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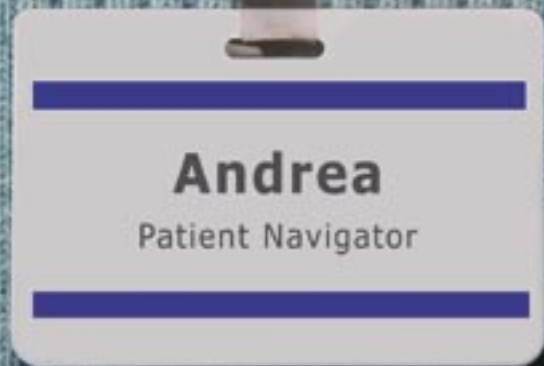


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LETTER TO THE EDITOR

Dear Dr. Guerrero,

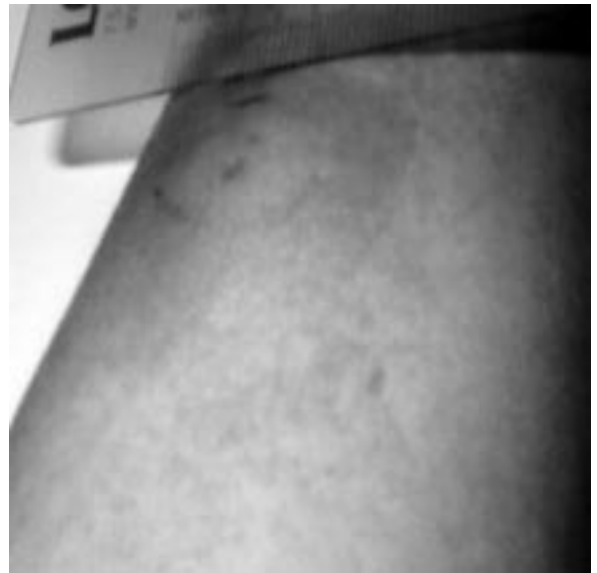
I recently noted your May 07 article in HMJ on centipede bites. Good article. Having practiced for many years in a plantation community, I have probably seen a hundred centipede bites, plus having had a couple myself.

In your treatment suggestions, the one thing that did the most good is missing.

We always injected .25 or .50 ml of local anesthetic right into the bite, between the fang marks. This provides immediate relief of the pain, and if the mix contains a vasoconstrictor, probably slows the spread of the venom, reducing systemic reactions to the bite.

Try this on the next one. You'll like it.

Frank L. Tabrah MD



Photograph of the initial appearance of the centipede bite.



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Traumatic Brain Injury: Outcomes From Rural and Urban Locations Over a 5-Year Period (Part 1)

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Abstract

The national death rates from rural trauma are disproportionately higher compared to urban areas. Traumatic brain injury is a major cause of hospital admissions in Hawai'i. This is the first in a two part series to explore this significant public health concern. Data on traumatic brain injuries from 2000-2004 was obtained from 2 sources. Male gender, alcohol use, and lack of protective devices resulted in higher rates of injury. Rates of severe injury were higher in young adults, the elderly, and in rural locations, but rural mortality rates here did not differ compared to urban settings. The greatest potential to reduce morbidity and mortality resides in the formulation and implementation of preventive strategies.

Introduction

Approximately 21% of the US population resides in rural areas where the death rate from trauma is disproportionately high.¹⁻⁶ While the rates of pedestrian injuries are elevated in urban areas, the fatality rates are much higher in rural communities even when controlling for speed, age, and gender.⁵ The accident scene time and transport time are as much as 2 times longer in rural locations and twice as many patients die at the scene compared to urban areas.^{2,5,7-10} Additionally, many prehospital care providers are volunteers placing rural populations at a distinct disadvantage compared to urban populations serviced by advanced life support trained providers.^{11,12} Emergency department physicians in rural regions see fewer trauma victims than in urban centers, rendering limited opportunities for training and maintaining skills. Advanced Trauma Life Support interventions have been shown to improve survival for severely injured patients at rural hospitals,¹³ but these are not consistently practiced.^{14,15}

The population of Hawai'i is approximately 1.2 million according to the 2000 US Census Bureau.¹ Accordingly, slightly over 100,000 individuals live in rural areas of Hawai'i. Only Honolulu County meets the US Census criteria for an urban categorization.

The estimated cost of traumatic brain injury (TBI) per year in the United States is 37 billion dollars.¹⁶ The incidence of TBI appears to be increasing and costs are expected to rise in proportion. Age groups most affected

are 15-24 year olds and those >75 years of age.¹⁶ TBI patients ≥ 65 years of age are more likely to die in the hospital, or require long-term care, and have the longest lengths of stay.

To establish guidelines and quality assurance measures for TBI patients in Hawai'i's rural regions, an understanding of the characteristics and demographics of these areas is imperative. The aim of this study was to determine the mortality rate and to evaluate the epidemiology of TBI patients admitted to the only American College of Surgeons verified trauma center in Hawai'i, the Queen's Trauma Center in Honolulu. It is anticipated that this preliminary analysis will lead to further investigations to elucidate causation and to evaluate the benefits of intervention strategies.

Methods

A retrospective review of a university-affiliated, tertiary care medical center trauma database and the database of the largest medical insurer in Hawai'i (56% of the population) was performed for the period comprising January 2000 through December 2004. The Queen's Medical Center and the University of Hawai'i Institutional Review Boards approved this study.

The sample included patients diagnosed with TBI treated at any hospital in the state of Hawai'i. International Classification of Diseases 9th Revision (ICD-9) diagnostic codes were used to identify subjects: 800.0-801.99, 803.0-804.99, 850-854.19, and 959.01.

Age, gender, race, mechanism of injury, protective device use, Glasgow Coma Score (GCS), Revised Trauma Score (RTS), Trauma Injury Severity Score (TRISS), and systolic blood pressure on admission were obtained from the Queen's Trauma Center's database. Length of stay, cost of hospitalization, cost of intensive care unit (ICU) stay, and survival status were obtained when available. Patients who underwent a neurosurgical procedure, defined by placement of an intracranial monitor, craniectomy, or craniotomy, were also noted. Illicit drug, alcohol, coumadin, aspirin, or clopidogrel use was considered since that these medications may alter normal clotting mechanisms and affect an intracranial bleed.

If a patient had 2 admissions during the study period, only the first admission was included in the analysis as the outcome of the first injury may influence the second admission and confound data interpretation. Urban was defined according to US Census criteria, and only Honolulu County met the criteria for an urban setting. Rural was therefore defined as any jurisdictions outside of Honolulu County. Protective device use was defined as use of seatbelts, airbags, or a helmet, and was only evaluated in cases where it could have been used. Hence, seatbelts and airbags were relevant for motor vehicle crashes/accidents; and helmets were applicable to motorcycles, scooters, and bicycle related injuries. The total cost of treatment was derived from the insurance carrier's charges only.

In-hospital mortality rates for patients transferred from rural areas were compared to those admitted from urban areas using the chi-square test. Factors associated with mortality were evaluated using logistic regression models. Chi-square tests and logistic regression models were employed to compare patients with severe head injuries to those with mild to moderate injuries. Explanatory variables in the models included age, gender, transfer data, blood pressure, mechanism of injury, protective device status, payer status, time spent at the outlying hospital, intubation status, TRISS, RTS, GCS, length of ICU stay, toxicology profile, and anticoagulation use.

Descriptive statistics were used to summarize patient characteristics (means and percentages for categorical data and means and standard deviations for continuous data). Categorical data were compared using the chi-square test. Continuous data were compared using the t-test. The incidence of TBI during the study period was reported as number of cases per hospital admissions. A p-value ≤ 0.05 was considered significant. SAS Enterprise 3.0 (Heidelberg, Germany) was used to perform the statistical analysis.

Results

There were 3447 patients diagnosed with TBI treated at the trauma center (Table 1). Mean age was 36.6 ± 20.9 years; mean GCS at the scene and on admission was 12.5 ± 3.8 , and 13.1 ± 3.5 , respectively. Peak frequency of injuries was in the group of patients aged 19-30 years. Overall mortality for patients with a TBI was 9.1%. Twenty-five percent of treated patients were women and 10.4% of injuries occurred in rural locations. There was no difference in mortality between rural (10.6%) and urban (9.0%) patients. A blunt mechanism was the most frequent cause of injury (98.8%).

Of the 1050 patients in the insurance company's database, mean age was 66.3 ± 25.8 years. There were 14.6% deaths in this cohort. Thirty-nine percent were women and 30% occurred in a rural location. Only 1.4% of patients in this database were transferred to the trauma center for tertiary care.

Using logistic regression, the lower the GCS score,

the higher the odds of death. Moreover, hypotension, penetrating trauma, and lack of use of protective devices were associated with death. Rural location of injury showed a trend towards higher death rates but this did not achieve statistical significance.

The patients with severe head injuries from the trauma center database were those patients identified with a GCS of 3-8 at the scene or on admission. When comparing the total TBI group with the sub-group of severe TBI patients, there were no differences in gender ($p=0.07$), ethnicity ($p=0.17$), anticoagulation status ($p=0.22$), or transport time ($p=0.45$). There was a higher percentage of elderly ($p=0.03$), rural patients ($p<0.001$), patients with abnormalities in blood pressure at the scene ($p<0.001$), patients who required a neurological procedure ($p<0.001$), longer length of ICU stay ($p<0.001$) and total hospital stay ($p<0.001$), and a higher mortality rate in the sub-group of severe TBI patients (34.2% vs. 3.9%, $p<0.001$). This cohort was less likely to have used protective devices ($p<0.001$), more likely to have used alcohol ($p<0.001$) or other drugs ($p<0.001$), and had significantly lower TRISS ($p<0.001$) and RTS ($p<0.001$) scores. A rural location did result in higher odds of having a more severe injury.

Of the 1570 patients screened for illicit drug use 56.0% tested positive. O'ahu had higher drug use in every category compared to the other locations, with minimal testing performed in other regions of the state (72.2% on Hawai'i, 70.3% on Kaua'i, 100% on Lana'i, 84.2% on Maui, and 52.9% on Moloka'i not tested). Subjects who tested negative for drugs had 6.2% mortality; while those testing positive for cannabis, narcotics, methamphetamine, and benzodiazepines had 3.2%, 3.9%, 4.4%, and 10.9% mortality rates, respectively. This achieved statistical significance ($p<0.001$). Men comprised 77% of methamphetamine users and 56% were 31-50 years of age. Hawaiian, Pacific Islander, and non-Caucasian ethnicity demonstrated the highest usage of methamphetamine.

In the trauma center database 22.5% consumed alcohol prior to their injury while only 4.0% of the insurance company's patients indicated usage. More males (25.9%) than women (12.7%) used alcohol. O'ahu and Moloka'i had the highest rates of alcohol usage. Pacific Islanders were the most common ethnic group to use alcohol. Mortality rates were lower in those who did not drink alcohol (10.5% vs. 4.4%; $p<0.0001$). However, in the regression model patients using alcohol had lower odds of death.

The insurance carrier's database was analyzed for severe injury using those patients with a length of stay of less than 48 hours as a surrogate for severity scores. The rationale for this was that this administrative database did not capture injury severity scores. Thus, in order to quantify injury severity for a meaningful analysis, this surrogate was selected. Most critically injured patients who expire within 48 hours of hospital admission do

Alyssa D. Chapital MD, MS, FACS, was supported in part by NIH grant R25 RR019321.

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Epidemiology of Traumatic Brain Injury in Hawai'i		
	n = 3447	Insurance Database n =1050
Age (years)		
0-18	587	101
19-30	1093	52
31-50	950	101
51-70	470	133
71-106	344	663
Mean (+S.D.)	36.6 + 20.9	66.3 + 25.8
Gender		
Female	874	414
Island		
O'ahu	3089	732
Rural	358	318
Drug Use (n =1570)		
None	692	-----
Cocaine	47	-----
Methamphetamine	248	-----
Cannabis	126	-----
Opioids	128	-----
Benzodiazepines	220	-----
Other	39	-----
Alcohol	777	42
Transport Time (minutes)		
<30	12.0 %	-----
31-60	61.9%	-----
> 60	26.1%	-----
Neurological Procedure		
Yes	6.1%	-----
Mechanism of Injury		
Blunt	3403	-----
Penetrating	41	-----
Transfers	358	15
Death Total	315	153
O'ahu	277/3089	119/732
Rural	38/358	34/318

so secondary to severe TBI or hemorrhagic shock. There were no differences in gender, age, location, or alcohol use between groups. Mean costs of care for this group of patients were \$14,156 per patient and totaled \$14,863,645 over the study period.

Discussion

Hawai'i's geography and transportation system delay access to the state's only trauma center. Rural patients often must rely on fixed wing air transport and transport times can be a challenge for TBI patients requiring urgent care. Variable weather conditions, a relatively common occurrence, can further delay transport. In this context, the present study was initiated with the goal of identifying factors that affect outcome in rural TBI patients. Evaluating TBI patients using the two databases provided the distinct advantage of reviewing those patients in the trauma database with clinical indicators of severity as well as those patients who may not have been successfully transported to, or those patients who may not have needed, the higher level of care provided by a trauma center.

More than 5000 patients are evaluated annually for TBI in Hawai'i.¹⁷ The annual number of TBI admissions ranged from 1300 to 1500 in 2000-2003 and has been increasing yearly. Only 9% were non-residents. Almost 50% of these patients were treated at the trauma center. Our analysis revealed that 10.4% were from rural regions. There were more rural patients with lower GCS scores compared to patients from urban locales indicating a disparity in severity of disease.

The severity of illness was assessed by the RTS and TRISS. Both scores have demonstrated accuracy in predicting death.¹⁸⁻²¹ RTS did not discriminate rural versus urban mortality. TRISS scores of <25% were noted to be prominent in rural patients, predicting lower rates of survival. Additionally, rural patients required transfer to the trauma center in 70% of instances for higher level care and treatment.

This study confirmed an increased number of severely injured patients from rural regions, but a higher mortality rate was not correspondingly found. Indeed, the Hawai'i State Department of Health (DOH) also was unable to identify a disparity in mortality.¹⁷ Lack of resources, such as a rural trauma center, trauma trained personnel, or availability of helicopter transport, apparently did not impact TBI patient outcome in this analysis. Furthermore, increased transport times did not result in a higher mortality as would be expected. The explanation for these findings is unclear. Perhaps using GCS scores to define severe injury were confounded by the addition of intoxicated patients, those who utilized illicit drugs, or those who used drugs such as benzodiazepines. That could result in a lower than predicted death rate. The GCS at the accident scene and at the referring institution is unfortunately not always recorded. Comparisons of GCS scores during transfers may shed light on the role

of alcohol or illicit drugs, particularly if significant improvement is documented during this time period. Also, patients who were more severely injured might have been transported in a more expedient fashion decreasing the transport time for this subgroup, although aggregated data failed to substantiate this. Another limitation is that this data did not include deaths that may have occurred at the scene, which could represent more severely injured patients who had delayed discovery due to the greater distances of uninhabited terrain and lack of ground transport availability, such as on the island of Hawai'i. This information was often difficult to obtain as many of these victims did not have an autopsy proven cause of death.

The use of protective devices occurred in only 22.1% and those who did not use these devices had higher odds of sustaining a severe injury and dying. This suggests a deficit in education and outreach in Hawai'i. For instance, Hawai'i remains one of 20 states that exempt adult riders from wearing helmets while operating a motorcycle. There are higher rates of TBI and mortality where no mandatory helmet laws exist.²²⁻²⁴

Men were more frequently injured, penetrating trauma was infrequent, and a blunt mechanism was the most common etiology, consistent with national indices.²⁵ Falls were the most common cause of injury followed by motor vehicle accidents, including motorcycles. Nationally, children and older adolescents were more likely than other age groups to sustain a TBI, but the trauma center's data showed higher rates in the group of patients aged 19-30 years. For this group the most common cause of TBI was motor vehicle accidents, similar to national indices for this age group. All datasets, including the DOH, corroborated elevated rates in the elderly, particularly those over 65 years of age.¹⁷ This may reflect the higher percentage of individuals age 65 years and older in Hawai'i, as compared to many other states¹. For this group of patients the most common cause of TBI was falls, followed by motor vehicle accidents, similar to national indices. This cohort of patients were characterized by longer hospitalizations and increased mortality rates when compared to younger patients probably due to more co-morbid conditions and less physiologic reserve.^{25,26} The elderly population is predicted to double in Hawai'i by 2030, which will have profound implications for the provision of health care to these patients.

Alcohol was associated with more severe degrees of injury based on GCS. This finding could be attributed to inclusion of patients who were only intoxicated, without pathological injury, but with resultant abnormal GCS scores. It was difficult to differentiate this in a retrospective study. Nonetheless, alcohol is associated with increased risk of TBI nationwide and this represents a legitimate target for intervention purposes. Unexpectedly, there appeared to be a protective effect with use of alcohol as this group had lower mortality. This is not a new phenomenon. It has been shown that ethanol inhibits N-methyl-D-aspartate excitotoxicity that increases neuronal death after trauma.²⁷ Ethanol may also have an effect on reducing contusion volume.²⁸

Methamphetamine is an illegal stimulant and its use in Hawai'i is amongst the highest in the United States.²⁹ Of the patients treated at the trauma center 15.8% were found to have used this drug. Unlike alcohol, there was no association with severity of injury or mortality. This drug results in erratic and sometimes violent behavior which has implications on etiology in the TBI patient, and which may also affect the associated GCS score.

The mortality rate for the severely injured in Hawai'i remains high. Male gender, alcohol use, and lack of use of protective de-

vices resulted in higher rates of TBI. This study had the advantage of access to the state's largest health insurer's database and the database of its trauma center. However, the retrospective nature of this study relied on reporting of ICD-9 codes performed by billing personnel to diagnose head injury; and the lack of uniformity in the 2 databases suggests the need for caution in interpreting these results. Regarding the insurer's database, the lack of injury severity scores is a limitation of this study, and although length of stay less than 48 hours was selected as a benchmark, we acknowledge that there is no perfect surrogate for injury severity scores. Moreover, it should also be emphasized that the lack of complete neighbor island data regarding the severity of trauma seen by their hospitals possibly biased some of the results. Nonetheless, including mild TBI patients in this analysis allowed some insight into the number of patients that may benefit from follow-up outpatient intervention and treatment programs. This preliminary analysis provides justification for prospectively collecting TBI data and initiating outreach and prevention programs throughout the state, with particular emphasis directed towards rural constituencies.

References

1. U.S. Census Bureau American Fact Finder. Profile of General Demographic Characteristics: 2000. Available at: www.census.gov. Accessed September 2007.
2. Rogers FB, Osler TM, Shackford SR et al. A comparison: in hospital trauma deaths in mature urban vs. rural trauma system. *Arch Surg* 1997;132:376-382
3. Rogers FB, Shackford SR, Osler TM, et al. Rural Trauma: The challenge for the next decade. *J Trauma*. 1999; 47(4):802.
4. Baker SP, Whitfield RA, O'Neill B. Geographic variations in mortality from motor vehicle crashes. *N Engl J Med*. 28 May 1987;316(22):1384-7.
5. Mueller BA, Rivara FP, Bergman AB Urban-rural location and the risk of dying in a pedestrian-vehicle collision. *J Trauma*. 1988;28(1): 91-4.
6. Peek-Asa C, Zwerling C, Stallones L. Acute Traumatic Injuries in Rural Populations. *Am J Public Health*. 2004;94(10):1689.
7. Trunkey DD. *Trauma*. Sci AM. 1983;249:28-53
8. Grossman DC, Kim A, Macdonald SC, et al. Urban-rural differences in prehospital care of major trauma. *J Trauma*. 1997;42(4):723-729.
9. Esposito TJ, Maier RV, Rivara FP, Pilcher S, Griffith J., Laear S, Hogan S. The impact of variation in trauma care times: urban versus rural. *Prehospital Disaster Med*. 1995;10(3):161-6.
10. Trevillyan J, Abbott J, Dixon M, et al. Trauma deaths in a rural area. *J Ark Med Soc*. 1998; 95(7):290-3.
11. Bradley JS, Billows GL, Olinger M et al. Prehospital oral endotracheal intubation by rural basic emergency medical technicians. *Ann Emerg Med*. 1998; 32(1):26-32.
12. Svenson JE, Spurlock C, Nypaver M. Factors associated with the higher traumatic death rate among rural children. *Ann Emerg Med*. 1996; 27(5): 625-32.
13. Hedges JR, Adams AL, Gunnels MD. ATLS practices and survival at rural level III trauma hospitals, 1995-1999. *Prehosp Emerg Care*. 2002; 6(3):299-305.
14. Esposito TJ, Sanddal TL, Reynolds SA et al. Effect of a voluntary trauma system on preventable death and inappropriate care in a rural state. *J Trauma*. 2003; 54(4): 663-670.
15. Olson CJ, Arthur M, Mullins RJ et al. Influence of trauma system implementation on process of care delivered to seriously injured patients in rural trauma centers. *Surgery*. 2001; 273-279.
16. Khan S, Khan A, Feyz M. Decreased length of stay, cost savings and descriptive findings of enhanced patient care resulting from an integrated traumatic brain injury program. *Brain Injury* 2002; 16(6): 537-554.
17. Galanis, Dan. Overview of Traumatic Brain Injury among Hawai'i residents. Injury Prevention and Control Program. Hawai'i Department of Health. dgalani@mail.health.state.hi.us
18. Baker SP. The injury severity score: a method for describing patients with multiple injuries and evaluating emergency care. *J Trauma*. 1974; 14:187-96.
19. Champion HR et al. A Revision of the Trauma Score. *J Trauma*. 1989; 29:623-9.
20. Boyd CR et al. Evaluating Trauma Care: The TRISS Method. *J Trauma*. 1987; 27:370-8.
21. Champion HR et al. Coefficients update. *J Trauma* 1995 Editorial Comment. 38:94-5.
22. Muller A. Florida's motorcycle helmet law repeal and fatality rates. *Am J Public Health*. 2004; Apr 94(4): 556-8.
23. Ho EL, Haydel MJ. Louisiana motorcycle fatalities linked to statewide helmet law repeal. *J La State Med Soc*. 2004; May-Jun 156(3):151-2, 154-5, 157.
24. Bledsoe GH and Li G. Trends in Arkansas motorcycle trauma after helmet law repeal. *South Med J*. 2005 Apr 98(4):436-40
25. Center for Disease Control and Prevention. Traumatic brain injury in the United States. 2004. Available at: <http://www.cdc.gov/ncipc/didop/tbi.htm>. Accessed on October 15, 2005.
26. Coronado V, Thomas KE, Sattin RW et al. The CDC Traumatic Brain Injury Surveillance System: Characteristics of persons aged 65 years and older hospitalized with a TBI. *J Head Trauma Rehabil*. 2005; 20(3):215-228.
27. Tureci E, Dashi T, Tanriverdi T et al. Acute ethanol intoxication in a model of traumatic brain injury: the protective role of moderate doses demonstrated by immunoreactivity of synaptophysin in hippocampal neurons. 2004; 26(1):108-12.
28. Dash PK, Moore AN, Moody MR, et al. Post-trauma administration of caffeine plus ethanol reduces contusion volume and improves working memory in rats. *J Neurotrauma*. 2004; 21(11): 1573-83.
29. National Institute on Drug Abuse. Community Epidemiology Work Group (CEWG) <http://www.nida.nih.gov/ResearchReports/Methamph/methamph2.html>. Accessed September 2007.

Use of Thromboprophylaxis in Orthopedic Surgery: A Survey of Hawai'i Orthopedics

Nick S. Crawford MD

Abstract

The American College of Chest Physicians continues to update recommendations on venous thromboembolism prophylaxis based on recent published studies. A survey of Hawai'i's orthopedic surgeons was conducted to see if prophylaxis against venous thromboembolism was in compliance with the latest (2004) recommendations and to see if practices in Hawai'i differed from prophylaxis rates obtained by studies of similar design.

Introduction

The term venous thromboembolism (VTE) is used to describe both deep vein thrombosis (DVT) and pulmonary embolism (PE). Pulmonary embolism following orthopedic surgery is the number one risk factor associated with postoperative death.¹ Major orthopedic procedures such as total knee arthroplasty (TKA), total hip arthroplasty (THA), and hip fracture are the most commonly studied surgeries in regards to VTE because of their relative frequency and high VTE rates. Around 60% of patients undergoing one of these 3 major orthopedic procedures will develop a DVT post operatively. Fatal PE occurs less frequently with rates of 0.1-2% for THA/TKA and 2.5-7.5% for hip fracture.²

Guidelines have been developed for how to prophylax and treat patients for VTE. Although no orthopedic based recommendations exist, a collection of physicians of varying specialties meet every 2 to 3 years as the American College of Chest Physicians Conference on Antithrombotic and Thrombolytic Therapy. The last meeting was held in 2004 and produced over 200 new recommendations, not all of which were pertaining to orthopedics.² A brief summary of the American College of Chest Physicians (ACCP) seventh conference recommendations for VTE prophylaxis in orthopedic surgery are in Tables 1-3. In attempt to summarize the recommendations made by the ACCP, 2 orthopedic review articles have been published.^{3,4}

The ACCP recommendations are made based on available literature in the form of published scientifically-sound studies. The following is a very brief summary of the strategy used by the ACCP for making recommendations. An article attached to the VTE guidelines put out by the ACCP details how these recommendations are made.² Readers are encouraged to reference the above article because at present a high percentage of physicians do not use these recommendations based

upon the methodology employed by the ACCP.

ACCP recommendations have 2 components to them, a number (1 or 2) representing a risk/benefit analysis and a letter grade (A to C+) representing the methodological quality of the evidence leading to the recommendation. A grade 1 recommendation means that the ACCP physicians strongly agree that this recommendation should be given and that the benefits exceed the risks. A grade 2 recommendation uses terminology such as 'we suggest' to infer that the ACCP is not as sure about the strength of the recommendation. The methodological grade (A to C+) is also given. A grade A recommendation represents the highest quality of scientific evidence in the form of randomized controlled trials. Grade C+ recommendation is made when the methodological quality of available evidence is in the form of retrospective or observational studies.

The usage of VTE prophylaxis and compliance with ACCP recommendations among orthopedic surgeons has been studied in the past. Simon and Stengle, 1974, first studied this and found that only 53% of orthopedists surveyed used routine chemical prophylaxis for their THA's and only 34% for hip fracture patients.⁵ At that time, warfarin was the most commonly used form of chemical prophylaxis. In 1987, Paiemont surveyed 352 orthopedists and found that 64% used routine chemical prophylaxis for THA patients and 74% for hip fracture patients.⁶ In 2000 Janku surveyed over 1,000 orthopedists and found that approximately 65% of arthroplasty patients (TKA and THA) received chemical VTE prophylaxis.⁷ Stratton, 2000, was the first to look at compliance with ACCP recommendations. For THA, 84% used a grade A recommended method for VTE prophylaxis. For TKA, 76% and for hip fracture, 45%.⁸ Two survey studies were conducted on orthopedic surgeons specializing in arthroplasty to study their rates of VTE prophylaxis. Mesko, 2001, and Anderson, 2003, showed compliance rates in the range of 89-95% for arthroplasty specialists.^{9,10}

The objective of this study was to survey all practicing orthopedic surgeons in the Hawaiian islands about their routine usage of VTE prophylaxis for three commonly performed high risk surgeries: arthroplasty of the hip and knee and hip fracture surgery. A secondary objective is to assess Hawai'i's compliance with the latest ACCP recommendations in regards to VTE prophylaxis.

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Methods

The Hawai'i Orthopedic Association provided a list of all orthopedic surgeons in the state of Hawai'i. A survey was devised by the author (NC) and sent along with a prepaid return envelope to all Hawai'i orthopedic surgeons. The participants were given 60 days to return the survey. The survey included a check box format for indicating their methods of routine VTE prophylaxis for 3 orthopedic procedures: TKA, THA, and hip fracture surgery. Participants were instructed to fill out the survey as if no contraindication to chemical VTE prophylaxis existed and the patients were otherwise healthy. Of note, only one box was used for 'mechanical prophylaxis', making it impossible to distinguish which form of mechanical prophylaxis was preferred. Available as choices for chemical prophylaxis included fondaparinux, unfractionated heparin, fractionated heparin, warfarin, and aspirin.

Results

Figure 1 illustrates the study population and the participation that was observed. Of the 78 surveys mailed 42 (53.8%) were returned. Of the 42 received, 14 (33.3%) were excluded. The remaining 28 surveys were used to complete the study. Table 5 lists the raw data obtained from the survey. Table 6 shows the ACCP compliance rates. Compliance was defined as using at least one ACCP grade 1 recommendation for VTE prophylaxis. The compliance rates for participants completing the survey: TKA-100%, THA-64.3%, and hip fracture surgery-48.1%. Mechanical prophylaxis was used in 96.8% of patients overall. Fandaprinux and unfractionated heparin were not used by any of the participating surgeons. Warfarin was used by one surgeon for TKA. Aspirin usage was 27% overall with the highest usage (36.4%) for TKA patients. All participants used some form of mechanical and/or chemical prophylaxis.

Discussion

Arthroplasty of the hip and knee as well as hip fracture surgery represent major orthopedic procedures that are both commonly performed and confer a large proportion of the VTE burden in orthopedics. According to the results of this study, the practice of Hawai'i orthopedic surgeons does differ in some aspects from previously studied populations in regards to VTE prophylaxis. This survey can be compared to previously published studies of similar design in regards to ACCP compliance and preferred methods of prophylaxis.

TKA

Compliance with ACCP recommendations was 100% in this study. This is a misleading figure based on study design. As mentioned in the methods section, the survey did not distinguish which method of mechanical prophylaxis was preferred. Only one box for all forms of mechanical prophylaxis was used. This is important

Table 1.— Table summarizing the recommendations made by the ACCP for routine VTE prophylaxis in TKA patients.

TKA (ACCP Recommendations)	
Recommendation	Grade of Evidence
LMWH, Fondaparinux, or Warfarin	1A
Intermittent pneumatic compression (IPC) as sole measure of prophylaxis	1B
Venous Foot Pumps not recommended as sole method	1B
Aspirin not recommended as sole method	1A

Table 2.— Table summarizing the recommendations made by the ACCP for routine VTE prophylaxis in THA patients.

THA (ACCP Recommendations)	
Recommendation	Grade of Evidence
LMWH, Fondaparinux, or Warfarin	1A
Not recommended as sole method of prophylaxis: Aspirin, dextran, GCS, IPC, VFP	1A

Table 3.— Table summarizing the recommendations made by the ACCP for routine VTE prophylaxis in hip fracture patients.

Hip Fracture (ACCP Recommendations)	
Recommendation	Grade of Evidence
Fondaparinux	1A
LMWH (high risk dose)	1C+
Warfarin	2B
Not Recommended: Aspirin	1A

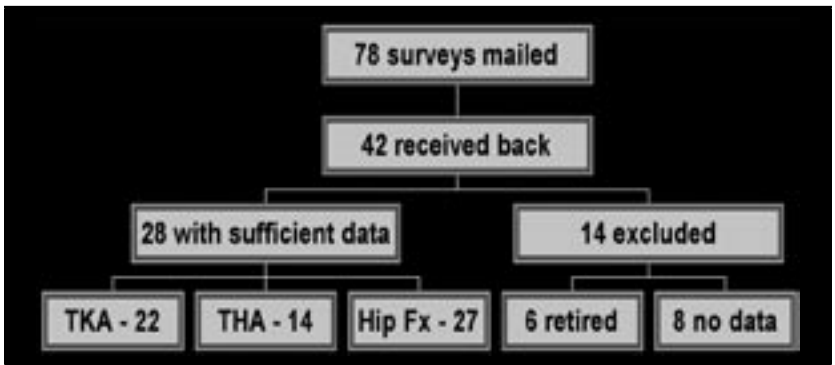


Figure 1.— Participation of Hawai'i orthopedists in the study.

when interpreting the 100% compliance seen for TKA because intermittent compression devices (IPC) was the only mechanical device given a 1B recommendation by the ACCP as a sole measure of prophylaxis.² Certainly, not all surgeons use IPC's as mechanical prophylaxis. Some used venous foot pumps or hose stockings, for example and would not be 'compliant'. For chemical prophylaxis, 59.1% used a recommended form for TKA patients. This is substantially lower than the greater than 90% seen with the studies involving hip and knee surgeons.^{9,10}

Table 5.— Data obtained from those involved in the study population.

Results				
	TKA (22)	THA (14)	Hip Fx (27)	Total (63)
Mechanical	22 (100%)	14 (100%)	25 (92.6%)	61 (96.8%)
Lovenox	12 (54.5%)	9 (64.3%)	13 (48.1%)	34 (54%)
UHF	0	0	0	0
Fondaparinux	0	0	0	0
Aspirin	8 (36.4%)	4 (28.6%)	5 (18.5%)	17 (27%)
Warfarin	1 (4.5%)	0	0	1 (1.6%)
Nothing	0	0	0	0 (0%)

Table 6.— 2004 ACCP guidelines compliance data.

ACCP COMPLIANCE	
Compliance defined as using at least one of the ACCP grade 1 recommendations	
TKA	100%
THA	64.3%
Hip Fx	48.1%

THA

For ACCP compliance, 64.3% of Hawai'i orthopedists used a recommended form of prophylaxis. According to the ACCP, no mechanical prophylaxis measure should be used as a sole measure of VTE prophylaxis. The 64.3% compliance rate is much lower than in previously reported studies: Stratton 84% compliance rate and Mesko and Anderson 89-96% in the studies of hip and knee surgeons.⁸⁻¹⁰

Hip Fracture Surgery

Out of the 3 surgeries, hip fracture surgery historically is the least prophylaxed mechanically and chemically. This is concerning given that it has the highest rate of fatal PE (2.5-7.5%). In this study, 48.1% of Hawai'i orthopedists used a recommended form of prophylaxis. Like THA, there is no recommendation for mechanical prophylaxis as a sole measure. Previous studies report a similar finding with compliance rates ranging from 34-74%.

Conclusion

The routine practice of VTE prophylaxis among Hawai'i orthopedic surgeons differs in certain aspects when compared to usage rates published in previous national studies. In regards to TKA, correct prophylaxis was difficult to assess in this survey given the IB recommendation made by the ACCP for intermittent pneumatic compression devices. Since this survey could not distinguish which mechanical prophylaxis was used it is difficult to compare Hawai'i compliance with ACCP guidelines. For THA, Hawai'i's rate of compliance with ACCP guidelines was substantially lower than previously published rates. For hip fracture surgery, Hawai'i's compliance was low but did not differ from previous studies of similar design.

This study has several limitations. First, a small sample size due mainly to a small target population. Surveys were sent to a total of 78 Hawai'i orthopedists. Not all surgeons included in the mailing were included in study. Surgeons were excluded if they did not perform any of the 3 surgeries at least once per month on average. The excluded group (14/42, 33.3%) was anticipated because the surveys were mailed to all orthopedists regardless of specialty or retirement sta-


tus. This survey did not attempt to answer any questions of VTE screening, length and inception of treatment, or which mechanical prophylaxis measure is preferred.

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References

- Bhattacharyya T, Iorio R, Healy WL. Rate of and risk factors for acute inpatient mortality after orthopaedic surgery. *J Bone Joint Surg Am.* Apr 2002;84-A(4):562-572.
- Geerts WH, Pineo GF, Heit JA, et al. Prevention of venous thromboembolism: the Seventh ACCP Conference on Antithrombotic and Thrombolytic Therapy. *Chest.* Sep 2004;126(3 Suppl):338S-400S.
- Colwell CW, Jr. Thromboprophylaxis in orthopedic surgery. *Am J Orthop.* Jun 2006;Suppl:1-9; quiz 10-11.
- Colwell CW. Evidence-based guidelines for venous thromboembolism prophylaxis in orthopedic surgery. *Orthopedics.* Feb 2007;30(2):129-135; quiz 136-127.
- Simon TL, Stengle JM. Antithrombotic practice in orthopedic surgery. Results of a survey. *Clin Orthop Relat Res.* Jul-Aug 1974(102):181-187.
- Palement GD, Wessinger SJ, Harris WH. Survey of prophylaxis against venous thromboembolism in adults undergoing hip surgery. *Clin Orthop Relat Res.* Oct 1987(223):188-193.
- Janku GV, Paiement GD, Green HD. Prevention of venous thromboembolism in orthopaedics in the United States. *Clin Orthop Relat Res.* Apr 1996(325):313-321.
- Stratton MA, Anderson FA, Bussey HI, et al. Prevention of venous thromboembolism: adherence to the 1995 American College of Chest Physicians consensus guidelines for surgical patients. *Arch Intern Med.* Feb 14 2000;160(3):334-340.
- Mesko JW, Brand RA, Iorio R, et al. Venous thromboembolic disease management patterns in total hip arthroplasty and total knee arthroplasty patients: a survey of the AAHKS membership. *J Arthroplasty.* Sep 2001;16(6):679-688.
- Anderson FA, Jr., Hirsh J, White K, Fitzgerald RH, Jr. Temporal trends in prevention of venous thromboembolism following primary total hip or knee arthroplasty 1996-2001: findings from the Hip and Knee Registry. *Chest.* Dec 2003;124(6 Suppl):349S-356S.



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Ginger: An Ancient Remedy and Modern Miracle Drug

Tamar Hoffman MD, Department of Complementary and Alternative Medicine, John A. Burns School of Medicine, University of Hawai'i



Ginger Root

A survey conducted at the Center for Disease Control and Prevention National Center for Health Statistics showed that 62% of US adults used Complementary and Alternative Medicine (CAM), and 18.9% used natural products.¹ The Institute of Medicine (IOM) published a review of CAM in 2004 and recommended to medical schools to incorporate information about

CAM in the standard curriculum so that physicians can competently advise their patients about CAM.¹ To this end I wish to contribute my knowledge and experience about a useful and versatile plant which has been incorporated in my practice.

Ginger is a perennial flowering plant, native to tropical South East Asia. It belongs to a large botanical family, which includes more than 1,400 species, among which are Wild Ginger, as well as Turmeric and Cardamom. Its botanical name, *Zingiber Officinale* was coined by the 18th century Swedish botanist Linnaeus, based on the Indian Sanskrit name *Singabera*, which means “shaped like a horn”. It has been used as a culinary spice and medicinally for thousands of years. Records of its medicinal use are found in the ancient Indian, Chinese, as well as Greek, Roman, and Arab medicinal texts. In India it is considered a “universal medicine”. It is used as a fresh juice, dry powder, and a mixture of both rolled into pills for digestive as well as respiratory illnesses, arthritic conditions, and a tonic for the heart. Externally it is used in paste form for joint pains and headaches. It has been used in many different regions of the world for the same therapeutic applications.^{2,3,4}

In the United States, ginger’s healing properties were accepted, documented in the *Materia Medica Therapeutics and Pharmacognosy* and used frequently by the Eclectic physicians. It reached peak popularity in the 19th century and early 20th century.⁴ Paul Schulick, an herbalist from Vermont, describes the wide spectrum of benefits from ginger and calls it “A wonder drug”. He describes the decline in the therapeutic use of Ginger attributed to several factors, the most important being the advancement of modern pharmaceutical synthetic drugs, and the actions of regulatory agencies.

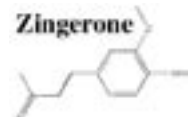
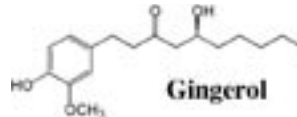
In the last quarter of the 20th century, there was a reawakening of interest in natural and traditional remedies,⁴ that stimulated academic research. Modern therapeutic applications for ginger are based on its long history of traditional use, combined with extensive phytochemical and pharmaceutical studies in animals and clinical human studies.²



Ginger Plant

The part of the plant used is the familiar tuberous underground stem called rhizome, erroneously referred to as the “root”. It contains a variety of active chemicals which excrete a distinct fragrance and taste. The pungent taste is due to the non-volatile phenylpropanoids (particularly “gingerols” and “zingerone”), their related more pungent dehydrated forms, (diarylheptanoids,

“gingeroles and “shogaols”) and the non-pungent fats and waxes. Fresh ginger contains gingerol but not zingerone; cooking transforms gingerol into zingerone which is less pungent, has a spicy-sweet aroma, and gives ginger its zing. It is also present in mustard oil. The hydrocarbon tail gives it a more intense flavor when it comes into contact with its receptor. In addition ginger contains up to 3% of an essential oil that causes the fragrance of the spice. The main constituents are sesquiterpenoids with zingiberene. Lesser amounts of other sesquiterpenoids and monoterpenoid fraction have also been identified. Ginger contains vitamins (A and B), and minerals.^{2,5,6}



Uses

Culinary

Its culinary uses include cooking and baking (gingerbread and cookies). It is also in ginger ale, ginger beer, and wine.

Medicinal

Ginger has a wide spectrum of medicinal applications ranging from stomachache relief to prevention of heart disease.

- Gastrointestinal remedy: Ginger has been used traditionally as a medicine for stomachache, nausea, vomiting and diarrhea. Today it is used in the same fashion and listed in the official pharmacopeias (authoritative listing of drugs) of several countries: Austria, Great Britain, Germany, Switzerland, China, India, and Japan.²

- In addition, it is also used for a variety of nauseous conditions that include morning sickness, motion sickness, nausea after chemotherapy, and anesthesia.

Several studies^{2,7,8} have documented ginger's benefit and safety for relief of morning sickness, for which there are no pharmaceutical options. The current recommendations are to limit the dose to 1 gram a day of fresh ginger. Use of dry ginger is not recommended during pregnancy. In addition, studies show that ginger is more effective than placebo in the prevention of motion sickness, but less effective compared to a pharmaceutical agent. People, however, prefer and better tolerate natural ginger.^{2,4,7} Other studies have proven the benefit of ginger in preventing nausea and vomiting related to anesthesia and chemotherapy, when compared to standard pharmaceutical agents.^{2,8}

- **Anti-inflammatory and antibacterial actions:** Ginger is an effective anti-inflammatory agent for colds, flus, bronchitis, and sinusitis when used as a tea or by steam inhalation. For arthritis, it is used topically in a poultice applied to the affected joint. Some US physicians of the early 20th century used ginger extensively for pain relief and upper respiratory infections. It is also used for migraine headaches as well as for painful menses.^{2,3,4,9,10} Antibacterial action of ginger contributes to its benefit for upper respiratory infections.^{3,4}

- **Prevention of heart disease:** Recent preliminary studies have demonstrated that ginger thins the blood and may lower cholesterol level, thereby decreasing the risk of coronary artery blockage and heart attacks. More research is necessary to confirm these initial reports.^{4,11,12,13,14,15}

- **In Hawai'i:** Another member of the ginger family, the wild, or sham-poo ginger is used in a similar fashion both externally, for bruises, cuts, sores, fungal skin infections, painful joints and sprains, as well as internally, for headaches, toothaches, and stomachache.¹⁶

Available forms

Ginger can be used as a fresh root (rhizome) or a dry powder made from the root, which increases its potency 10 fold. Tea is made from the fresh root, and steam inhalation is distilled from the oil in the fresh root. It is also available in capsules, extracts, tinctures (alcohol based extract), and oils.^{2,3,4}

Precautions

Ginger is considered safe when used in moderate amounts, up to 4 grams a day.

Higher amounts may cause mild heartburn. More caution should be used with the dry powder, as it is more potent. Children under 2 years old should not be given ginger.

Pregnant women should not use the dry powder. The fresh root is safe, up to 1 gram a day. Ginger increases bile flow, therefore people with gallbladder stones should practice caution, and consult their physicians prior to using ginger medicinally, i.e. using large doses of the dry extract.^{2,17}

Interactions with Medications

People using pharmaceutical blood thinners like warfarin should consult their physicians prior to using ginger medicinally, since both may have an additive effect and cause bleeding.^{2,18,19}

Summary

Ginger has been used safely for thousands of years in cooking, and medicinally in folk and home remedies. Advanced technology enables the validation of these traditional experiences. The National

Center for Complementary and Alternative Medicine (NCCAM) has evaluated the results of the available studies, rating the reports from "suggestive" (for short term use of Ginger for safe relief from pregnancy related nausea and vomiting), to "mixed" (when used for nausea caused by motion sickness, chemotherapy, or surgery), and to "unclear" for treating rheumatoid arthritis, osteoarthritis, or joint and muscle pain). NCCAM has funded investigators to study interactions of ginger with drugs (immunosuppressants), its effect of reducing nausea in patients receiving chemotherapy, and the safety and effectiveness of its use for health purposes, as well as its impact on inflammation.¹⁹ Upon completion of these studies, the scope of ginger's use will be clearly identified and incorporated into mainstream therapeutic options, thereby integrating east and west, old with new, to render ginger as a true "Universal Remedy".

References

1. Committee on the Use of Complementary and Alternative Medicine by the American Public. Complementary and Alternative Medicine in the United States. Board on health promotion and Disease Prevention; Institute of Medicine, of the National Academies, Washington DC; National Academy Press, 2005. www.nap.edu/.
2. Herbal Medicine, expanded Commission E Monographs, senior editor Mark Blumenthal, American Botanical Council 2000, pp 153-159.
3. Dr. David Frawley and Dr. Vasant Lad: The Yoga of Herbs, Lotus Press, 1986.
4. Paul Schulick Herbal Free Press: Ginger, Common Spice and Wonder Drug, Brattleboro VT, 1994. <http://nccam.nih.gov/health/ginger/>.
5. <http://antoine.frostburg.edu/chem/senese/101/features/capsaicin.shtml>.
6. Ernst, E.; and M. H. Pittler (2000). "Efficacy of ginger for nausea and vomiting: a systematic review of randomized clinical trials" (PDF). *British Journal of Anaesthesia* 84 (3): 367-371. Retrieved on 2006-09-06.
7. Meyer, K., J.Schwartz, D.Crater, B.Keyes: Zingiber Officinale (ginger) used to prevent 8-MOP associated nausea. *Dermatol Nurs* 7(4):242-244 1995.
8. Altman RD, Marcussen KC.: Effects of a ginger extract on knee pain in patients with osteoarthritis. *Arthritis Rheum* 44:2531-2538, 2001
9. Mustafa, T.; and K. C. Srivastava (1990). "Ginger (Zingiber officinale) in Migraine Headache". *Journal of Ethnopharmacology* 29: 267-273.
10. Bhandari U, Sharma JN, Zafar R.: The protective action of ethanolic ginger (Zingiber officinale) extract in cholesterol fed rabbits, *J Ethnopharm.* 1998;61(2):167-171.
11. Bordia A, Verma SK, Srivastava KC. Effect of ginger (Zingiber officinale Rosc.) and fenugreek (Trigonella foenumgraecum L.) on blood lipids, blood sugar and platelet aggregation in patients with coronary heart disease. *Prostaglandins Leukot Essent Fatty Acids.* 1997;56(5):379-384
12. Fuhman B, Rosenblat M, Hayek T, Coleman R, Aviram M. Ginger extract consumption reduces plasma cholesterol, inhibits LDL oxidation, and attenuates development of atherosclerosis in atherosclerotic, apolipoprotein e-deficient mice. *J Nutr.* 2000;130(5):1124-1131.
13. Nurtjahja-Tjendraputra E, ammitAJ, roufogalis BD et al. Effective antiplatelet and COX-1 enzymeinhibitor from pungent constituents of ginger. *Thromb Res.* 2003;111(4-5):259-265.
14. Thompson M, Al Qattan KK, Al Sawan SM, et al. The use of ginger (Zingiber officinale Rosc.) as a potential anti inflammatory and antithrombotic agent. *Prostaglandins Leukot Essent Fatty Acids.* 2002;67(6): 475-478.
15. Beatrice H. Krauss Plants in Hawaiian Medicine, The Bess press, Honolulu Hawai'i 2001.
16. <http://www.diagnose-me.com/treat/T175022.html> last updated May 19th 2007.
17. Heck AM, Dewitt BA, Lukes AL. Potential interactions between alternative therapies and warfarin. *Am J Health Syst Pharm.* 2000;57(13) 1221-1227.
18. Vaes LP, Chyka PA. Interaction of warfarin with garlic, ginger, ginkgo, or ginseng: nature of the evidence. *Ann Pharmacother.* 2000;34(12):1478-1482.

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Mindfulness Meditation and its Medical and Non-Medical Applications

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Abstract

This paper focuses on a promising health care intervention—mindfulness meditation—that is the subject of considerable and increasing interest. The authors describe what mindfulness means, how it has been applied in patient and non-patient populations, and current activities in Hawai'i.

Introduction

There is an increasing volume of peer reviewed literature reporting the use of mindfulness meditation in medical settings. In fact, the Agency for Healthcare Research and Quality has just released an encyclopedic review of research on health-related meditation practices, including mindfulness meditation (MM). This report identified 127 published studies of MM, including 50 randomized controlled trials.¹ While such data indicate a wide and growing interest in MM and related techniques, the report also indicates that considerable additional rigorous research is needed to understand more fully the potential contributions of meditation practices to health. This paper discusses what MM is, reviews findings in specified populations, and discusses preliminary research in Hawai'i.

What is Mindfulness?

Mindfulness meditation is derived from ancient Buddhist practices and tenets. A number of forms of MM are in use.¹ The most common MM approach used in health care settings is based on the secular Mindfulness Based Stress Reduction (MBSR) approach developed by Kabat-Zinn at the University of Massachusetts in the late 1970s, he was the first to apply MM in a behavioral medicine setting for populations with a wide range of chronic pain and stress-related disorders.²

MM is based on the premise that many people go through life on “auto pilot”, without paying attention to what is going on in and around them. If they do happen to attend to themselves and their environment, they often do so in the context of a priori expectations, judgments, and habits. MM training enables individuals to attend to their current environment by teaching them how to become aware of what is happening to them at the present time, in a non-judgmental way. An individual's environment includes the full range of physical experiences (e.g. body posture and bodily sensations), and pleasant, neutral, and unpleasant feelings, thoughts, mental states and emotions. MM allows a practitioner to perceive his/her world clearly and objectively, without subjective biases due to current mood, past experiences, or expectations of how things should be.

MM differs from other meditation practices that require full concentration on a specified meditation object. In MM, one keeps an open, “free flowing” perspective, allowing an openness to all life experiences and avoidance of clinging to a pleasant experi-

ence or resisting or ignoring an unpleasant one. This dispassionate state of self-observation is thought to introduce a ‘space’ between one's perception and response that allows one to respond to situations more reflectively (as opposed to reflexively).³ Mindfulness is therefore associated with patience and acceptance and enhanced relaxation and tolerance, and at the same time fewer negative reactions without being passive or withdrawn. It can be self-cultivated and practiced by anyone, including school-age children, following simple instructions.

Although mindfulness-based interventions rely on meditation techniques to teach the necessary skills for evoking mindfulness, this mode of awareness is not limited to meditation (i.e., sitting in one spot for a prolonged period). One of the most attractive aspects of MM is that once the skills are learned, individuals can regulate their attention to evoke mindfulness in many situations—for example, while stuck in traffic. This practice can thus allow the practitioner to respond skillfully to situations that might otherwise provoke emotional reactions (e.g., “road rage”). A typical 4 to 10 week course in mindfulness training includes progressive instruction in formal sitting and walking meditation (20-60 minutes a day) as well as how to be mindful during all daily life activities to the extent possible. The most frequently cited method of mindfulness training in clinical populations is the structured MBSR program developed by Kabat-Zinn and colleagues.² See Appendix 1 for an example of MM training.

Medical Applications of Mindfulness Meditation

MM has been applied in a number of medical conditions, and several reviews of the literature have been reported,^{1,4} including one meta-analysis that conducted pooled analyses of effect size across 20 reports.⁵ Studies have been conducted in patients with medical conditions including chronic pain, fibromyalgia, anxiety and panic disorders, psoriasis, depression, substance abuse, binge eating disorders, burnout, personality disorders, cancer and heterogeneous patient populations.^{1,4,5} Despite methodological limitations noted in all of these reports, this literature, as a whole, suggests that MM is helpful for patients with a wide variety of medical conditions. Grossman, et al's meta-analysis⁵ showed that compared to a control group, MM interventions significantly improved both mental and physical health indicators for patients across a variety of diagnoses, regardless of whether a randomized or non-randomized study design was used. They also reported that changes in scores before and after the intervention reflected improvement in both mental and physical well-being. The “medium” effect sizes (slightly exceeding $d=.5$ for all reported analyses) imply that these improvements are likely to be clinically meaningful.

Several studies of oncology patients, led by Carlson and colleagues, illustrate the kind of research that has been reported. Spica, et al's randomized controlled trial⁶ demonstrated less mood disturbance and fewer symptoms of stress in cancer outpatients who completed a MM course (N=90), and these benefits were maintained 6 months later.⁷ In a study with patients with breast and prostate cancers (N=42),⁸ significant improvements were seen in overall quality of life and stress following MM training. A 1-year follow up⁹ demonstrated continued enhanced quality of life and decreased stress symptoms and cortisol and immune patterns consistent with less stress and mood disturbance, and decreased blood pressure. Several reviews of these studies and others in this area have been published,¹⁰⁻¹² and all conclude that this is a promising line of research that needs to be replicated and extended to other cancer patient populations.

Non-Medical Applications of Mindfulness Meditation

Several reviews¹⁻⁵ also included studies of healthy volunteers and found that, in general, similar increases in well-being to those shown in patient populations were demonstrated. There are several kinds of applications of MM in healthy populations that are of particular interest.

Mindfulness meditation in education: MM has been taught in medical schools and law schools. Shapiro and colleagues of the University of Arizona conducted a well-controlled, statistical design study using an 8-week mindfulness meditation-based stress reduction intervention on premedical and medical students.¹³ Findings indicate that participation in the intervention effectively reduced self-reported state and trait anxiety and reports of overall psychological distress including depression, and increased scores on overall empathy levels, and on a measure of spiritual experiences assessed at the end of the intervention. A study from Jefferson University shows similar results in 140 volunteer medical students.¹⁴

Mindfulness meditation in sports: MM has also been used with great success in professional sports. Former Chicago Bulls coach Phil Jackson, now of the Los Angeles Lakers,¹⁵ has used mindfulness practice in basketball training for many years. Olympic athletes like US Gold Medalist speed skater Apolo Ohno and golf star Tiger Woods have also employed mindfulness practice as part of their training. The Boston College basketball team has been trained in mindfulness by its sport psychologist, George Mumford with good results.

Mindfulness Meditation Research In Hawai'i

Online MM for cancer patients: All published studies of MM for cancer patients to date use the popular 8- to 10-week classroom setting to teach this self-administered technique. This approach, while it may be effective, limits the availability of this training to patients who may need it, since not everyone has access (e.g., transportation, mobility) to attend such sessions, and the timing of MM sessions may not be consistent with patient needs or preferences. To address these barriers, researchers at the Cancer Research Center of Hawai'i (CG, TH) developed and conducted a pilot feasibility study of an online, internet-based MM course for cancer patients led by a project director (GL). As far as we know, this is the first group to try such an approach. The course used a 6-week MM program and was open

to cancer patients within six months of diagnosis. This study has been completed with target sample size (N=15) achieved. The course was able to attract participants from the Neighbor Islands and from Saipan, and the computer-based system was easy for the participants to use, even those who had no previous computer experience. The course also provided instructions that could be downloaded for use in portable listening systems, and many patients found this to be very helpful. The majority (80%) of participants completed the course and reported many significant benefits: e.g., stress reduction, relaxation, easing pain, and counteracting negative feelings. Most said they would recommend such a program for other cancer patients and planned to continue practicing MM even when the study was completed. This project demonstrated that cancer patients can be trained in MM in a very cost-effective way, and they can practice MM by themselves as an adjunctive measure, without interfering with cancer-directed therapy provided by their physicians. The researchers have discussed this study at the national level, and there is considerable enthusiasm for developing a MM protocol based on this pilot study that can be tested for efficacy in the national clinical cooperative cancer groups.

MM for Medical Students and the Public

The researchers are in the process of establishing an improved version of this online MM course based partially on the study participants' feedback, and intend to make this available within University of Hawai'i John A. Burn's School of Medicine Complementary and Alternative Medicine department for students, staff, and patients. This course will be offered without tuition and could be used for future research in this line. See Appendix 2 for course outline. There are regular mindfulness introductory workshops and retreats organized or sponsored by Vipassana Hawai'i. These are held at various locations in Hawai'i and elsewhere.¹⁸

Conclusion

MM is a technique that has been applied and tested in a number of contexts. Given the high interest of Hawai'i residents in complementary and alternative medicine,¹⁶ and the compatibility between meditation practices and the traditional culture of many Hawai'i residents, MM holds considerable promise for improving the health and well-being of Hawai'i residents. Research efforts in this area, such as those described here, are just beginning.

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References

1. Ospina MB, Bond TK, Karkhaneh M, et al. Meditation practices for health: state of the research. Evidence Report/Technology Assessment No. 155 (Prepared by the University of Alberta Evidence-Based Practice Center under Contract No. 290-02-0023.) AHRQ Publication No. 07-E010. Rockville, MD: Agency for Healthcare Research and Quality. June 2007.
2. Kabat-Zinn J. Full catastrophe living: using the wisdom of your body to face stress, pain and illness. New York: Delacorte, 1990.

3. Bishop SR, Lau M, Shapiro S, Carlson LE, Anderson ND, Carmody J, Segal ZV, Abbey S, Speca M, Veltling D, Devins G. Mindfulness: A proposed operational definition. *Clin Psychol: Sci Pract.* 2004 11: 230–241.
4. Shigaki CL, Glass B, Schopp LH. Mindfulness-based stress reduction in medical settings. *J Clin Psychol in Med Settings* 2006 13:209-216.
5. Grossmann P, Niemann L, Schmidt S, Walach H. Mindfulness-based stress reduction and health benefits A meta-analysis. *J Psychosom Res* 2004;35-43.
6. Speca M, Carlson LE, Goodey E, Angen M. A randomized, wait-list controlled clinical trial: the effect of a mindfulness meditation-based stress reduction program on mood and symptoms of stress in cancer outpatients. *Psychosom Med* 2000, 62:613-622.
7. Carlson LE, Ursuliak Z, Goodey E, Angen M, Speca M. The effects of a mindfulness meditation based stress reduction program on mood and symptoms of stress in cancer outpatients: Six month follow-up. *Support Care Cancer* 2001 9:112-123.
8. Carlson LE, Speca M, Patel KD, Goodey E. Mindfulness-based stress reduction in relation to quality of life, mood, symptoms of stress, and immune parameters in breast and prostate cancer outpatients. *Psychosom Med* 2003 65:571-581.
9. Carlson LE, Speca M, Faris P, Patel KD. One year pre-post intervention follow-up of psychological, immune, endocrine and blood pressure outcomes of mindfulness-based stress reduction (MBSR) in breast and prostate cancer outpatients. *Brain Behav Immun* 2007;1038-49. Epub 2007 May 22.
10. Matchim Y, Armer JM. Measuring the psychological impact of mindfulness meditation on health among patients with cancer: A literature review. *Oncol Nurs Forum* 2007 34:1059-1066.
11. Ott MJ, Norris RL, Bauer-Wu SM. Mindfulness meditation for oncology patients: A discussion and critical review. *Integr Cancer Ther* 2006, 5:98-108.
12. Smith JE, Richardson J, Hoffman C, Pilkington K. Mindfulness-based stress reduction as supportive therapy in cancer care: A systematic review. *J Adv Nurs* 2005, 52:315-327.
13. Shapiro SL, Schwartz GE, Bonner G. Effects of mindfulness-based stress reduction on medical and premedical students. *J Behav Med* 1998, 21:581-99.
14. Rosenzweig S, Reibel DK, Greeson JM, Brainard GC, Hojat M. Mindfulness-based stress reduction lowers psychological distress in medical students. *Teach Learn Med* 2003, 15:88-92.
15. Jackson P. Sacred hoops: Spiritual lessons of a hardwood warrior. New York: Hyperion, 1995.
16. Harrigan R, Mbabuikie N, Efrid JT, Easa D, Shintani T, Hammatt Z, Perez J, Shomaker TS. Use of provider delivered complementary and alternative therapies in Hawaii: results of the Hawaii Health Survey. *Hawaii Med J* 2006, 65:130-2, 134-139, 151.
17. Huynh TV. Introduction to Mindfulness Meditation. <http://vipassanahawaii.org/?q=node/19>.
18. <http://vipassanahawaii.org/>

(Appendix 1)

Typical mindfulness sitting instruction:¹⁷

At the beginning of your sitting meditation, simply let go of thoughts about the past and future, relax and bring your awareness into the present moment by paying attention to your body posture and silently note “sitting”. Feel the uprightness of the body, straightening it a little if it slumps and relax it if it feels stiff. Try to maintain a balance between the two. Keep it this way from this point on without adjusting frequently during the sitting. Feel the pressure, vibration, firmness/softness or temperature where the body touches the sitting surface.

Breathe normally without controlling the breath. Follow the changing sensations continuously from the beginning to the end of the in-breath, then from the beginning to the end of the out-breath (paying particular attention to the end of both the rising and falling movements). Feel the motion, tingling, pressure, vibration, lightness, heaviness, temperature, etc... Make a soft mental note “rising” during the in-breath, and “falling” during the out-breath as needed.

You may prefer to use sounds as an object of meditation, at the beginning and at times, instead of the breath. Open the awareness widely to embrace all sounds as well as silent intervals, noting them as “hearing”, feeling the vibration at the ear doors without identifying what sounds they are (not thinking about them).

If you find yourself lost in thoughts, rather than judging yourself (for example, “I should not be thinking about that”), simply acknowledge those thoughts as “thinking” or “wandering”. Then gently bring your attention back on your breath. Patiently begin again and again in the present moment by returning to the primary object regardless how many times the mind wanders. Try to stay with the primary object until you become concentrated rather than keep changing objects.

When your mind becomes quiet, you are able to pay attention to the object that is most predominant, or obvious, at each moment. The object that you are attending to at this point does not reflect a choice or a judgment on your part (for example, “How long will this

tightness last?”, “I like this soothing sound.”, or “What should I focus on?”). Instead, it comes from a mindset that is choiceless (without preferences and preconceptions) and non-judgmental and open to all physical and mental objects that are happening at that particular moment in time. It is often described as “bare attention”.

Mindfulness during daily activities

Try to be aware of one of the following activities and add one more each week: feel the transition of postures from lying to sitting to standing (and the reverse), feel the steps while walking, be mindful of the arm/hand bending, stretching or reaching for an object or the pressure or temperature while holding it. An experienced practitioner will also notice mental impulses before such movements. Extend eventually to all routine activities such as putting on clothes, washing in the shower etc... Feel the breath whenever you remember. A chime of the watch or clock, a doorbell or telephone ringing, a computer warning sound could be used as reminders of mindfulness. Pause and relax for a few seconds and/or take a couple of mindful breaths, or simply (come back to the present moment and) be mindful of what you are doing at each reminder. Remind yourself periodically to be mindful by asking if you are present (aware) or lost. Check your attitude to see if you are relaxed, having no expectation. It is also helpful to be aware of likes and dislikes in the mind while interacting with people or doing chores. With time, this awareness will extend to thoughts (such as judging) and emotions (or their corresponding physical sensations within the body).

(Appendix 2)

Course Outline: Mindfulness Meditation -

An Online Experiential Course (JABSOM/CAM - July 2007)

Catalog Description:

Mindfulness Meditation

-Six weekly units of online instruction on the theory and practice of meditation.

-Daily meditation practice with audio/video-guided instruction.

-Internet forum for interaction with the instructor and other students.

Course Objectives:

Upon completion of the course, the student should be able to:

1. differentiate various meditation techniques.
2. understand mindfulness and its components.
3. independently practice by applying mindfulness in formal meditation and in daily life.
4. describe the medical benefits of meditation.

Course Content:

1. Introduction to meditation
2. Common meditation techniques.
3. Medical applications of mindfulness practice.
4. Definition and components of mindfulness.
5. Factors influencing the practice.
6. Techniques of mindfulness meditation:
 - Attitude for practice
 - Working with the body and the mind
 - Sitting
 - Walking
 - Daily life mindfulness
 - Loving-kindness
 - Non-harming commitment

Methods of Instruction: Online (flexible schedule) including:

- Written material.
- Audio-guided instruction.
- Video instruction.
- Discussion Forum.

Methods of Evaluating Student Progress:

- Forum discussion
- Weekly quiz
- Evaluation questionnaires



Issues in Medical Malpractice XVIII

S.Y. Tan MD, JD, Professor of Medicine, John A. Burns School of Medicine, University of Hawai'i

Question: (one or more choices may be correct)

Dr. DeSouza, overlooking his patient's known allergy to penicillin, erroneously prescribed ampicillin. Tony, his patient, discovered the error before taking the medication. On his way back to the doctor's office to obtain a new prescription, he was struck by a car and suffered serious injuries. Which of the following are true:

- A. Had it not been for the doctor's negligence, Tony would not have made the return trip. Dr. DeSouza is definitely liable.
- B. No medical harm came from the initial wrong prescription. "No harm, no foul," and therefore no liability.
- C. Accident was most likely a superseding cause, freeing Dr. DeSouza from liability.
- D. Accident was most likely a concurrent cause, and Dr. DeSouza is fully liable.
- E. Proper party to sue is careless driver who struck Tony.

Answer: C, E

Dr. DeSouza's negligence was clearly a "but-for" factual cause of Tony's injuries. That is, without the doctor's negligent prescription in the first place, the plaintiff would not have suffered the harm. But Answer A is not entirely correct, as tort liability requires proof of both factual causation and something called legal causation. If the accident, an independent third force that intervened between defendant's negligence and the injury, was deemed unforeseeable, then it is said to constitute a superseding cause, which absolves the original tortfeasor (the doctor) from liability. In legal terms, Dr. DeSouza's negligence was not a proximate cause of Tony's injuries. This is the likely outcome in this case, and C is therefore correct.

On the other hand, if the accident was somehow felt to be a foreseeable event, then it becomes a concurring cause, and the doctor is now liable (Choice D). It's up to the jury to decide whether a given intervening event is foreseeable or not.

Of course the obvious party to sue is the careless driver. But he/she may be without insurance or be unable to pay damages. The doctor on the other hand is likely to have substantial malpractice insurance coverage. Yes, the deep-pocket at work!

Pre-Existing Conditions

Victims may suffer from preexisting conditions that predispose them to greater injury, however trivial the inciting negligent act. The law will compensate the plaintiff for the entire injury. Take as an example a diabetic with peripheral neuropathy and poor circulation. A negligently treated foot ulcer may cause the patient to end up with an amputation, whereas such a serious outcome would be less likely in a non-diabetic patient. In this example, the negligent doctor will be responsible for all injuries, including the amputation, though not for the preexisting condition itself, i.e., the diabetic state.

The "Eggshell skull rule" is the most extreme example that you must take your patient as you find him. The doctrine originated from the 1901 English case of *Dulieu v. White*, where the plaintiff with a thin skull died from a minor accident whereas a normal person would have suffered only a bump on the head.¹ The defendant was found liable for the patient's death. The "Eggshell skull rule" is particularly relevant in medical malpractice cases. The negligent defendant will be held liable for the full extent of a victim's injuries, even if a pre-existing condition had worsened the situation to cause a more serious outcome. A minor drug reaction, for example, may amount to little injury in most individuals, but may lead to complications including death in an older patient already in fragile health.

This article is meant to be educational and does not constitute medical, ethical, or legal advice. It is excerpted from the author's book, *Medical Malpractice: Understanding the Law, Managing the Risk* published in 2006 by World Scientific Publishing Co., and available at Amazon.com. You may contact the author, S.Y. Tan MD, JD, at email: siang@hawaii.edu or call (808) 728-9784 for more information.

Reference

1. *Dulieu v. White*, 2 K.B. 669 (1901).

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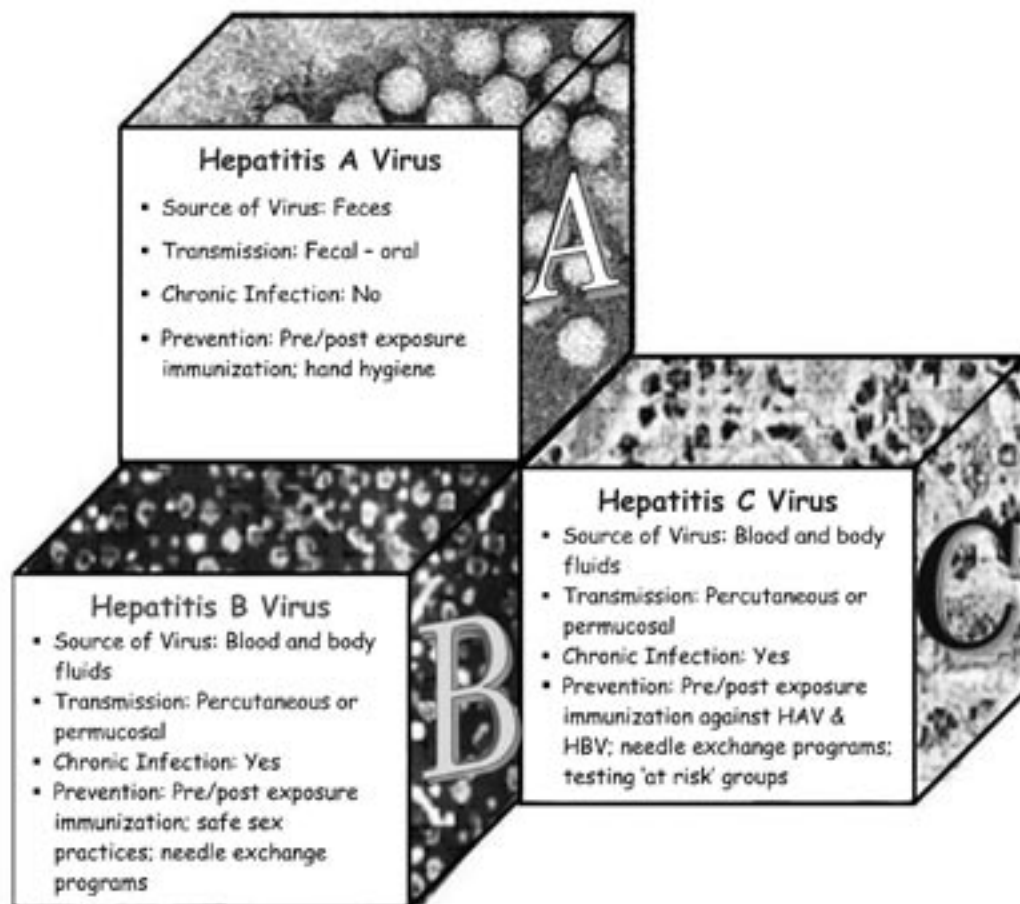


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Interested in having your upcoming CME Conference listed? Please contact Nathalie George at (808) 536-7702 x103 for information.

Date	Specialty	Sponsor	Location	Meeting Topic	Contact
January 2008					
1/2-1/6	Multi	Boston University School of Medicine	Grand Hyatt Kaua'i Resort and Spa, Kaua'i	24th Annual Conference on Obstetrics, Gynecology, Perinatal Medicine, Neonatology, and the Law	Tel: (617) 638-4605 Web: www.bu.edu/cme
1/5-1/8	Multi	Boston University School of Medicine	Grand Hyatt Kaua'i Resort and Spa, Kaua'i	8th Annual Conference on Medical Negligence and Risk Management in Medicine, Surgery, Emergency Medicine, Radiology and Family Medicine	Tel: (617) 638-4605 Web: www.bu.edu/cme
1/12	IM	American College of Physicians-Hawai'i Chapter	Koolau Country Club	Updates in Internal Medicine	Tel: (808) 586-7478
1/13-1/18	R	University of California, San Francisco	The Fairmont Orchid, Kona	Breast Imaging in Paradise	Tel: (415) 476-5808 Web: www.cme.ucsf.edu
1/19-1/21	Multi	Pan-Pacific Surgical Association	Sheraton Waikiki, Honolulu	28th Annual Congress: Connecting Surgeons Throughout the Pacific	Tel: (808) 941-1010 Web: www.panpacificsurgical.org
1/20-1/25	R	University of California, San Francisco	The Fairmont Orchid, Kona	Body Imaging in Paradise	Tel: (415) 476-5808 Web: www.cme.ucsf.edu
1/21-1/25	A, IG	Western Society of Allergy, Asthma and Immunology	Four Seasons Maui at Wailea, Maui	2008 Scientific Sessions	Web: www.wsaai.com
1/21-1/25	AN	California Society of Anesthesiologists	Hyatt Regency Maui Resort & Spa, Ka'anapali Beach, Maui	CSA Hawaiian Seminar	Web: www.csaahq.org
1/21-1/25	IM	Mayo Clinic Rochester	Grand Hyatt Kaua'i	Selected Topics in Internal Medicine	Tel: (800) 323-2688 Web: www.mayo.edu/cme/
1/27-1/31	GS	Mayo Clinic Rochester	Grand Hyatt Kaua'i	International Spine Symposium	Tel: (800) 323-2688 Web: www.mayo.edu/cme/
February 2008					
2/2	PCP	Queen's Medical Center	The Queen's Conference Center	Obesity in the Primary Care Setting. Part II: Bariatric Surgery: The Role of the Primary Care Provider	Tel: (808) 377-5738
2/3-2/7	R	Mayo Clinic Rochester	Fairmont Kea Lani, Maui	Tutorials in Diagnostic Radiology	Tel: (800) 323-2688 Web: www.mayo.edu/cme/
2/2-2/6	CCA, EM	Society of Critical Care Medicine	Hawai'i Convention Center, Honolulu	2008 Annual Meeting	Tel: (847) 827-6869 Web: www.sccm.org
2/4-2/8	R	NYU School of Medicine	The Four Seasons Lanai	Essentials of Imaging on Lanai: From the Head to the Toe	Tel: (212) 263-3936 Web: www.radcme.med.nyu.edu
2/6-2/9	Multi	Society of Laparoendoscopic Surgeons	Hilton Hawaiian Village, Honolulu	Asian-American MultiSpecialty Summit III: Laparoscopy and Minimally Invasive Surgery	Tel: (800) 872-1119
2/6-2/9	FP, GYN	Symposia Medicus	Maui Prince Hotel, Makena Resort, Maui	15th Annual Office GYN and Women's Health for Primary Care	Tel: (800) 327-3161 Web: www.symposiamedicus.org
2/8-2/9	Multi	Queen's Medical Center	Queen's Conference Center	Minimally Invasive Surgery Symposium, "Current Opinion, Outcomes, and Techniques"	Tel: (808) 547-4406 Web: www.queens.org/cme.html

2/9-2/15	OBG	Keck School of Medicine of USC	West Maui, Maui	Perinatal Medicine 2008	Tel: (800) 872-1119
2/9-2/15	PD	American Academy of Pediatrics, California Chapter and University Children's Medical Group	Westin Maui Hotel, Lahaina, Maui	Pediatrics Potpourri: State of the Art 2008	Tel: (808) 354-3263 Web: www.ucmg.org
2/10-2/15	GS	Mayo Clinic Scottsdale	Hapuna Beach Prince Wailea, Maui	Mayo Clinic Interactive Surgery Symposium	Tel: (480) 301-3580 Web: www.mayo.edu/cme/
2/11-2/15	CD	Society for Cardiovascular Angiography and Interventions	Mauna Lani Bay Hotel, Kohala Coast, Hawai'i	23rd Annual Cardiovascular Conference in Hawai'i	Web: www.scai.org
2/15-2/17	Multi	Hawai'i Academy of Family Physicians	Sheraton Waikiki, Honolulu	2008 Family Medicine Update	Tel: (808) 864-9812
2/16-2/19	OTO, HNS	Tripler Army Medical Center and the University of California, San Francisco	Hilton Hawaiian Village, Honolulu	Pacific Rim Otolaryngology - Head and Neck Surgery Update	Tel: (415) 476-5808 Web: www.cme.ucsf.edu
2/17-2/20	Multi	Hawai'i Thoracic Society	Wailea Beach Marriott Resort & Spa, Wailea, Maui	8th Annual Symposium: Current Concepts in Pulmonary and Critical Care	Web: www.ala-hawaii.org
2/17-2/22	R	University of California, San Francisco	The Fairmont Orchid, Kona	Neuro and Musculoskeletal Imaging	Tel: (415) 476-5808 Web: www.cme.ucsf.edu
2/17-2/22	IM	University of California, San Francisco	Grand Hyatt, Kaua'i	Infectious Diseases in Clinical Practice	Tel: (415) 476-5808 Web: www.cme.ucsf.edu
2/21-2/22	Multi	Hawai'i Medical Center	Hilton Hawaiian Village, Honolulu	2008 International Bioethics Conference: America's Broken Healthcare System	Tel: (808) 547-6050
2/21-2/26	GE	Keck School of Medicine of USC	Kaua'i Marriott Resort, Kaua'i	Medical and Surgical Aspects of Esophageal and Foregut Disorders: Pathophysiology and Treatment	Tel: (800) 872-1119
2/27-3/2	P	American College of Psychiatrists	Hyatt Regency Kaua'i	Annual Meeting 2008	Tel: (312) 662-1020 Web: www.acpsych.org
March 2008					
3/1	Multi	Queen's Medical Center	Hilton Hawaiian Village, Honolulu	The Queen's Medical Center Conference on Quality & Patient Safety	Tel: (808) 537-7009
3/2-3/4	P	Mayo Clinic College of Medicine	Sheraton Kaua'i Resort Poipu Beach Kaua'i	Psychiatric Pharmacogenomics	Tel: (800) 323-2688 Web: www.mayo.edu/cme/
3/5-3/8	FP, IM	UCLA School of Medicine	Maui Prince Hotel, Makena Resort, Maui	Meeting the Challenge of Primary Care	Tel: (310) 794-2620 Web: www.cme.ucla.edu
3/10-3/13	C	Mayo Clinic College of Medicine	Grand Hyatt Kaua'i	Arrhythmias and the Heart	Tel: (800) 323-2688 Web: www.mayo.edu/cme/
3/23-3/28	Multi	Kaiser Permanente	Grand Hyatt Kaua'i Resort and Spa, Poipu Beach, Kaua'i	Kaiser Permanente Primary Care Conference	Web: www.kpprimarycareconference.org
3/23-3/28	OBG, GYN	Kaiser Permanente	Grand Hyatt Kaua'i Resort and Spa, Poipu Beach, Kaua'i	Kaiser Permanente National OB/GYN Conference 2008: Clinical Challenges in Ob/Gyn: Improving Care for Women	Web: www.kpobynconference.org

Classified Notices

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THE WEATHERVANE

RUSSELL T. STODD MD, CONTRIBUTING EDITOR



Russell T. Stodd MD

❖ SUCCESSFUL RESEARCH IMPEDES FURTHER SUCCESSFUL RESEARCH.

Forget the iris, the retinal vascular tree, and the hand print because the thumb is taking over the world of verifying identification. Personal computers and cell phones have been early adopters. About 10% of new laptops now come equipped with fingerprint sensors, eliminating the need for a password. In Japan, cell phones have become widely trusted using fingerprint technology for security, and thumb prints are used by about 20 million customers for online bank accounts, automated teller machines, and credit-card purchases.

Fingerprint sensors can also be used to replace keys to houses or cars, and Home Depot Inc. will begin selling door locks programmed to open when they recognize a fingerprint of the homeowner or as many as 24 approved individuals. Improved security sensors can read prints on living tissue in a layer below the surface and cannot be spoofed with a print from a piece of paper or a mold made from a real finger. However, to be sure creative hackers will be trying to get a hands-down leg-up on thumb ID.

❖ WHAT SOME PEOPLE VALUE IN THIS WORLD IS NOT RIGHTS, BUT PRIVILEGES.

At Harvard Medical School a lactating mother brought a lawsuit against the *National Board of Medical Examiners*. Her complaint was that the 45 minutes allowed for breaks was not sufficient time for her to eat, drink, use the bathroom and pump milk from her breasts, which she was collecting for her eight-week-old infant. The NBME had allowed her to bring food and drink into the exam room and afforded her a special room and breast pump for collecting breast milk, but refused to extend the break time for her. "Maintaining the integrity of the exam is vital, so that requires consistent testing conditions. The NBME cannot make ad hoc one-on-one decisions," according to a spokeswoman for the board. The judge ruled against the student in her lawsuit and pointed to the special accommodations which were offered to the student, but she said that was not adequate. She appealed and the Appeals Court overturned the previous ruling. The test normally takes one day, but because the student claims to be dyslexic with attention deficit hyperactivity disorder (ADHD) the Board had already given her two days! All this from a MD and PhD graduate!! Geez, lady. How far are you going to push this envelope?

❖ THE INHERENT BLESSING OF SOCIALISM IS THE EQUAL SHARING OF MISERY.

Note to Michael Moore: In describing the wonders of the "free medical care" of the Canadian system, please note that 10% of hip replacement patients at the Cleveland Clinic are Canadians who must go south to get timely care, and the Brain and Spine Clinic in Buffalo, New York, serves an average of ten Canadians a week for the same reason. More than 875,000 Canadian patients are waiting for referrals to a specialist for care with an average delay of 17.8 weeks; oncology 4.9 weeks, orthopedics 40.3 weeks, waiting for an MRI 10.3 weeks nationally, but 28 weeks in Newfoundland. The estimate is that each year 40,000 Canadians seek medical care south of the border.

❖ IF WE DON'T SUCCEED WE RUN THE RISK OF FAILURE. (D. QUAYLE)

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a pathogen that can ignore nearly all antibiotics, and has become the scourge of hospitals. Now an unusual therapeutic hope has oozed onto the lab scene. It has been found that a slathering of manuka-bush honey on wound dressings works to reverse the ugly staph. Rose Cooper at the University of South Wales at Cardiff turned her electron microscope on *Staph aureus* in a petri dish and found that many bacteria got stuck in the manuka honey and stopped dividing. They were unable to complete the cell cycle. Researchers studied the bacteria with fake honey and sugars, but none of them worked to prevent cell replication. According to Cooper something specific in manuka honey besides the sugars appears bacteriostatic, and her team is now trying to identify the component. A hospital in Liverpool will soon launch a

trial. Interesting to note that the honey has a bitter flavor and is no good on your pancakes.

❖ DOCTORS WHO HAVE THE POWER TO MAKE THINGS HAPPEN, DON'T DO WHAT IS EXPECTED.

In Greenville, Tennessee, Dr. Robert Berry, a board certified emergency physician and internist, runs a point of care clinic which provides affordable medical care to acute and chronic patients, most of whom are not insured. His fees are about 60% of other physician's offices, 40% of an urgent care clinic and 10 to 20% of the local emergency room. He has arranged discounts with other providers and the patient pays \$20 for a cholesterol panel, \$25 for complete blood scan, and \$70 for x-ray with radiologist interpretation. This is not a boutique high-end medical practice, but simple low cost cash only (he accepts Mastercard) medical care. He can afford to do this and enjoy a modest income by refusing to accept the ponderous overhead of any health insurance payment including Medicare. His practice has become so large he finds it difficult to leave town and is seeking an associate. In his testimony before the Joint Economic Committee of Congress he pointed out that he is not alone and there is an organization called Simple Care with 2,000 similar medical providers scattered across the United States.

❖ THE PRACTICE OF MEDICINE TODAY IS SO MUCH FUN... NOT!

A report in the *Annals of Internal Medicine* covered the issue of re-certification. It was found that 23% of general internists and 14 % of sub-specialists don't bother to renew their certificates. More than half who do re-certify did so to update their knowledge and retain their professional image. Another reason related to requirement for employment, and others stated it was to maintain patient satisfaction. General internists were twice as likely as sub-specialists to fear that letting their certification lapse would have a negative impact on their careers. No one thought to mention that re-certification is a wonderful mechanism for increasing income for the boards, and where in all this paper exercise does pay for performance fit in?

❖ IT'S NOT A SIN UNLESS YOU GET CAUGHT.

Disillusioned? Disgusted? Disappointed? All these dis terms, plus a raft of other pejorative modifiers are in the minds of sport fans. The bogus tour-de-France testosterone winner, the cheesy steroid home run king, Barry Bonds, the drug fortified Olympic Games sprint champion, the NBA gambling referee calling unfair penalties, and the much-lauded New England Patriot coach Bill Belichick cheating on his opponents, leave everybody wondering when athletic integrity lost out to win at all costs. What's my problem? "Hey, everybody's doing it."

❖ I DON'T DRESS TO PLEASE MEN. I UNDRESS FOR THEM.

A. DICKINSON

In Madrid, Spain, police officials wanted to cut down on prostitution, so they were arresting street walkers for indecent exposure when they were caught wearing revealing clothes in public. However, law enforcement failed because a statute allows for "wearing a uniform." The prosecutor decided that since provocative attire is part of a prostitute's job, "the wearing of clothing, or lack thereof, is part of one's job."

❖ RED SOX, WHITE WATER, AND BLUE RIBBON BEER.

In Mashantucket, Connecticut, a man was arrested when he was caught stealing an ice chest. He claimed he thought he was stealing lobsters, but in fact the ice chest contained human corneas for potential transplant. Oops, wrong kind of seafood.

ADDENDA

- ❖ 25% of all the US spending on pediatric hospitalization goes to specialist units and innovative life-support for newborn babies.
- ❖ Americans discard 426,000 mobile phones every day.
- ❖ Solar energy is not something that is going to come in over night. (Gerald Ford)
- ❖ 25% of Italian women say their favorite aphrodisiac is a good salami.

ALOHA AND KEEP THE FAITH — rts■

Contents of this column do not necessarily reflect the opinion or position of the Hawai'i Ophthalmological Society and the Hawai'i Medical Association. Editorial comment is strictly that of the writer.

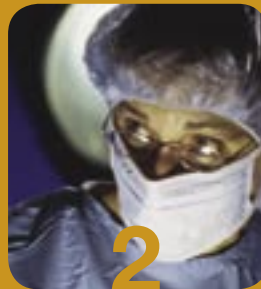


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—Mitchell B. Miller, MD, physician member of the AMA and his local and state societies

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