators who is a treating physician at TAMC. Over 800 eligible subjects were identified and sent invitation letters. Sixty-one people expressed interest, and of these 22 enrolled in the study (6.3% of total sample).

Online Recruiting

After four months of recruiting via more traditional methods, efforts were refocused to online recruiting. The Association of Cancer Online Resources (ACOR) posted a standardized message, and approximately 34% of the Hawai'i sample was recruited through this resource. About 34% of participants recruited through Hawai'i's study web-link came from ACOR. In addition, 169 Facebook group administrators (115 cancer related groups and 54 non-cancer groups), of which 50 (29.6%) agreed to post an announcement on their Facebook page. Adminstrators of cancer-related pages were more likely to respond to our request (38%) than non-cancer groups (11%).

Table 1. Participant Demographics		
Age	52 yrs (SD 10.2)	
Race/Ethnicity		
Caucasian	85%	
Asian/Pacific Island	5%	
Black	2%	
Hispanic	4%	
Native American	1%	
Other	3%	
Time since Diagnosis	2.3 yrs (SD 1.3)	
Married	66%	
Female	82%	
Cancer Type	n	% Total
Breast	167	47%
Ovarian/Endometrial/Uterus	45	13%
Colon	23	7%
Non-Hodgkin's Lymphoma	20	6%
Prostate	14	4%
Lung	15	4%
Sarcoma	13	4%
Oral	11	3%
Kidney/Renal	9	3%
Other	22	6%

A few additional sites (ie, yahoo group) posted the recruitment message, although very few participants indicated this as their source of recruitment.

STANFORD UNIVERSITY

Stanford posted announcements on 36 Facebook groups, many of which also had a Twitter presence (all cancer related). In addition, twenty-eight blogs of cancer survivors and forty yahoo groups posted the recruitment message. Stanford also put out a national press release that was then featured on additional websites. CureToday.com is an online magazine that is very successful in finding participants. Cure highlighted the study in their blog, Twitter, and Facebook pages, as well as through the mail, and this one strategy led to approximately 41% of the Stanford sample. In addition, many participants indicated hearing about the study on other online sites that most likely learned about the study from the CURE posting. Stanford recruited from September 2009 through February 2010. They had 356 interested in the study, 31 disqualified, and 119 never responded to the invitation after leaving their name on study site.

Overall, approximately eighty-one (76%) of participants were recruited from Internet websites and social media channels such as Facebook, Cure, and ACOR list serves. The remaining 24% were recruited from oncology offices, support groups, tumor registry, and word-of-mouth.

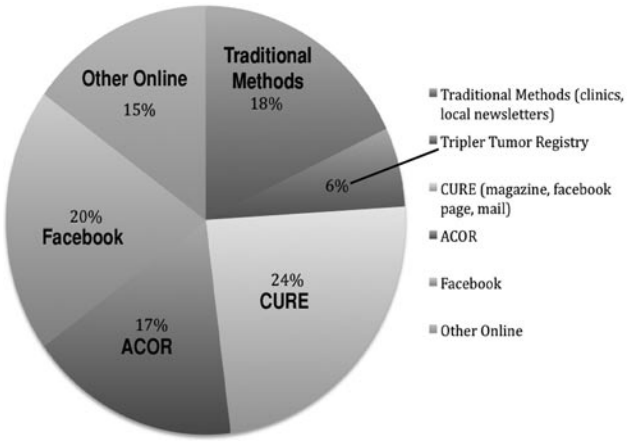

Figure 1. Percentage of Total Sample Recruited by Each Method

Conclusions

Although recruitment efforts were quite varied, traditional office/clinic based were much less efficient and effective than online recruitment efforts—particularly for an online health behavior intervention. Social media has limitations in that it draws from a selective group and not from a broader population, which can be demonstrated by the current sample being rather homogenous in terms of ethnicity. Web-based recruitment may result in a more restricted demographic than intended, which is important to keep in mind when designing online intervention studies.

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THE WEATHERVANE

RUSSELL T. STODD MD, CONTRIBUTING EDITOR

❖ OUT WITH THE OLD AND IN WITH THE OLDER.
Each year about 300 000 people in the United States are hit with cardiac arrest. Of these, 125,000 are found too late for any help. With cardio-pulmonary resuscitation (CPR) and defibrillation many patients get to the emergency department, but fewer than 10% of victims ever leave the hospital. Only a minority have sufficient brain function to return to normal life. A "new" modality is on the scene. Numerous studies over the past decade have shown that cold treatment after sudden cardiac arrest greatly improves survival rate. Perhaps more important, cognitive damage is much less in surviving patients when core body temperature is kept at 91˚ F. for 24 hours after the arrest, then slowly brought back to normal. The Minneapolis Heart Institute reported that of 140 unresponsive heart-attack patients treated with hypothermia, 56% survived and left the hospital, and 92% of them retained normal brain function. Therapeutic hypothermia has been used since days of antiquity. Hippocrates, arguably the first enlightened physician, wrote that wounded soldiers should be packed in snow and ice. The current evidence for therapeutic hypothermia is so overwhelming it should be part of the standard package of emergency therapy for cardiac arrest.

❖ HERE'S A GOOD RULE OF THUMB: BEING TOO CLEVER IS DUMB.
Dr. Lazar Greenfield, Professor Emeritus of the University of Michigan School of Medicine, was the president-elect of the American College of Surgeons (ACS). With 77000 surgeon members, the ACS is the largest organization of surgeons in the world. Dr Greenfield wrote a Valentine's Day editorial for the ACS newspaper in which he referred to a scientific study that described semen as a "mood enhancer" for college women. The study described college women who had unprotected sex as less depressed than those with partners who used condoms. Dr. Greenfield wrote, "So there's a deeper bond between men and women than St. Valentine would have suspected, and now we know there is a better gift for that day than chocolates." A firestorm ensued with the membership divided, and the backlash forced the doctor to resign his leadership role. He claimed he was merely making a joke, and deeply apologized to the ACS board of directors. They rejected his attempt to make amends. What a sad final chapter for the distinguished, highly respected 76-year-old professor.

❖ IF AT FIRST YOU DON'T SUCCEED, TURN THE EVIDENCE INTO PLASTIC.
Associate Professor David Bressler at the University of Alberta, Department of Agricultural Food and Nutritional Science, led a team of researchers to forge waste-cattle proteins into heavy-duty plastics. The raw materials are discarded parts of carcasses that were sidelined from beef production because of bovine spongiform encephalopathy (mad-cow disease). Using high temperatures, the bovine proteins are broken into small molecular components then cross-linked to other protein molecules to create a rigid structure. Dr. Bressler believes that these bio-friendly plastics are poised to become an innovative resource for the plastics industry. The project offers the opportunity to make use of renewable material and help send value back to rural Alberta's devastated beef sector.

❖ SOMETIMES THE DOCTOR IS THE DISEASE.
Dr George Reardon, was the chief of endocrinology at St. Francis in Hartford, Connecticut, from 1963 to 1993. In 1970 a parent issued a complaint stating that Dr Reardon had sexually abused her child at the St. Francis Medical Center. The matter was referred to the local medical society. Dr Joseph Sadowski, a neuro-surgeon and colleague of Dr Reardon's on the staff at St. Francis, was chairman of the medical society committee on medical ethics and deportment. He handled the complaint, but disposition was not recorded and both Drs Sadowski and Reardon are now deceased. In 1993 the Connecticut medical board revoked Dr Reardon's license after investigating four complaints of child abuse. The medical center claimed that they had no knowledge of the alleged child abuse before the license revocation. In November 2007, a home-owner renovating Dr Reardon's former house, found a cache of sexually-explicit pornographic material of children under his care. The doctor had collected a monstrous file of 50 000 thirty-five mm. slides and 100 eight mm movie reels. When news of the police investigation hit the media, a storm of complaints rained in on St. Francis from adults who remembered being abused, but were too ashamed or frightened at the time to tell anyone. Now at least 135 law suits are in the hopper with multi-millions of dollars at risk for the hospital and insurance carriers. Does the leadership at St. Francis truly expect that anyone would believe no doctors, nurses, office staff or board members ever questioned the grotesque "research" this pervert was carrying on for over thirty years in their hospital?

❖ IF SEAT CUSHIONS ARE GREAT FOR FLOTATION, WHY DON'T PEOPLE TAKE THEM TO THE BEACH?
On every airplane flight the Federal Aviation Administration (FAA) requires that carriers hit the basic points of passenger air safety. Seat belts, oxygen masks, water landings, exit doors and more, must be presented to an audience of bored frequent flyers or novice travelers ready to freak out. The creative challenge is how to get the message across. Southwest Airlines uses a wise-guy approach with one-liners like, "If you haven't been in a car since 1957, this is a seat belt..." Virgin America features an animated buck-toothed nun struggling to put away her electronic gear and a matador seated next to a bull. Turkish Airlines has a video of soccer stars goofing around by inflating life jackets while the announcer is saying, "Hey, that's not a toy." The hands-down winner for grabbing the passengers attention is Air New Zealand. This airline produced a video called "The Bare Essentials" starring bare-ass, stark-naked employees. They are all dressed in precisely and carefully painted-on complete uniforms, including kerchief ruffles. Let's all take a trip to Auckland.

❖ BEER IS MUCH CHEAPER THAN GASOLINE. DRINK, DON'T DRIVE.
Two economists writing in the Journal of Economic Perspectives, published a study on "The Minimum Legal Drinking Age and Public Health." Collecting data from the National Vital Statistics System from 1997-2003, they found an eight percent jump in deaths from the age of 20 to 21. The two important categories in which deaths jumped were motor vehicle collisions and suicides. They also studied mortality from 1975- 1993 in states (eg, Hawai'i) that lowered their drinking age to eighteen during the 70s and 80s. When compared to neighboring states that kept drinking age to twenty one, the 18 to 20 year-olds displayed a 17% increase in nighttime driving deaths in that category. While many flout the 21 years drinking age law, their data show that alcohol laws do have a positive influence on behavior.

❖ CAN THE INSTITUTE OF MEDICINE WAKE UP MEDICARE?
Writing letters to politicians (read Hawai'i's dynamic Dans) about Medicare's meager coefficient for Hawai'i physician reimbursement has proven to be useless. Now the Institute of Medicine (IOM) has taken notice of these unfair medical costs and reimbursements. The IOM stated bluntly that Medicare's methods of calculating regional costs are inaccurate and must be redone. Medicare needs to "make a significant change" regarding real estate costs and salaries of health care workers. Add in the premium price of groceries, petroleum and utilities, plus the income tax, property tax, gasoline tax, and the super-ugly, all-inclusive gross excise tax, and it equates to a physician recruiting challenge without hope of relief.

❖TASTES A LOT LIKE CHICKEN, BUT A TRIFLE SCALY.
A clumsy smuggler lost control of his cache of king cobra snakes that he was transporting by train from Ho Chi Minh City (nee Saigon) to restaurants in Hanoi. After panic broke out on the train the snakes were collected and placed in a sanctuary, much to the smuggler's chagrin. Upscale restaurants charge up to $500 for cobra dinners, including selection of the snake, having it killed at the table-side and using the snake's blood as an appetizer. About 85% of restaurants in Hanoi serve illegal wild animals of some kind, including weasel, monitor lizard and porcupine. Hey, you could pick your teeth with a quill.

ADDENDA
❖ According to a recent commentary in *JAMA*, only 8.3% of Americans over age 65 are still smoking.
❖ The 8th month of the modern day calendar was originally known as sextilis until it was renamed in honor of the emperor Augustus.
❖ In Los Angeles, California, the police conducted a line-up for possible criminal identification. When the suspect was told to say the words, "Give me all your money or I'll shoot," he responded, "That's not what I said."
❖ All politicians should be limited to two terms; one in office, one in prison. Illinois already does this.

ALOHA AND KEEP THE FAITH **rts**■ *(Editorial comment is strictly that of the writer.)*