

Hawai‘i Journal of Medicine & Public Health

A Journal of Asia Pacific Medicine & Public Health

June 2015, Volume 74, No. 6, ISSN 2165-8218

EDITORIAL

An Appreciation — Irwin Schatz MD, MACP: A Man Before His Time

S. Kalani Brady MD, MACP and Michael J. Meagher MD, FACR

196

CHERRY PICKING IN THE ‘AINA: INEQUALITIES OF ACCESS TO DERMATOLOGIC CARE IN HAWAI‘I

Mariah L. Ferrara; Douglas W. Johnson MD; and David J. Elpern MD

197

A SERENDIPITOUS FIND: A CASE OF CHOLANGIOCARCINOMA IDENTIFIED INCIDENTALLY AFTER ACUTE LIVER INJURY DUE TO CASCARA SAGRADA INGESTION

Elizabeth S. Nakasone PhD, MSIII; and Jinichi Tokeshi MD

200

ETHNIC DIFFERENCES IN WITHDRAWAL OF LIFE SUPPORT AFTER INTRACEREBRAL HEMORRHAGE

Kristen M. Shaw DNP; Matthew J. Gallek PhD; Kate G. Sheppard PhD; Leslie Ritter PhD; Megan A. Vento BS; Susan M. Asai MSN; and Kazuma Nakagawa MD

203

MEDICAL SCHOOL HOTLINE

Biostatistics and Data Management Core at the University of Hawai‘i John A. Burns School of Medicine

John J. Chen PhD and Rosa Castro MBA

210

INSIGHTS IN PUBLIC HEALTH

Toward a Trauma-Informed System of Care in Hawai‘i’s Adult Mental Health Division

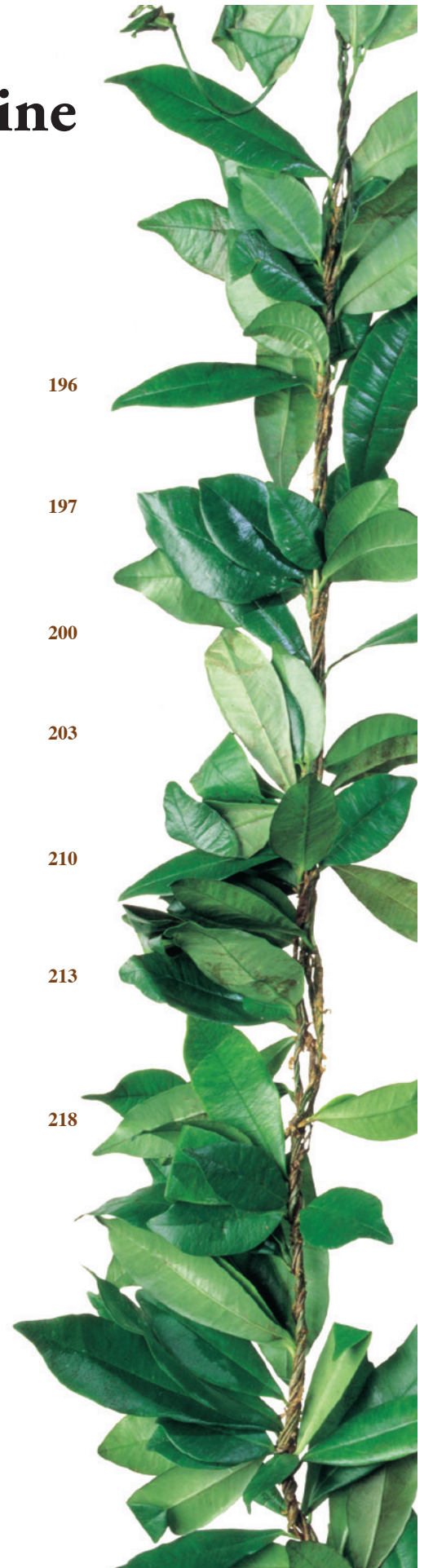
Michael J. Endres PhD; Stefan Keller PhD; Steven Y.C. Wong PhD; and Karen Krahn MSM

213

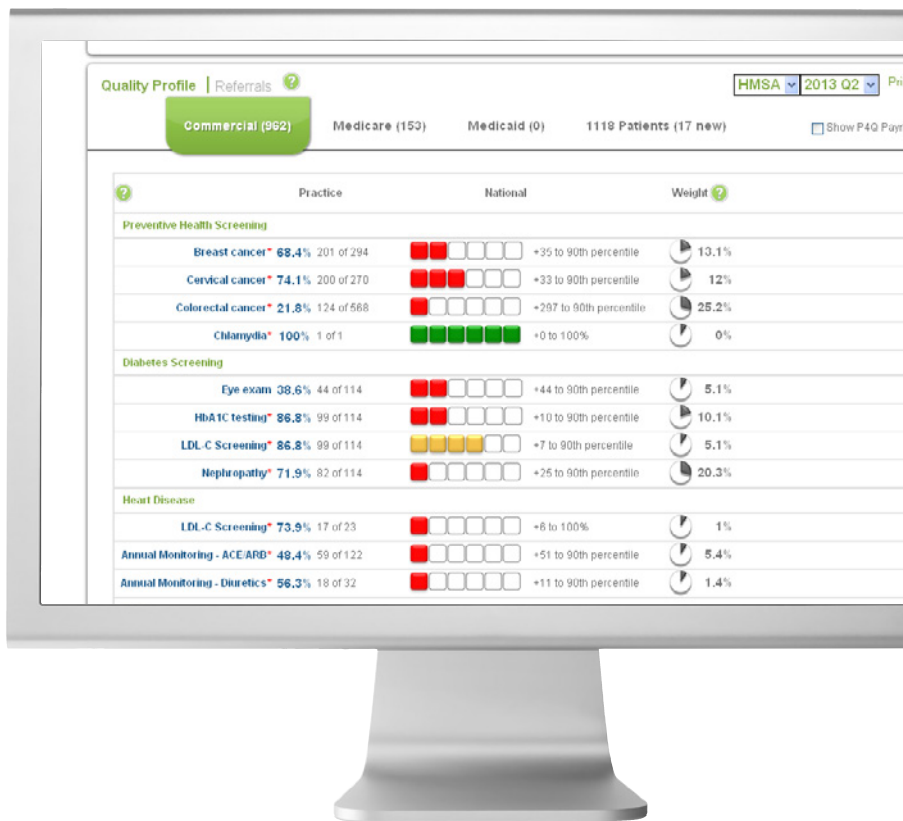
THE WEATHERVANE

Russell T. Stodd MD

218



Take Your Practice to the Next Level



If you're enrolled in HMSA's patient-centered medical home (PCMH) program, work with your physician organization leaders to help you:

- Review your organizational, clinical, and business functions and give you feedback to help you drive change and build capacity.
- Translate complex PCMH concepts into simple action plans to transform your practice.
- Combine vision, consensus, skills, incentives, and resources to change how care is delivered and received in your practice.

Take advantage of higher PCMH levels, greater quality scores, and bigger payments.

Contact your physician organization or call HMSA at 948-6214 on Oahu.



An Independent Licensee of the Blue Cross and Blue Shield Association

1010-1925

Hawai'i Journal of Medicine & Public Health

A Journal of Asia Pacific Medicine & Public Health

ISSN 2165-8218 (Print), ISSN 2165-8242 (Online)

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.

Published by University Clinical, Education & Research Associates (UCERA)

Hawai'i Journal of Medicine & Public Health
677 Ala Moana Blvd., Suite 1016B
Honolulu, Hawai'i 96813
<http://www.hjmph.org>; Email: info@hjmph.org

The Hawai'i Journal of Medicine & Public Health was formerly two separate journals: The Hawai'i Medical Journal and the Hawai'i Journal of Public Health. The Hawai'i Medical Journal was founded in 1941 by the Hawai'i Medical Association (HMA), which was incorporated in 1856 under the Hawaiian monarchy. In 2009 the journal was transferred by HMA to University Clinical, Education & Research Associates (UCERA). The Hawai'i Journal of Public Health was a collaborative effort between the Hawai'i State Department of Health and the Office of Public Health Studies at the John A. Burns School of Medicine established in 2008.

Editors:

S. Kalani Brady MD, MPH
Michael J. Meagher MD

Editor Emeritus:

Norman Goldstein MD

Associate Editors:

Tonya Lowery St. John MPH
Lance K. Ching PhD, MPH

Copy Editor:

Alfred D. Morris MD

Contributing Editors:

Donald Hayes MD, MPH
Satoru Izutsu PhD
Carolyn Ma PharmD
Jay Maddock PhD
Russell T. Stodd MD
Carl-Wilhelm Vogel MD, PhD

Layout Editor & Production Manager:

Drake Chinen

Subscription Manager:

Meagan Calogeras

Editorial Board:

Benjamin W. Berg MD, Patricia Lanoie Blanchette MD,
S. Kalani Brady MD, John Breinich MLS,
Lance K. Ching PhD, MPH, John J. Chen PhD,
Donald Hayes MD, MPH, Satoru Izutsu PhD,
Kawika Liu MD, Tonya Lowery St. John MPH,
Douglas Massey MD, Carolyn Ma PharmD,
Michael J. Meagher MD, Alfred D. Morris MD,
Myron E. Shirasu MD, Ranjani R. Starr MPH,
Russell T. Stodd MD, Frank L. Tabrah MD,
Carl-Wilhelm Vogel MD

Statistical Consulting:

Biostatistics & Data Management Core,
John A. Burns School of Medicine,
University of Hawai'i (<http://biostat.jabsom.hawaii.edu>)

Advertising Representative

Roth Communications
2040 Alewa Drive, Honolulu, HI 96817
Phone (808) 595-4124

The Hawai'i Journal of Medicine & Public Health (ISSN 2165-8218) is a monthly peer-reviewed journal published by University Clinical, Education & Research Associates (UCERA). The Journal cannot be held responsible for opinions expressed in papers, discussion, communications, or advertisements. The right is reserved to reject material submitted for editorial or advertising columns. Print subscriptions are available for an annual fee of \$220; single copy \$20 includes postage; contact the Hawai'i Journal of Medicine & Public Health for foreign subscriptions. Full text articles available on PubMed Central. ©Copyright 2015 by University Clinical, Education & Research Associates (UCERA).



Ukulele (D. Varez)

Over 50 Years of Dedication to Hawai'i's Physicians

The Board of Directors at Physicians Exchange of Honolulu invite you to experience the only service designed by and for Physicians in Hawai'i.

President:

Myron Shirasu, M.D.

Vice President:

Derek Ching, M.D.

Secretary:

Kimberly Koide Iwao, Esq.

Treasurer:

Richard Philpott, Esq.

Directors:

Melvin Inamasu, M.D.

Robert Marvit, M.D.

Stephen Oishi, M.D.

Garret T. Yoshimi

David Young, M.D.

Executive Director:

Rose Hamura

- Professional 24 Hour Live Answering Service
- Relaying of secured messages to cell phones
- Calls Confirmed, Documented and Stored for 7 Years
- HIPAA Compliant
- Affordable Rates
- Paperless Messaging
- Receptionist Services
- Subsidiary of Honolulu County Medical Society
- Discount for Hawai'i Medical Association members

"Discover the difference of a professional answering service. Call today for more information."

Physicians Exchange of Honolulu, Inc.
1360 S. Beretania Street, #301
Honolulu, HI 96814

(808) 524-2575

EDITORIAL

An Appreciation

Irwin Schatz MD, MACP: A Man Before His Time

Irwin Schatz, physician educator and researcher, died on April 1, 2015 at age 83 of metastatic melanoma. Born in St. Boniface, Manitoba in 1931, he matriculated at the University of Manitoba and pursued fellowship training at the Mayo Clinic. Soon thereafter, while working at Henry Ford hospital, he was outraged by a publication discussing the Tuskegee clinical studies then underway. Those studies, performed in an apparent ethical vacuum, withheld known effective therapy for syphilis from patients so that the natural history of the disease could be observed. He wrote to the authors, stating that "... I assume you feel that the information which is extracted from observation of this untreated group is worth their sacrifice. If this is the case, I suggest that the United States public Health Service and those physician with it need to reevaluate their moral judgements in this regard..."¹ The authors did not respond.

His letter preceded, by at least a decade, open and honest recognition of research fallibility and lack of accountability. It was one of the stimuli for the Belmont Report² and the formation of federally mandated Institutional Review Boards and the "Common Rule."³

Dr. Schatz moved to Hawai'i in 1975, serving the State and its citizens and Professor & Chairman of the Department of Medicine of JABSOM, Governor of the Hawai'i Chapter of the American College of Physicians, and functioning as a role model for many physicians now practicing in Hawai'i. In 2008, the Mayo Clinic recognized him with their Distinguished Alumni Award. His diagnostic acumen was recognized with the granting to him of the Master of the American College of Physicians designation, a rarely granted honor.

After retirement, he drew great pleasure while showing his usual competence as a docent at the Honolulu Academy of Arts. He is survived by his wife, two sons and many grandchildren.

References

1. Roberts, S. Obituaries, New York Times, 4/19/2015.
2. Belmont Report. <http://ohsr.od.nih.gov/mpa.belmont.php3>
3. Common Rule. www.hhs.gov/ohrp/humansubjects/commonrule/.

S. Kalani Brady MD, MACP
Michael J. Meagher MD, FACP
Co-editors, Hawai'i Journal of Medicine & Public Health

Cherry Picking in the ‘Aina: Inequalities of Access to Dermatologic Care in Hawai‘i

Mariah L. Ferrara; Douglas W. Johnson MD; and David J. Elpern MD

Abstract

There is evidence that people who are insured by Medicaid have difficulty accessing health care from private providers. This study documents access to dermatology care for a hypothetical patient insured by Medicaid in the State of Hawai‘i. Posing as young Medicaid patient with a changing mole, we called all dermatologists listed on the American Academy of Dermatology website and requested an appointment to be seen. Only 23% of dermatologists contacted accept all Medicaid plans and an additional 12% accept some. Thus 65% of dermatologists called do not provide specialist care to Hawai‘i’s Medicaid population.

Keywords

dermatology, access to care, Medicaid, dermatologist, medical insurance

If the rich could pay the poor to die for them, the poor would make a very good living. (Yiddish Proverb)

Introduction

It is clear Medicaid recipients nationwide have difficulty in obtaining health care from private practitioners. There are many reasons for this, but we believe that chief among them is that physicians are better reimbursed for seeing Medicare or privately insured patients. As a result, the poorest and most vulnerable individuals receive inferior and more fragmented care. Based on national surveys of physicians it is clear that this is not a problem particular to dermatology or Hawai‘i, but reflects on patterns in most parts of our country.¹ Dermatology appears to be one area in which obtaining care can be especially difficult for Medicaid patients. As dermatologists, the two senior authors (DWJ and DJE) sought to document access to dermatologic care in Hawai‘i in 2014. We did this, not by studying insurance company provider lists but by calling all practicing dermatologists in the state.

Methods

We collected data on all dermatologists practicing in the State of Hawai‘i in 2014 as listed on the American Academy of Dermatology’s website.² The resulting list was cross-referenced with the Center of Medicare and Medicaid Services (CMS) database which lists payments to all Medicare participating physicians in the United States in 2012.³ This resulted in a list of 51 dermatologists practicing in Hawai‘i.

Once this data was organized, one of us (MLF) placed scripted calls to each dermatologist’s office in the State of Hawai‘i during the summer of 2014. Assuming the persona of a fictitious young woman with Medicaid insurance who wished to book an appointment for a worrisome, changing mole, she inquired as to whether the practitioner accepted her insurance, and if so, what was the wait time to see the physician.

We also collected reimbursement data for six common office visits based on current procedural terminology (CPT) codes typically employed in a dermatology practice (99203, 99212, 99213, 11100, 17000) (Table 1). These data were obtained from the office of DWJ. The average reimbursements received by code and payer were then compared for Medicaid, Medicare, and HMSA.

Results

In the summer of 2014, we identified 51 practicing dermatologists in Hawai‘i. Twelve accepted all Medicaid patients and 6 accepted some. Thirty-three (65%) indicated that they could not see the Medicaid patient (Table 2). Only one dermatologist on an outer island would give our surrogate patient with a changing mole an appointment, and the wait time was approximately six months.

Average reimbursements for the common CPT codes 99203, 99212, 99213, 11100, 17000 are presented in Table 3 and Figure 1. The data show payment disparities for common office visits between Medicaid, HMSA, and Medicare. On average for these codes, Medicare paid 9% more than Hawai‘i’s largest private medical insurance company, HMSA. When compared to Medicare, HMSA paid dermatologists 92% for the same services. Medicaid reimbursed at 62% of Medicare payments and 68% of HMSA.

CPT Code	Definition
99203	Office or other outpatient visit for the evaluation and management of a new patient
99212	Office or other outpatient visit for the evaluation and management of an established patient (brief)
99213	Office or other outpatient visit for the evaluation and management of an established patient (intermediate)
11100	Biopsy of skin, subcutaneous tissue and/or mucous membrane
17000	Destruction of skin lesion

Location of Practice	Medicaid Payment Accepted		
	Accepts All Plans	Accepts Some Plans	Doesn’t Accept
O‘ahu	11	5	23
Outer Islands	1	1	10
Total	12	6	33

Table 3. Average reimbursement* in US dollars by CPT code and payer							
CPT Code							
Payer	99202	99203	99212	99213	99214	11100	17000
Medicaid	55.98	77.97	33.92	46.28	70.92	61.72	47.64
Medicare	79.84	115.02	47.21	77.95	114.69	112.15	82.27
HMSA	77.60	122.8	45.75	74.90	80.95	110.70	64.95

*Based on the average reimbursement received in Hawai'i by one of the authors per CPT code and payment source

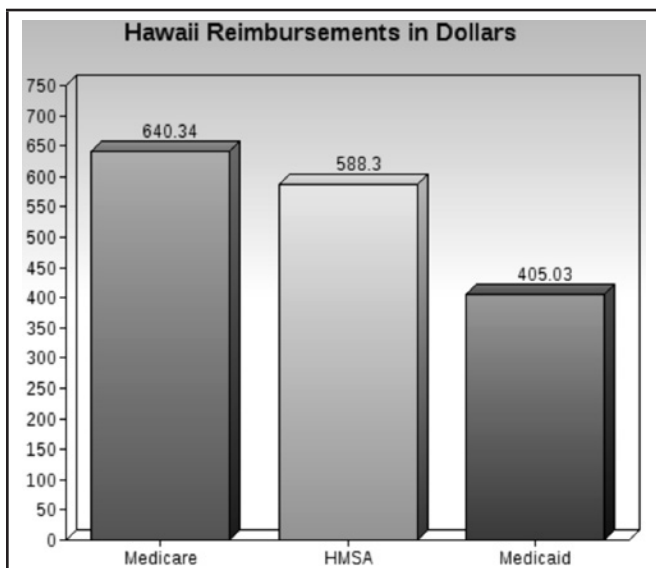


Figure 1. Sum of average reimbursement for common dermatology procedures by payment source, Hawai'i

*Based on the sum of the average reimbursement received in Hawai'i by payment source for the following CPT codes: 99209, 99203, 99212, 99213, 99214, 11100, and 17000.

Discussion

Health care insurance can easily be considered a necessity for every individual in the United States, especially when one reflects upon the cost of medical care at present. Many people believe that health care should be a right. Some of our neediest citizens face the problem of finding an insurance plan that fits one's income status and that most physicians will accept. Medicaid, the lesser value health insurance plan financed by federal, state, and local funds, pays for hospitalization and, usually, out-patient medical care for persons of all ages within certain lower income limits. Historically, it pays physicians less than private plans. We sought to document access to dermatologic care in Hawai'i for Medicaid patients. Similar studies have been done in California and Ohio.^{4,5,6}

We called every dermatologist in the State of Hawai'i in an attempt to determine how easy it would be for a young, anxious Medicaid recipient to see a dermatologist for a changing mole. Melanoma is the most feared skin malignancy and one can appreciate the emotions of a young person with a suspicious lesion.

Our results show that only 23% of Hawai'i's 51 dermatologists accept all Medicaid patients and an additional 12% accept certain Medicaid plans. Only one dermatologist on an outer island would give our surrogate patient with a worrisome mole an appointment and the wait for that practice was approximately six months. Thus, between 65 and 77% of Medicaid patients statewide will experience difficulty seeing a dermatologist in Hawai'i.

Curiously, HMSA lists 71 dermatologists in Hawai'i on its website.⁷ However, when one looks at their site, it is clear that a number of dermatologists are listed more than once and a few who are listed are not still in practice or are not even dermatologists. Studies of insurance company lists around the country have shown that around a third of listed providers are not available.¹ This supports the validity of our real world methodology for discerning practicing dermatologists as opposed to using web-based lists.

Our data demonstrate that patients on Medicaid are at a disadvantage if they have significant skin disease in Hawai'i. This is particularly true if they reside on an outer island where, for patients with skin disorders requiring specialist care, the situation is even worse than on Oahu. For almost all outer island Medicaid patients seeking dermatologic care there appear to be two options: having to fly to Oahu at an average round-trip cost of over \$200 (not considering ground transportation) and then securing an appointment with one of the minority of dermatologists who accept their Medicaid plan or seeing a dermatologist on their home island and paying out of pocket. One receptionist at an outer island practice told our surrogate patient that she could be seen for a fee of \$250 cash. For those dermatologists that did accept Medicaid, most had a wait time for new patients ranging from a couple weeks to many months. So, if a patient had an urgent dermatologic issue, it is likely that she would not be seen expeditiously. She would wind up at an emergency room whose physicians have to see all patients regardless of insurance and these patients would receive non-specialist care.

Our comparison of reimbursements for common office visits shows that while Medicare and HMSA are fairly close, dermatologists who treat Medicaid patients do so at almost a 40% discount. Reimbursement in Hawai'i, as well as elsewhere in the United States, appears to be a powerful disincentive for private practitioners to participate in state-provided insurance for low-income people.⁸ The result of non-participating physicians is poor access to specialist skin care for the most vulnerable segments of the population. Outer island patients in Hawai'i are at a particular disadvantage.

While our study focuses on dermatologic care, it is clear that the situation is not that different for other specialties. Indeed in a 2014 study, federal investigators found that large numbers of doctors who are listed as Medicaid providers are not available to treat Medicaid patients.¹ It is not our intent to demonize dermatology. The problem of access to care crosses most specialties and is a national one, not limited to Hawai'i.

Conclusion

This study documents a two-tiered system of dermatology care for Hawai'i's residents. Sixty-five to 77% of Hawai'i's dermatology practices are essentially closed to the state's most needy residents. By electing not to participate in Medicaid, a majority of Hawai'i's dermatologists are denying access to specialized care that other residents with higher paying insurance plans get. In some cases, this will have a negative impact on their health.

Coda

Two William Osler quotes seem pertinent here:

The practice of medicine is an art, not a trade: a calling not a business; a calling in which your heart will be exercised equally with your head. Often the best part of your work will have nothing to do with powders or potions, but with the exercise of an influence of the strong upon the weak, of the righteous upon the wicked, the wise upon the foolish.⁹

Dealing as we do with poor suffering humanity,...you have to keep your heart soft and tender lest you have too great a contempt for your fellow creatures.¹⁰

Physicians in Hawai'i, and elsewhere in the United States, need to look into their own hearts when excluding vulnerable citizens from their offices.

Conflict of Interest

None of the authors identify a conflict of interest.

Acknowledgement

The authors would like to thank Tonya Lowery St. John MPH, and Dileep Bal MD, MPH, for invaluable editorial assistance.

Authors' Affiliations:

- Third Year Student, Springfield College, Springfield, MA (MLF)
- Associate Clinical Professor, John A. Burns School of Medicine, University of Hawai'i, Honolulu, HI; and Hot Spots Foundation for Dermatological Education Inc., Williamstown, MA (DwJ)
- Clinical Dermatologist; and Hot Spots Foundation for Dermatological Education, Williamstown, MA (DJE)

Correspondence to:
David J. Elpern MD; 12 Meadow St., Williamstown, MA 01267;
Email: djelpern@gmail.com

References

1. Pear R. Half of Doctors Listed as Serving Medicaid Patients Are Unavailable, Investigation Finds. *New York Times*, December 8, 2014. <http://nyti.ms/1G8fqX2>. Accessed December 10, 2014.
2. American Academy of Dermatology <http://www.aad.org> Accessed on July 1, 2014.
3. Center for Medicare Services Physician Reimbursement Database <http://www.nytimes.com/interactive/2014/04/health/medicare-doctor-database.html>. Accessed on July 1, 2014.
4. Tsang MW, Resneck JS Jr. Even patients with changing moles face long dermatology appointment wait-times: a study of simulated patient calls to dermatologists. *J Am Acad Dermatol*. Jul 2006;55(1):54-8
5. Resneck JS Jr, Isenstein A, Kimball AB. Few Medicaid and uninsured patients are accessing dermatologists. *J Am Acad Dermatol*. Dec 2006;55(6):1084-8.
6. Alghothani L, Jacks SK, Vander Horst A, Zirwas MJ. Disparities in access to dermatologic care according to insurance type. *Arch Dermatol*. Aug 2012;148(8):956-7.
7. HMSA List of Dermatology Providers as of December 2014. <http://www.hmsa.com/search/providers/?query=dermatology>. Accessed December 10, 2014.
- 8) Relman AS. Shattuck Lecture—the health care industry: where is it taking us? *N Engl J Med*. Sep 19. 1991;325(12):854-9.
9. Osler W. *Aequanimitas*. Chapter XV111. The Master-Word in Medicine. Philadelphia: P. Blakiston's Sons & Company; 1904.
10. Osler W. Extemporaneous Address. *Albany Medical Annals*. June 1899;(6):307-309.

What matters most?

When it comes to your information management program, what matters most to you? We think you will agree, it's access: secure and compliant, yet fast and convenient for you. Access serves healthcare organizations throughout Hawaii.

The right choice for you? It's Access.
Call us today to arrange your FREE consultation and quote.

Access
Information Protected.
InformationProtected.com
808.673.3200

BBB PRIVACY AAA

Access to, storage, management and destruction of both paper and digitally based information. Nationwide.

A Serendipitous Find: A Case of Cholangiocarcinoma Identified Incidentally After Acute Liver Injury Due to *Cascara sagrada* Ingestion

Elizabeth S. Nakasone PhD, MSIII; and Jinichi Tokeshi MD

Abstract

The use of anthranoid laxatives such as *Cascara sagrada* can, in rare instances, produce a hepatitis that resolves with discontinuation of the offending supplement. However, the clinical presentation of abdominal pain, jaundice, clay-colored stools, and darkening urine can mimic the presentation of a variety of hepatobiliary illnesses, including cholangiocarcinoma. This case report describes a local patient diagnosed with an extrahepatic cholangiocarcinoma following workup for an acute hepatitis due to ingestion of large quantities of *Cascara sagrada*.

Keywords

Drug-induced liver injury, cholestasis, cholangiocarcinoma, cascara, jaundice

Introduction

Anthranoid laxatives, such as senna and *Cascara sagrada*, are commonly used for the treatment of constipation because of their botanical origin.¹ However, over the past 15 years, several cases of liver injury related to the use of these laxative agents have been reported. In the majority of these cases, the affected patient presented with symptoms of an acute hepatitis, including abdominal pain, jaundice, clay-colored stools, darkening urine, and elevated transaminase levels following chronic use or acute ingestions of large quantities of these supplements.²⁻⁸

The diagnosis of acute liver injury due to an herbal supplement is one of exclusion. In addition to basic laboratory studies such as a metabolic panel, viral serologies, liver function tests, and urine toxicology screens, abdominal imaging, typically ultrasonography is also warranted.⁹ In an elderly patient, a high suspicion for malignancy should be maintained. In this report, we describe and discuss a patient who presented with acute liver injury following the ingestion of large quantities of *Cascara sagrada* over a 3-day period for the treatment of constipation, who, during the course of the workup for acute liver injury, was diagnosed with an extrahepatic cholangiocarcinoma.

Case Report

This is a 77-year-old Japanese woman, with a past medical history of hypertension, hyperlipidemia, and diabetes mellitus type II, treated with once daily dosing of verapamil ER 240 mg, losartan-hydrochlorothiazide 100-12.5 mg, lovastatin 50 mg, and metformin ER 500 mg. She presented to her primary care physician with a 10-day history of dark-colored urine, clay-colored stool, fatigue, and generalized jaundice. Immediately prior to the onset of these symptoms, the patient had experienced a 2-3 day period of constipation, for which she used an over-the-counter *Cascara sagrada*-based supple-

ment, taking 3 capsules on the first day of constipation, and then 4 capsules on the two subsequent days, with relief of her constipation on the third day. Each capsule contained 250 mg of *Cascara sagrada* bark, along with small amounts of twelve other herbal supplements, and the recommended regimen was 1 to 3 capsules per day in divided doses. The patient had never used this supplement in the past.

Following the relief of her constipation, the patient stopped the use of this supplement. However, with the return of normal bowel function, the patient noted pale, clay-colored stools and clear, dark, orange-colored urine. Her stool color returned to normal within a week, but her urine remained discolored at the time of presentation. The patient finally presented to her primary care physician on the tenth day after the return of normal bowel function, when she noted 2 days of increased fatigue and a yellowish-tinge to her skin and eyes. The patient denied any urinary symptoms, including dysuria, burning, frequency, hesitancy, or flank pain, as well as any change in appetite, fever, chills, nausea, vomiting, constipation, diarrhea, hematochezia, or abdominal pain. Her physical examination revealed generalized jaundice without appreciable hepatomegaly or stigmata of liver disease. The remainder of her physical examination was within normal limits.

The patient was subsequently admitted for observation with a working initial diagnosis of acute liver injury due to the ingestion of an herbal supplement, to rule out more serious medical conditions. Initial laboratory workup included a complete metabolic panel, CBC with differential, urinalysis, hepatic profile, acetaminophen levels, hepatitis A, B, and C serologies, coagulation studies, and urine toxicology screen. The patient's metabolic panel and CBC were within normal limits. Consistent with acute liver injury, urinalysis showed clear (normal appearance: clear), orange-yellow (normal color: yellow) urine that was 2+ bilirubin (normal: negative), and heme negative (normal: negative); liver enzymes, including alkaline phosphatase, ALT, and AST, at 465 IU/L (normal: 30-120 IU/L), 237 IU/L (normal: ≤ 35 IU/L), and 112 IU/L (normal: ≤ 36 IU/L), respectively, were elevated; and total and direct bilirubin were elevated at 18.5 mg/dL (normal: ≤ 1.0 mg/dL) and 11.4 mg/dL (normal ≤ 0.5 mg/dL), respectively. Acetaminophen levels were below therapeutic range, and a urine toxicology screen returned negative for all drugs tested. Hepatitis serologies were negative for hepatitis A IgM, hepatitis C antibody, and hepatitis B core IgM, S antigen, and S antibody.

The patient subsequently underwent an abdominal ultrasound to rule out other causes of hepatocellular injury, such as choledocholithiasis or malignancy. The ultrasound showed a heterogeneously hyperechoic liver, consistent with diffuse hepatocellular injury. Unexpectedly, the ultrasound also showed intra- and extra-hepatic biliary duct dilatation with common bile duct sludge, that was concerning for possible choledocholithiasis. A follow-up magnetic resonance cholangiopancreatography (MRCP) was performed, which confirmed the moderate intra- and extra-hepatic biliary duct dilatation, but also revealed cystic duct dilatation, mild dilatation of the pancreatic duct, and associated filling defects consistent with stricture and obstruction. Endoscopic retrograde cholangiopancreatography (ERCP) was then performed with the goal of dilating the biliary and pancreatic ducts to alleviate the obstructive jaundice. The common bile duct was cannulated and stented, and a sphincterotomy was performed; however, there were no stones present. This common bile duct stricture was concerning for a malignant neoplasm, so brushings of the stricture were taken for cytology. The patient then underwent an abdominal CT, but no masses were identified near the stricture in the common bile duct or the pancreas. The cytology report showed atypical ductal pancreaticobiliary cells. During this period, the patient's elevated liver enzymes continued to down-trend until they were again within normal limits, and urinalysis also returned to within normal limits. Approximately two weeks after her initial presentation, the patient subsequently underwent a successful pancreaticoduodenectomy (Whipple procedure) for the surgical resection of a moderately differentiated adenocarcinoma of the common bile duct and carcinoma *in situ* of the cystic duct.

Discussion

Cascara sagrada belongs to a group of herbal supplements known as the anthranoid laxatives, that is commonly used for the treatment of constipation, and includes the well-known cathartic senna.^{1,13} The primary chemical component of these supplements believed to be responsible for their cathartic effects is an anthracene-based molecule, typically an anthrone, anthraquinone, or dianthrone, that is metabolized in the intestine by local microflora to produce an aglycone anthranoid compound that stimulates intestinal motility and secretory activity.^{1,13} While these supplements are typically believed to be relatively benign, over the past 15 years, several cases of hepatotoxicity have been linked to these supplements when used for a period of days to months. In these cases, patients presented with clinical features of hepatitis, including abdominal pain, jaundice, clay-colored stools, darkening urine, and elevated transaminase levels, which resolved following discontinuation of the offending supplement.²⁻⁸ The patient described above presented to her primary care physician with similar symptoms, including fatigue, generalized jaundice, clay-colored stools, and darkening urine following the use of a supplement containing *Cascara sagrada* for the treatment of constipation.

Drug-induced liver injury (DILI) is the probable diagnosis in the patient who presents with signs and symptoms of acute

liver injury following ingestion of high doses of a medication or herbal supplement. However, it is important to realize that DILI is a diagnosis of exclusion. Included in the differential diagnosis for DILI are acute viral hepatitis, autoimmune hepatitis, ischemic liver injury, alcoholic liver disease, genetic disorders such as Wilson's disease, and hepatobiliary malignancy. A detailed history, laboratory workup, and hepatobiliary imaging are invaluable in the diagnosis of this condition. Appropriate diagnostic laboratories and imaging include viral hepatitis serologies, autoimmune hepatitis serologies, medication levels, liver enzymes, complete blood count, and abdominal ultrasonography with or without liver biopsy.⁹ The case described above provides an example of the importance of hepatobiliary imaging in the workup of DILI. While abdominal ultrasound showed diffuse hepatocellular injury, which is consistent with DILI, this imaging also identified biliary tract dilatation and cholestasis suggestive of a distal obstruction that would ultimately be diagnosed as an extrahepatic cholangiocarcinoma.

Cholangiocarcinomas are hepatobiliary malignancies derived from ductal epithelial cells of the biliary tree, and may be classified as intrahepatic or extrahepatic, depending on whether they are localized to the liver proper. Although a rare form of malignancy, accounting for approximately 3% of all gastrointestinal cancers, they are the most common cancer to arise in the biliary tree, and the second most common primary hepatic cancer.¹⁰ The average incidence of cholangiocarcinoma in the United States is 1-2 cases per 100,000 persons per year. The highest rate of prevalence occurs in people in their seventh and eighth decades of life, and is more frequently diagnosed in males than females.¹⁰⁻¹² Due to the rarity of this malignancy, few risk factors for cholangiocarcinoma have been identified. Known risk factors include primary sclerosing cholangitis, chronic ulcerative colitis (an independent risk factor for primary sclerosing cholangitis), infection with liver flukes, chronic viral hepatitis, congenital fibropolycystic liver disease, bile duct cysts, and hepatolithiasis.¹⁰⁻¹²

Cholangiocarcinoma typically presents at an advanced stage. The symptoms a patient presents with will depend on the location of the tumor. In patients with extrahepatic cholangiocarcinomas, like that diagnosed in the case described above, most will present with obstructive jaundice. Patients with intrahepatic cholangiocarcinomas will typically present with abdominal pain. Other common symptoms include weight loss, clay-colored stools and darkening urine due to biliary tract obstruction, pruritus due to elevated bile acid levels, and fat malabsorption due to a paucity of bile acids in the digestive tract.^{11,14}

Diagnostic workup for a patient with suspected cholangiocarcinoma should include a complete blood count, electrolytes, liver function tests, and imaging. Typical laboratory findings associated with extrahepatic cholangiocarcinomas include elevated direct bilirubin, ALP, and γ -glutamyltransferase, which are characteristic of pathologies arising in the biliary tract. Tumor markers such as CA 19-9 and carcinoembryonic antigen are frequently used in the diagnosis of cholangiocarcinoma, but have low sensitivity and specificity. It is important to note that

laboratory workup may produce results similar to that observed in a patient with choledocholithiasis, thus use of abdominal ultrasonography is important for excluding cholelithiasis.¹⁴ Computed tomography may also be used to visualize the tumor, detect regional lymphadenopathy, and help to assess local resectability.¹¹ Magnetic resonance cholangiopancreatography may be used for the same purpose. Endoscopic retrograde cholangiopancreatography (ERCP) can be used to visualize the site of obstruction, and acquire samples for histopathological analysis, including brush cytology, biopsy, needle aspiration, and shave biopsies. A stent may also be placed during ERCP to relieve biliary obstruction.^{11,14}

Treatment for cholangiocarcinomas depends on the stage of the disease, which is determined by the American Joint Committee on Cancer's tumor-node-metastasis staging algorithm for cholangiocarcinoma. The only potentially curative treatment for cholangiocarcinoma is surgical resection. However, as a majority of cholangiocarcinomas present at an advanced stage, surgical resection is often not an option.¹⁴ Medical management in patients with unresectable, recurrent, or metastatic cholangiocarcinoma includes chemotherapy, typically gemcitabine, 5-fluorouracil, a platinum-based agent, or docetaxel, and palliative radiation therapy.¹¹

ENHANCED WEBSITE!

Hawaii Health Matters
WWW.HAWAIIHEALTHMATTERS.ORG

FRESH DESIGN

- CREATIVE NAVIGATION
- IMPROVED DATA PRESENCE

NEW FUNCTIONALITY

- FIND DEMOGRAPHIC DATA
- SOCIO NEEDS INDEX

EXCLUSIVE CONTENT

- PAN PLAN TRACKER
- ASTHMA TRACKER
- HP2020 TRACKER

Hawai'i Health DATA WAREHOUSE
WWW.HHDW.ORG
WWW.HAWAIIHEALTHMATTERS.ORG
EMAIL: PROFILES@HHDW.ORG
TOLL-FREE: 1.855.946.5899 x15

Conclusions

Liver injury resulting from the use of anthranoid laxatives such as *Cascara sagrada* can produce symptoms that mimic the presentation of extrahepatic cholangiocarcinoma, including jaundice, pruritus, clay-colored stools, and darkening of urine. Thus, even in the presence of an acute hepatotoxic insult, malignancy should remain high in the differential diagnosis for an elderly patient who presents with this constellation of symptoms and lacks primary risk factors for cholangiocarcinoma.

Conflict of Interest

None of the authors identify a conflict of interest.

Authors' Affiliation:

- John A. Burns School of Medicine, University of Hawai'i, Honolulu, HI

Correspondence to:

Jinichi Tokeshi MD; 405 N. Kuakini St., #707, Honolulu, HI 96817;
Ph: (808) 536-3267; Email: jinichi.tokeshi@gmail.com

References

- van Gorkom BA, de Vries EG, Kareembeld A, Kleibeuker JH. Review article: anthranoid laxatives and their potential carcinogenic effects. *Aliment Pharmacol Ther.* 1999;13(4):443-452.
- Jacobsen C, Semb S, Kromann-Andersen H. [Toxic hepatitis following consumption of the herbal medicinal product *Cascara Sagrada*. *Ugeskr Laeger.*] 2009;171(46):3367-3369.
- Nadir A, Reddy D, Van Thiel DH. *Cascara sagrada*-induced intrahepatic cholestasis causing portal hypertension: case report and review of herbal hepatotoxicity. *Am J Gastroenterol.* 2000;95:3653-3657.
- Sonmez A, Yilmaz MI, mas R, Ozcan A, Celasun B, Dogru T, Taslipinar A, Kocar IH. Subacute cholestatic hepatitis likely related to the use of senna for chronic constipation. *Acta Gastroenterol Belg.* 2005;68(3):385-387.
- Vanderperren B, Rizzo M, Angenot L, Haufroid V, Jadoul M, Hantson P. Acute liver failure with renal impairment related to the abuse of senna anthraquinone glycosides. *Ann Pharmacother.* 2005;39:1353-1357.
- Seybold U, Landauer N, Hillebrand S, Goebel FD. Senna-induced hepatitis in a poor metabolizer. *Ann Intern Med.* 2004;141(8):650-1.
- Woolf GM. Senna-induced hepatotoxicity. *Hepatology.* 1999;550A:1560.
- Beuers U, Spengler U, Pape GR. Hepatitis after chronic abuse of senna. *Lancet.* 1991;337:372-3.
- Chalasanani NP, Hayashi PH, Bonkovsky HL, Navarro VJ, Lee WM, Fontana RJ. Practice Parameters Committee of the American College of Gastroenterology. ACG Clinical Guideline: the diagnosis and management of idiosyncratic drug-induced liver injury. *Am J Gastroenterol.* 2014;109(7):950-966.
- Augustine MM, Yuman F. Epidemiology and risk factors of biliary tract and primary liver tumors. *Surg Oncol Clin N Am.* 2014;23(2):171-188.
- Yao D, Kunam VK, Li X. A review of the clinical diagnosis and therapy of cholangiocarcinoma. *J Int Med Res.* 2014;42(1):3-16.
- Saich R, Chapman R. Primary sclerosing cholangitis, autoimmune hepatitis and overlap syndromes in inflammatory bowel disease. *World J Gastroenterol.* 2008;14(3): 331-337.
- de Witte P, Lemli L. The metabolism of anthranoid laxatives. *Hepatogastroenterology.* 1990;37(6):601-605.
- Lad N, Kooby DA. Distal cholangiocarcinoma. *Surg Oncol Clin N Am.* 2014;23(2):265-287.

Ethnic Differences in Withdrawal of Life Support After Intracerebral Hemorrhage

Kristen M. Shaw DNP; Matthew J. Gallek PhD; Kate G. Sheppard PhD; Leslie Ritter PhD; Megan A. Vento BS; Susan M. Asai MSN; and Kazuma Nakagawa MD

Abstract

Minorities are less likely to decide on withdrawal of life support (WOLS) after acute severe illness. However, the decision-making process for WOLS after intracerebral hemorrhage (ICH) among Native Hawaiians and other Pacific Islanders (NHOPI) has not been described. To address this gap in the literature, a retrospective study was conducted on consecutive spontaneous ICH patients admitted to a tertiary center in Honolulu between 2006 and 2010. The occurrence of WOLS and time-to-WOLS were the outcome measures. Unadjusted and multivariable logistic regression models were performed to determine associations between NHOPI ethnicity and WOLS. This study assessed 396 patients (18% NHOPI, 63% Asians, 15% non-Hispanic whites [NHW], 4% others) with ICH. NHOPI was associated with lower rate of WOLS than NHW in the univariate analysis (OR 0.35, 95% CI: 0.15, 0.80). However, NHOPI ethnicity was no longer significant when adjusted for age (OR 0.59, 95% CI: 0.25, 1.43) and in the fully adjusted model (OR 0.68, 95% CI: 0.20, 2.39). Although NHOPI with ICH were initially perceived to have less WOLS compared to NHW, this observed difference was largely driven by the younger age of NHOPI rather than from underlying cultural differences that are inherent to their ethnicity.

Introduction

Withdrawal of life support (WOLS) is the cessation of life-sustaining treatments; the choice to discontinue and further withhold life-sustaining therapies such as mechanical ventilation, blood pressure medications, antibiotics, or artificial hydration or nutrition, with expected natural death.¹ Since spontaneous intracerebral hemorrhage (ICH) has disproportionately high rates of severe long-term disability and decreased quality of life, the practice of WOLS is frequently considered in many clinical settings.²⁻⁵

Prior studies have shown differences in end-of-life decision-making by minority groups in the United States. Blacks and Hispanics, the most frequently studied minority groups, have been shown to choose more aggressive care, are less likely to decide on WOLS after acute illnesses, and take longer time to come to the decision on WOLS compared to non-Hispanic whites (NHW).⁶⁻¹² However, little is known about the end-of-life care preferences and decision-making of Native Hawaiians and other Pacific Islanders (NHOPI). Due to similarities with other minority groups such as increased health disparities and lack of advanced directives, it is possible that NHOPI may be similar to other minority groups in end-of-life care preferences.¹⁰⁻¹⁵

The objectives of this study were to compare the prevalence of WOLS between NHOPI and NHW. We hypothesized that NHOPI with ICH have less frequent WOLS compared to NHW

Methods

Patients and Data Collection

The Queen's Medical Center (QMC), located in Honolulu, is the

largest tertiary center in the state of Hawai'i; the main referral center in the Pacific Basin.^{16,17} During the study period, QMC was the only Primary Stroke Center with a dedicated neuroscience intensive care unit (NSICU) for the state of Hawai'i. This study was approved by the QMC Research and Institutional Review Committee.

All patients admitted with ICH between January 1, 2006, and August 31, 2010, were identified through use of QMC's institutional database. Patients with ICH were prospectively identified by a trained database coordinator (S.M.A.). Cases were confirmed for spontaneous ICH by additional review of electronic medical records by a board-certified neurologist (K.N.). Patients admitted with traumatic ICH, ICH related to cerebral aneurysm rupture, and ischemic stroke with hemorrhagic conversion were excluded from the study. For patients who were re-hospitalized at a later date for another ICH, only the data from the initial admission was used for the analysis.

Data obtained from the database included age, sex, ethnicity, marital status, methamphetamine abuse, and past medical history. The race and ethnicity information were collected from the hospital's administrative database, and were obtained during the registration or admission process using two questions. The first question was whether or not they are "Native Hawaiian or Part-Hawaiian." The second question was an open-ended question to list one race that the patient most closely associated with, based on patient self-identification or family's identification if the patient was incapacitated. The NHOPI race was defined as anyone whose race was coded as "Native Hawaiian or Part-Hawaiian" or any race or ethnicity associated with Polynesia, Melanesia, or Micronesia. Ultimately, ethnicity was categorized as NHW, NHOPI, Asian, or other. Due to the low number of black and American Indian/Alaskan patients, these patients were grouped with those classified as other. Since the admitting team may impact the end-of-life discussion with the family, the data on admitting team was obtained. The admitting team was recorded as neurovascular team if the admitting physician was a neurointensivist or neurohospitalist. All of the neurointensivists and neurohospitalists have been trained in vascular neurology. All other admitting physicians (ie, internal medicine hospitalist, medical intensivist, etc) were coded as "other." Since admission to a specialized unit such as the NSICU may also impact the decision-making process, admission location was obtained and recorded as NSICU or "other." The presence of a pre-existing do-not-resuscitate (DNR) order was noted since this often indicates desire for less aggressive care.^{18,19} The patient's initial brain computed tomography (CT) scans were reviewed by an investigator (K.N.) using a previously described standardized

protocol blinded to patient identity and clinical data,^{20,21} and ICH volume was calculated using the ABC/2 method.²² Location of ICH was coded as basal ganglia, lobar, thalamus, brainstem, cerebellum, and primary intraventricular hemorrhage (IVH). Presence of any IVH associated with ICH was also recorded.

Outcome Measure: Withdrawal of Life Support

WOLS was defined as the physician order to cease all life-sustaining treatments including mechanical ventilation, blood pressure medications, antibiotics, and artificial hydration or nutrition, with the plan not to re-initiate these measures with clinical decline. The accuracy of WOLS was verified by the documentation of physicians, nurses, and respiratory therapists.

Analysis

Demographics and baseline characteristics of NHOPI and Asians were compared to NHW (reference group). A two-tailed t-test was used for analysis to compare continuous variables. Categorical variables were analyzed using a chi-squared test. The same method was used to compare demographics and baseline characteristics between patients who had WOLS and those who did not have WOLS. Age was used as a continuous variable with a constant odds ratio (OR) for each year and hematoma volume

was used as a continuous variable with a constant OR for each mL. Multivariable logistic regression analysis was performed to assess the relationships between ethnicity and WOLS. Four separate models were created: (1) unadjusted, (2) adjusted for age, (3) adjusted for age and sex, and (4) adjusted for all of the variables with $P < .10$ in the univariate analyses comparing characteristics of those who did and did not have WOLS. The OR and 95% confidence interval (CI) were calculated from the beta coefficients and their standard errors. Levels of $P < .05$ were considered statistically significant. All analyses were performed using SPSS statistical software (SPSS version 22.0, IBM, Chicago, IL).

Results

A total of 396 patients with spontaneous ICH (18% NHOPI, 63% Asians, 15% NHW, 4% others) who met the study criteria were included. Demographics and clinical characteristics are shown in Table 1. The demographic and baseline characteristic data for the “other” ethnic group was not included in Table 1, but data for “other” ethnic group was included for Table 2 and for all subsequent analyses. Overall, NHOPI were younger ($P < .001$), more likely to have diabetes ($P = .02$), and were less likely to be married ($P = .02$) than NHW.

	NHW* n = 61	NHOPI n = 72	P	Asian n = 248	P
Age (years), mean (SD)	68 (16)	55 (16)	<.001	67 (17)	.66
Female, n (%)	24 (39)	30 (42)	.79	118 (48)	.25
Married, n (%)	39 (65)	33 (45)	.02	112 (45)	.01
Diabetes, n (%)	11 (18)	26 (36)	.02	52 (21)	.61
Hypertension, n (%)	38 (62)	53 (74)	.16	187 (75)	.04
Coronary artery disease, n (%)	11 (18)	9 (13)	.37	25 (10)	.08
Smoking, n (%)	9 (15)	13 (18)	.61	34 (14)	.83
Methamphetamine use, n (%)	2 (3)	8 (11)	.09	15 (6)	.40
Initial GCS, median [IQR]	13 [6, 15]	14 [8, 15]	.24	14 [8, 15]	.38
Location of ICH on CT, n (%)			.27		.11
Basal ganglia	26 (43)	32 (44)		86 (35)	
Lobar	22 (36)	15 (21)		59 (24)	
Thalamus	7 (12)	12 (17)		51 (21)	
Brainstem	2 (3)	5 (7)		16 (7)	
Cerebellum	3 (5)	3 (4)		25 (10)	
Primary IVH	1 (2)	5 (7)		11 (4)	
Any IVH, n (%)	29 (48)	31 (43)	.60	121 (49)**	.84
ICH Volume (mL), mean (SD)	41 (48)**	40 (60)**	.90	37 (50)**	.64
Admit to NSICU, n (%)	32 (53)	41 (57)	.60	127 (52)	.86
Admitted to neuro team, n (%)	30 (49)	38 (53)	.68	116 (47)	.74
Pre-existing DNR order, n (%)	4 (7)	3 (4)	.54	16 (7)	.98

NHW, Non-Hispanic whites; NHOPI, Native Hawaiian Other Pacific Islander; GCS, Glasgow Coma Scale; ICH, intracerebral hemorrhage; CT, computed tomography; IVH, intraventricular hemorrhage; mL, milliliter; NSICU, neuroscience intensive care unit; DNR, do-not-resuscitate; WOLS, withdrawal of life support. Data are displayed in mean (SD), in n (%), or median [IQR]. *NHW is the reference category for NHOPI and Asian statistical comparisons. Data for the ethnic category of other is not included in this table, but is included in Table 2 and the subsequent analyses of Table 3. **Missing data include 1 Asian with Any IVH, 3 NHW with ICH volume, 4 NHOPI with ICH volume, 11 Asian with ICH volume.

Table 2. Characteristics of Patients With and Without Withdrawal of Life Support			
Characteristic	Withdrawal of Life Support n=89	No Withdrawal of Life support n=307	P
Age (years), mean (SD)	75 (14)	61 (17)	<.001
Female, n (%)	48 (54)	130 (42)	.05
Ethnicity, n (%)			.12
NHW	19 (21)	42 (14)	
Asian	57 (64)	191 (62)	
NHOPI	10 (11)	62 (20)	
Other	3 (3)	12 (4)	
Married, n (%)	42 (48)	144 (48)	.96
Diabetes, n (%)	22 (25)	69 (23)	.66
Hypertension, n (%)	70 (79)	215 (70)	.11
Coronary artery disease, n (%)	9 (10)	37 (12)	.62
Smoking, n (%)	7 (8)	53 (17)	.03
Methamphetamine use, n (%)	1 (1)	28 (9)	.01
Initial GCS, median [IQR]	7 (4)	12 (4)	<.001
Location of ICH on CT, n (%)			.29
Basal ganglia	37 (42)	114 (37)	
Lobar	20 (23)	79 (26)	
Thalamus	20 (23)	52 (17)	
Brainstem	1 (1)	22 (7)	
Cerebellum	7 (8)	25 (8)	
Primary IVH	4 (5)	15 (5)	
Any IVH, n (%)	70 (79)	119 (39)	<.001
ICH Volume (mL), mean (SD)	78 (70)	27 (38)	<.001
Admit to NSICU, n (%)	60 (67)	149 (49)	.002
Admitted to neuro team, n (%)	51 (57)	142 (46)	.07
Pre-existing DNR order, n (%)	15 (17)	9 (3)	<.001

NHW, Non-Hispanic whites; NHOPI, Native Hawaiian Other Pacific Islander; GCS, Glasgow Coma Scale; ICH, intracerebral hemorrhage; CT, computed tomography; IVH, intraventricular hemorrhage; mL, milliliter; NSICU, neuroscience intensive care unit; DNR, do-not-resuscitate. Data are displayed in mean \pm SD or n (%).

Comparison of the patients with and without WOLS is shown in Table 2. Those who had WOLS were older ($P < .001$), less likely to smoke ($P = .03$), less likely to use methamphetamines ($P = .01$), had a lower initial Glasgow Coma Scale (GCS) scores ($P < .001$), higher incidence of IVH ($P < .001$), had a higher ICH volume in mL ($P < .001$), were more often admitted to NSICU ($P = .002$), and had a higher prevalence of pre-existing DNR orders ($P < .001$) when compared to patients who did not have WOLS.

The multivariable regression models for WOLS after ICH are shown in Table 3. In unadjusted analysis (model 1), NHOPI were significantly less likely to have WOLS compared to NHW (OR 0.35, 95% CI: 0.15, 0.80). However, when adjusted for age (model 2), NHOPI ethnicity was no longer a significant predictor for WOLS (OR 0.59, 95% CI: 0.25, 1.43). In the fully adjusted model NHOPI ethnicity remained an insignificant predictor of WOLS (OR 0.68, 95% CI: 0.20, 2.39). Variables noted to be significantly associated with WOLS in the fully adjusted model

included age (OR 1.06, 95% CI: 1.03, 1.09), ICH volume (OR 1.01, 95% CI: 1.003, 1.02), initial GCS (OR 0.79, 95% CI: 0.72, 0.87), presence of IVH (OR 3.01, 95% CI: 1.44, 6.32) and presence of a pre-existing DNR (OR 3.22, 95% CI: 1.03, 10.50).

Discussion

This study was performed with the primary hypothesis that prevalence of WOLS after ICH would be less among NHOPI when compared to NHW, as shown in other minority groups.^{5-7,10,23-25} Although the results of unadjusted analysis supported the primary hypothesis, that NHOPI are less likely to have WOLS compared to NHW, the impact of age and other clinical factors in all of the subsequent multivariable models dispelled any relationship between NHOPI ethnicity and lower prevalence of WOLS compared to NHW. These results are strikingly different compared to other end-of-life studies of minorities, and suggest that NHOPI and NHW in Hawai'i may share similar

WARD VILLAGE INTRODUCES AE`O,
BY ACCLAIMED DESIGNERS BOHLIN CYWINSKI JACKSON.

RESIDENCES STARTING FROM THE LOW \$400Ks
SALES COMMENCE SUMMER 2015.



Studio, 1, 2, 3 bedroom floor plans available. Partial ocean views from every residence.
Featuring Hawaii's flagship Whole Foods Market, a large scale amenity deck and rooftop terrace.



WARD VILLAGE.

REGISTER NOW FOR MORE INFORMATION.

WWW.AEOWARDVILLAGE.COM

YOUR OPPORTUNITY TO LIVE IN HAWAII'S MOST EXCITING NEW COMMUNITY



Ward Village is a new 60-acre coastal master planned community located in the heart of Honolulu between downtown and Waikiki. This vibrant neighborhood offers exceptional residences, a diverse collection of retail, dining and entertainment experiences. The largest LEED platinum certified neighborhood in the country, Ward Village will feature an expansive 4-acre park and be the most pedestrian and bike friendly neighborhood to come to Honolulu.

Howard Hughes

Obtain the Property Report required by Federal law and read it before signing anything. No Federal agency has judged the merits or value, if any, of this property. WARNING: THE CALIFORNIA DEPARTMENT OF REAL ESTATE HAS NOT INSPECTED, EXAMINED OR QUALIFIED THIS OFFERING. This ad is not intended to be an offer to sell nor a solicitation of offers to buy real estate in Ward Village development to residents of Connecticut, Idaho, New York, New Jersey, and Oregon, or to residents of any other jurisdiction where prohibited by law. No offering can be made to residents of New York until an offering plan is filed with the Department of Law of the State of New York. Ward Village is a proposed planned master development in Honolulu, Hawaii that does not yet exist. Photos and drawings and other visual depictions in this advertisement are for illustrative purposes only and do not represent amenities or facilities in Ward Village and should not be relied upon in deciding to purchase or lease an interest in the development. The Developer makes no guarantee, representation or warranty whatsoever that the developments, facilities or improvements depicted will ultimately appear as shown. This is not intended to be an offering or solicitation of sale. Exclusive Project Broker Ward Village Properties LLC. Copyright ©2015. Equal Housing Opportunity.

Table 3. Multivariable Models for Withdrawal of Life Support				
Characteristic	Model 1 Unadjusted OR (95% CI)	Model 2 Adjusted for age OR (95% CI)	Model 3 Adjusted for age and sex OR (95% CI)	Model 4 Fully adjusted OR (95% CI)
Ethnicity*				
Asians	0.60 (0.33, 1.08)	0.55 (0.29, 1.05)	0.54 (0.28, 1.02)	0.65 (0.27, 1.59)
NHOPI	0.35 (0.15, 0.80)	0.59 (0.25, 1.43)	0.58 (0.24, 1.40)	0.68 (0.20, 2.39)
Others	0.46 (0.12, 1.80)	0.52 (0.12, 2.32)	0.52 (0.12, 2.31)	0.43 (0.05, 3.88)
Age		1.06 (1.04, 1.07)	1.05 (1.03, 1.07)	1.06 (1.03, 1.09)
Female sex			1.30 (0.78, 2.15)	1.38 (0.67, 1.84)
ICH Volume, mL				1.01 (1.003, 1.02)
Initial GCS				0.79 (0.72, 0.87)
IVH				3.01 (1.44, 6.32)
Methamphetamine use				0.19 (0.02, 1.77)
NSICU admit				2.02 (0.68, 5.96)
Pre-existing DNR				3.22 (1.03, 10.50)
Smoking				0.79 (0.24, 2.6)
Admission to neurovascular team				0.44 (0.17, 1.17)

NHOPI, Native Hawaiian Other Pacific Islander; ICH, intracerebral hemorrhage; mL, milliliter; GCS, Glasgow Coma Scale; IVH, intraventricular hemorrhage; NSICU, neurosurgery intensive care unit; DNR, do-not-resuscitate. Data are displayed in odds ratio (95% Confidence Interval). *Reference group for ethnicity is NHW, Non-Hispanic whites.

end-of-life decision-making process.^{5-7,22,23} In the full model, the major clinical predictors for WOLS after ICH were older age, hematoma volume, IVH, initial GCS and pre-existing DNR. Although unadjusted observation implies a possible racial difference in the prevalence of WOLS, we believe this was largely driven by the younger age of NHOPI compared to NHW. NHOPI in this study were, on average, more than a decade younger than NHW. NHOPI have been previously shown to have ICH at a younger age when compared to NHW and other studies have echoed this sentiment of the occurrence of ICH at a younger age in minority groups. Previous studies have shown that younger patients are associated with lower prevalence of WOLS compared to older patients.²⁶

The magnitude of age disparity in this study is highly alarming and dramatizes the health inequities facing this population. Prior studies have shown that NHOPI are more likely to be obese, smoke, have diabetes, and have hypertension when compared to NHW.²⁷⁻²⁹ The aforementioned are all risk factors for cardiovascular disease (CVD), and as a subcategory of CVD, stroke. In the state of Hawai'i, CVD is the cause of over one-third of all deaths, and on average, NHOPI die from CVD at an average age that is 7 years younger than NHW and the rest of the state.²⁷⁻²⁹

Limitations of this study include single-center nature of the study, which limits the generalizability of the results. Furthermore, there may have been selection bias toward accepting only severe cases of ICH from other hospitals. Thereby, the results of this study may not be representative of decision-making in the NHOPI community in the state of Hawai'i, decreasing its

external validity. The small sample size limits the conclusions drawn from this study to preliminary observations. Since pre-specified power calculations were not made, the negative results do not prove a lack of association. Due to the retrospective nature of the study, we were unable to characterize all of the intricate end-of-life discussions that likely took place, including each patient's previously stated wishes, known values, religion/spirituality, socioeconomic status, social support, etc, that ultimately led to the decisions to proceed with WOLS. Also, we could not assess each physician's attitude toward limitation of care and the main factors that led to the decision to proceed with WOLS. We did not have specific exam findings such as dilated pupils, Cushing reflex, or other clinical signs of brain herniation or hemodynamic instability that may have affected the provider's decision-making to initiate care limitation. Based on the retrospective nature of this study, we cannot draw any conclusions about the appropriateness of the WOLS use in these patients.

Summary

In summary, NHOPI hospitalized with ICH were observed to have less WOLS compared to NHW with ICH. However, this observed difference in the practice of WOLS was largely driven by the impact of younger population of NHOPI and not by any inherent ethnic differences between the two groups.

Conflict of Interest

None of the authors identify a conflict of interest.

Sources of Funding

This study was supported in part by the American Heart Association (11CRP7160019) and the National Institute on Minority Health and Health Disparities of the National Institutes of Health (P20MD000173). The content is solely the responsibility of the authors and does not necessarily represent the official views of the American Heart Association or National Institutes of Health.

Authors' Affiliations:

- Neuroscience Institute, The Queen's Medical Center, Honolulu, HI (KMS, MAV, SMA, KN)
- The University of Arizona, College of Nursing, Tucson, AZ (KMS, MJG, KGS, LR)
- Department of Medicine, John A. Burns School of Medicine, University of Hawai'i, Honolulu, HI (KN)

Correspondence to:

Kristen Shaw DNP; The Queen's Medical Center, Neuroscience Institute, 1301 Punchbowl St., Honolulu, HI 96813;
Ph: (808) 691-8634; Email: krshaw@queens.org

References

1. Curtis JR, Vincent JL. Ethics and end-of-life care for adults in the intensive care unit. *Lancet*. 2010;376:1347-1353.
2. Christensen MC, Mayer S, Ferran JM. Quality of life after intracerebral hemorrhage: Results of the factor seven for acute hemorrhagic stroke (fast) trial. *Stroke; a journal of cerebral circulation*. 2009;40:1677-1682.
3. Becker KJ, Baxter AB, Cohen WA, Bybee HM, Tirschwell DL, Newell DW, et al. Withdrawal of support in intracerebral hemorrhage may lead to self-fulfilling prophecies. *Neurology*. 2001;56:766-772.
4. Naidech AM, Bernstein RA, Bassin SL, Garg RK, Liebling S, Bendok BR, et al. How patients die after intracerebral hemorrhage. *Neurocritical care*. 2009;11:45-49.
5. Zurasky JA, Aiyagari V, Zazulia AR, Shackelford A, Diringer MN. Early mortality following spontaneous intracerebral hemorrhage. *Neurology*. 2005;64:725-727.
6. Cooper Z, Rivara FP, Wang J, MacKenzie EJ, Jurkovich GJ. Racial disparities in intensity of care at the end-of-life: Are trauma patients the same as the rest? *Journal of health care for the poor and underserved*. 2012;23:857-874.
7. Bardach N, Zhao S, Pantilat S, Johnston SC. Adjustment for do-not-resuscitate orders reverses the apparent in-hospital mortality advantage for minorities. *The American journal of medicine*. 2005;118:400-408.
8. Cardenas-Turanzas M, Gaeta S, Ashoori A, Price KJ, Nates JL. Demographic and clinical determinants of having do not resuscitate orders in the intensive care unit of a comprehensive cancer center. *Journal of palliative medicine*. 2011;14:45-50.
9. Lu CY, Johantgen M. Factors associated with treatment restriction orders and hospice in older nursing home residents. *Journal of clinical nursing*. 2011;20:377-387.
10. Hopp FP, Duffy SA. Racial variations in end-of-life care. *Journal of the American Geriatrics Society*. 2000;48:658-663.
11. Teno JM, Gruneir A, Schwartz Z, Nanda A, Wetle T. Association between advance directives and quality of end-of-life care: A national study. *Journal of the American Geriatrics Society*. 2007;55:189-194.
12. Welch LC, Teno JM, Mor V. End-of-life care in black and white: Race matters for medical care of dying patients and their families. *Journal of the American Geriatrics Society*. 2005;53:1145-1153.
13. Braun KL, Karel H, Zir A. Family response to end-of-life education: Differences by ethnicity and stage of caregiving. *The American journal of hospice & palliative care*. 2006;23:269-276.
14. Braun KL, Onaka AT, Horiuchi BY. Advance directive completion rates and end-of-life preferences in hawaii. *Journal of the American Geriatrics Society*. 2001;49:1708-1713.
15. CDC. Morbidity and mortality weekly report. 2011;60:1-113.
16. About us. The Queens Medical Center. <http://queensmedicalcenter.org/about-us-home>. 2014. Accessed April 2, 2014.
17. Consortium PBT. Pacific basin regional telehealth plan. 2002. <http://www.demicro.org/wp-content/uploads/2012/07/PBTC-Regional-Telehealth-Plan-v1.01-20021025.pdf>. Accessed August 10, 2014.
18. Hemphill JC, 3rd, Newman J, Zhao S, Johnston SC. Hospital usage of early do-not-resuscitate orders and outcome after intracerebral hemorrhage. *Stroke; a journal of cerebral circulation*. 2004;35:1130-1134.
19. Morgenstern LB, Hemphill JC, 3rd, Anderson C, Becker K, Broderick JP, Connolly ES, Jr., et al. Guidelines for the management of spontaneous intracerebral hemorrhage: A guideline for healthcare professionals from the american heart association/american stroke association. *Stroke; a journal of cerebral circulation*. 2010;41:2108-2129.
20. Nakagawa K, Koenig MA, Seto TB, Asai SM, Chang CW. Racial disparities among native hawaiians and pacific islanders with intracerebral hemorrhage. *Neurology*. 2012;79:675-680.
21. Nakagawa K, Vento MA, Seto TB, Koenig MA, Asai SM, Chang CW, et al. Sex differences in the use of early do-not-resuscitate orders after intracerebral hemorrhage. *Stroke; a journal of cerebral circulation*. 2013;44(11):3229-31. doi: 10.1161/STROKEAHA.113.002814. Epub 2013 Aug 27.
22. Kothari RU, Brott T, Broderick JP, Barsan WG, Sauerbeck LR, Zuccarello M, et al. The abcs of measuring intracerebral hemorrhage volumes. *Stroke; a journal of cerebral circulation*. 1996;27:1304-1305.
23. Zahuranec DB, Brown DL, Lisabeth LD, Gonzales NR, Longwell PJ, Smith MA, et al. Ethnic differences in do-not-resuscitate orders after intracerebral hemorrhage. *Critical care medicine*. 2009;37:2807-2811.
24. Johnson RW, Newby LK, Granger CB, Cook WA, Peterson ED, Echols M, et al. Differences in level of care at the end of life according to race. *American journal of critical care : an official publication, American Association of Critical-Care Nurses*. 2010;19:335-343.
25. Shepardson LB, Youngner SJ, Speroff T, O'Brien RG, Smyth KA, Rosenthal GE. Variation in the use of do-not-resuscitate orders in patients with stroke. *Archives of internal medicine*. 1997;157:1841-1847.
26. Cooper Z, Rivara FP, Wang J, MacKenzie EJ, Jurkovich GJ. Withdrawal of life-sustaining therapy in injured patients: Variations between trauma centers and nontrauma centers. *The Journal of trauma*. 2009;66:1327-1335.
27. Aluli NE, Reyes PW, Tsark J. Cardiovascular disease disparities in native hawaiians. *Journal of the cardiometabolic syndrome*. 2007; 2:250-253.
28. Balabis J, Kromer-Baker K, Tottori C, Salvail F. The burden of cardiovascular disease in hawaii 2007. Honolulu, HI: Hawaii State Department of Health.
29. Look MA, Trask-Batti MK, Mau ML, Kaholokula JK. Assessment and priorities for health and well-being in native hawaiians and other pacific peoples. 2013. Honolulu, HI: Center for Native and Pacific Health Disparities Research, University of Hawaii.

MEDICAL SCHOOL HOTLINE

Biostatistics and Data Management Core at the University of Hawai'i John A. Burns School of Medicine

John J. Chen PhD and Rosa Castro MBA

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

Introduction

Strong research design and biostatistical support play a critical role in the long-term success of clinical and translational research and education enterprises.¹ Current research studies involve complex study design and generate complicated multivariate data which require statistical expertise. In addition, extramural funding has become increasingly competitive. Funding agencies and study sessions are focusing more on whether the research design of a proposal is efficient and whether the data analysis plan is statistically appropriate. Understanding and applying statistical research design and analysis principles can benefit biomedical researchers in expanding their research effectiveness and efficiency.²

Recognizing the importance of biostatistics as a critical research infrastructure resource, John A. Burns School of Medicine (JABSOM) established the Biostatistics and Data Management Core (BDMC) in September 2011 to centralize and expand its biostatistical support and collaboration. The BDMC started with very limited staff (1.75 FTE). To meet the needs of the investigators and their research studies, the group has since grown to the current five PhD biostatisticians, one PhD bioinformatician, one senior PhD epidemiologist, and several analysts and database specialists (See photo). The BDMC fund-

ing model uses an "all funds budgeting" approach by leveraging its support from various sources to include institutional funds (eg, general, research training, and revolving funds), department and school funds (collaboration model), infrastructure grants, center grants, research grants, contracts, non-University of Hawai'i (UH) funds, and fee-for-service income.

The BDMC's vision is to strive for excellence in research, education, and service through collaboration and innovation in quantitative health sciences. Its mission is to enhance JABSOM's research, education and service mission by fostering the understanding and implementing biostatistical principles from study design to dissemination; catalyzing collaborative research through institutional and community partnerships; providing quality education and training in quantitative health sciences; and developing novel methods and generating new knowledge to improve quantitative health research and practice. The BDMC promotes core values into its daily operations that are high quality, efficient, and reliable.

BDMC Contributions

Biostatistics is the science of applying statistical reasoning and modeling to the solution of problems from a wide range of topics in biological and health sciences and encompasses



UH JABSOM BDMC faculty and staff at their UH Kaka'ako campus facility.

all phases of a biomedical research project. Biostatisticians provide statistical education, conduct methodological research, and participate in collaborative research.

Education: BDMC provides biostatistical related training and education to students, researchers, and clinicians through structured courses and degree programs, seminars, workshops, and individual mentoring. BDMC supports the masters and doctoral Clinical Research Programs by teaching biostatistics courses to graduate students as well as supports the students with their individual research projects. Also, BDMC has provided graduate biostatistics courses for the JABSOM Department of Tropical Medicine, Medical Microbiology and Pharmacology, UH School of Nursing, and Office of Public Health Studies. Additional quantitative health science courses are currently being developed and will be offered in the near future. Ongoing are a multitude of biostatistical related lectures, seminars, and workshops that have been offered. BDMC will continue to develop and offer similar and related types of training.

Research: Biostatisticians conduct methodological research which involves the development of novel approaches to model biological and clinical phenomena, and helps to enhance the existing bodies of knowledge in theoretical and applied biostatistics. BDMC has statistical expertise in Bayesian statistics, clinical trials, longitudinal data analysis, statistical genetics, and survival analysis.

In collaborative research studies, biostatisticians contribute expertise in the planning and conducting of the study to ensure consistency with good statistical practice. They participate in the research design of studies and perform data analyses and interpretation of the findings. BDMC provides grant proposal development support to include research design and statistical analysis plans. The involvement of an experienced biostatistician from the early stages in the development of a research project tends to significantly increase the quality of the study, and could significantly impact the success of extramural funding.³

Since its formation, the BDMC has supported 118 grant proposals, of which 30 were funded with total budgets exceeding \$50 million. In addition, BDMC provided over 300 consultations and supported more than 400 projects which have resulted in 85 publications in peer-reviewed journals. Also, BDMC has supported over 120 abstracts for presentations at conferences. Research support has been provided to researchers, clinicians, students, clinical trainees (eg, fellows and residents). UH units that have sought BDMC collaboration include UH School of Nursing; JABSOM Departments of Medicine, Obstetrics and Gynecology, Surgery; and Center for Native and Pacific Health Disparities Research. External collaborators include Hawai'i Health Information Corporation (HHIC); Queen's Medical Center, Shriners Hospitals for Children; and Hawai'i Pacific Health. Examples of projects are:

- RCMI Multidisciplinary and Translational Research Infrastructure Expansion (RMATRIX) (PI: Hedges)
- Bioscience Research Infrastructure Development for Grant Enhancement and Success (BRIDGES) (PI: Berry)
- INBRE III: Hawai'i Statewide Research and Education Partnership (HISREP) (PI: Nichols)
- Center for Native and Pacific Health Disparities Research (CNPHDR) (PI: Mau)
- Hospital Quality Reports For Expectant Mothers: Considering Race and Language (PI: Sentell)
- Cardio-Pulmonary Stethoscope: A Novel Radio Frequency Sensor for Non-Invasive Measurement of the Changes in Lung Water Content and Cardiac Parameters. (PI: Iskander)
- Partnerships to Improve Lifestyle Interventions (PILI) 'Ohana Dissemination Project (PI: Kaholokula)
- Enhancing Hawai'i Hospital Information Content (PI: Seto)
- Hawai'i Pacific Health Summer Student Research Program (Co-Directors: Brady & Kamida)
- The Hawai'i Trauma Research Program (Director: Walton)

In addition to collaborative and methodological research, BDMC provides services and support in database design and management by assisting researchers in developing database structures to ensure that the data is collected and stored appropriately and can be easily exported into statistical analysis software for efficient and accurate analysis. BDMC faculty and staff contribute their quantitative health sciences expertise to their profession as well as to the community by serving as reviewers on basic sciences and clinical journals as well as various funding programs. BDMC, as the designated statistical review consulting unit, has reviewed over 30 manuscripts for the Hawai'i Journal of Medicine & Public Health since 2012.

BDMC into the Future

Biostatistics plays a critical and central role in multidisciplinary clinical, basic science, and translational research. The BDMC core faculty and staff with their diverse skills and expertise collaborate with researchers on research projects and continue to gain new knowledge and develop their skills to meet the future biomedical research needs.

Currently BDMC is expanding its knowledge and expertise in the area of big data analysis. This includes the analysis of large healthcare databases, such as HHIC hospitalization and emergency room data, Centers for Medicare and Medicaid Services (CMS) data, National Health And Nutrition Examination Survey (NHANES), Behavioral Risk Factor Surveillance System (BRFSS), National Health Interview Study, Medical Expenditure Panel Study, and Health and Retirement Study. The BDMC biostatisticians are prepared to work with researchers by using these large databases to generate data-driven research hypotheses and conduct data analyses. Another expansion in the big data analysis is in bioinformatical analysis of "omics"-scale data (eg, next generation sequencing data). The need for these types of big data analytics is increasing rapidly and the BDMC has the skills and expertise to meet these demands.

In recognition of the importance and contribution of the BDMC and to further streamline quantitative support and collaboration, UH JABSOM will establish an Office of Biostatistics & Quantitative Health Sciences (BQHS), effective July 1, 2015. The faculty and staff at the new BQHS will continue to pursue its mission of providing high quality, efficient, and reliable collaborations and support to improve the overall biomedical research quality and productivity in Hawai'i.

Acknowledgments

The JABSOM BDMC is partially supported by grants from the National Institute on Minority Health and Health Disparities (NIMHD) U54MD007548 (RMATRIX) and G12MD007601 (BRIDGES), and National Institute of General Medical Science (NIGMS) P20GM103466 (INBRE) from the National Institutes of Health (NIH). The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.

Contact Information:

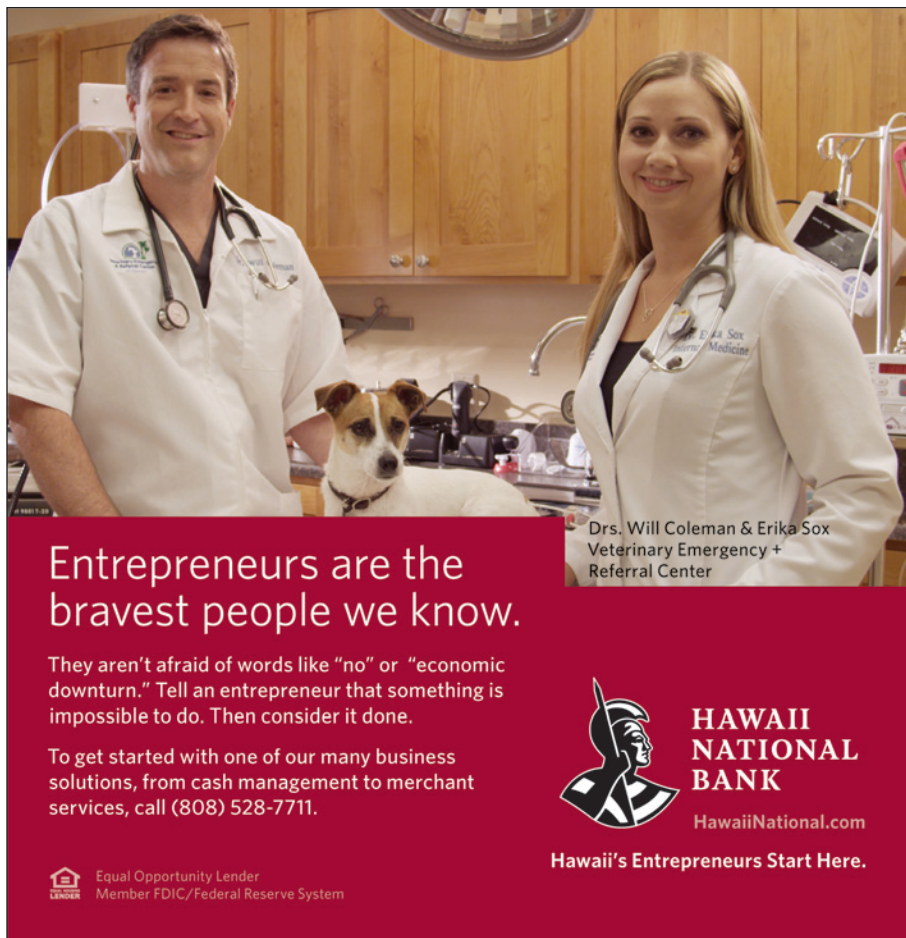
Biostatistics and Data Management Core at University of Hawai'i
John A. Burns School of Medicine; 651 Ilalo Street, Biosciences Building, Suite 211,
Honolulu, HI 96813;
Ph: (808) 692-1823; Email: biostat@hawaii.edu;
Website: <http://www.biostat.jabsom.hawaii.edu>

Authors' Affiliations:

Professor of Tropical Medicine, Medical Microbiology, and Pharmacology, John A. Burns School of Medicine, University of Hawai'i at Manoa, Honolulu, HI, and Director of UH JABSOM Biostatistics and Data Management Core, Honolulu, HI (JJC)
Core Manager, UH JABSOM Biostatistics and Data Management Core, Honolulu, HI (RC)

References

1. Davidian M and Louis TA. Why statistics? *Science*. 2012 Apr 6;336(6077):12. doi: 10.1126/science.1218685.
2. Ioannidis JP, Greenland S, Hlatky MA, Khoury MJ, Macleod MR, Moher D, Schulz KF, Tibshirani R. Increasing value and reducing waste in research design, conduct, and analysis. *The Lancet*. 2014. 383 (9912): 166-175. doi: 10.1016/S0140-6736(13)62227-8.
3. Zhang G and Chen JJ. Biostatistics faculty and NIH awards at U.S. medical schools. *The American Statistician*. 2015 Jan 2;69(1):34-40. doi: 10.1080/00031305.2014.992959.



Entrepreneurs are the bravest people we know.

They aren't afraid of words like "no" or "economic downturn." Tell an entrepreneur that something is impossible to do. Then consider it done.

To get started with one of our many business solutions, from cash management to merchant services, call (808) 528-7711.

Drs. Will Coleman & Erika Sox
Veterinary Emergency + Referral Center

HAWAII NATIONAL BANK
HawaiiNational.com

Hawaii's Entrepreneurs Start Here.

Equal Opportunity Lender
Member FDIC/Federal Reserve System

Toward a Trauma-Informed System of Care in Hawai'i's Adult Mental Health Division

Michael J. Endres PhD; Stefan Keller PhD; Steven Y.C. Wong PhD; and Karen Krahn MSM

Insights in Public Health is a monthly solicited column from the public health community and is coordinated by HJMPH Contributing Editors Tetine L. Sentell PhD from the Office of Public Health Studies at John A. Burns School of Medicine and Donald Hayes MD, MPH from the Hawai'i Department of Health in collaboration with HJMPH Associate Editors Tonya Lowery St. John MPH and Lance K. Ching PhD, MPH from the Hawai'i Department of Health.

Introduction

Traumatic life experiences play an important role in the etiology of such severe and persistent mental illnesses (SPMI) as schizophrenia, bipolar, and major depression.¹ Posttraumatic stress disorder (PTSD) and other trauma-related conditions are known to be highly prevalent among individuals diagnosed with SPMI. Moreover, traumatic life events have been consistently shown to worsen an individual's prognosis with respect to the severity and treatment of SPMI symptoms. At the national level, epidemiological studies have estimated that between 70% and 98% of adults presenting SPMI also present a co-occurring history of trauma.² In Hawai'i, a 2009 survey of 175 consumers of state adult mental health services in Honolulu County found that 89% of the sample reported at least one traumatic life event and 32% screened positive for a history of PTSD.³ Aside from the prevalence data, there is substantial clinical evidence linking PTSD and trauma histories with higher rates of SPMI symptom relapse, comorbid substance use disorder symptomatology, and utilization of more costly mental health treatment services, such as inpatient care and emergency hospitalization.^{4,5} Studies also have noted those with SPMI are at a greater risk to experience traumatic life events and become more debilitated by their effects.^{6,7}

When taken together, research on the prevalence of traumatic life experiences among individuals with SPMI has prompted several states to secure federal planning and implementation grant awards that aid mental health services transformation toward a trauma-informed system of care. In particular, the Substance Abuse and Mental Health Services Administration (SAMHSA) has funded separate Hawai'i State Department of Health (DOH) initiatives to address the impact of traumatic life experiences on the child and adult populations DOH serves. As described in a previous article published in the *Hawai'i Journal of Medicine and Public Health*,⁸ Project Kealahou began in 2010 in an effort to establish a trauma-informed system of care within DOH's Child and Adolescent Mental Health Division. In 2011, the Adult Mental Health Division's (AMHD) Trauma-Informed Care Initiative (TIC-IT) began, and AMHD

has since made significant progress toward establishing itself as a trauma-informed system of care. This article provides a brief overview of AMHD's TIC-IT.

What is a Trauma-Informed System of Care?

According to Harris & Falloot (2001), a trauma-informed system of care comprises six domains: (a) trauma-sensitive service settings and environments; (b) formal trauma-informed policies and procedures; (c) trauma screening, assessment, and planning of trauma-specific services; (d) system-wide support for trauma-informed services; (e) provider education and training; and (f) human resources practices.⁹ The first domain reflects an agency's alignment with the guiding principles and core values of trauma-informed care, including: (1) establishing a physically and emotionally safe service environment; (2) creating a service climate of trustworthiness; (3) maximizing consumer choice and control in services planning; (4) maximizing collaboration between provider and consumer; and (5) promoting consumer empowerment and skill-building. The second domain describes organizational policies and procedures that reflect an understanding and sensitivity to the needs of trauma survivors, such as protecting the confidentiality of information, avoiding involuntary or coercive treatment strategies, using crisis de-escalation practices, and having clearly defined processes for filing grievances. The third domain reflects routine screening for traumatic life experiences and the incorporation of such results into the process of planning treatment services that are both trauma-specific and gender-specific. The fourth domain refers to providing trauma-informed resources and support to the whole system, including community stakeholders, organizational administrators, agency staff, service providers, and consumers. The fifth domain reflects the extent to which agency staff members have received appropriate education and training in trauma-informed care best-practices. The sixth and final domain reflects whether staff recruitment and hiring efforts take into account a candidate's knowledge of trauma-informed care policies, procedures, and practices.

Why Should a Trauma-Informed System of Care be Established?

Establishing a trauma-informed system of care holds the promise of improving efforts to prevent and intervene on the effects of trauma on consumer recovery. While creating a trauma-informed services environment reduces the likelihood of re-traumatizing consumers, providing trauma-specific policies, procedures, and practices improves consumer recovery and outcome. The literature suggests trauma-informed environments improve consumer engagement, retention, and outcomes, as well as reduce provider fatigue and burnout related to secondary trauma.^{10,11} Outcomes data also show integrating mental health, substance abuse, and trauma treatments decreases mental health symptomatology relative to standard treatments.^{12,13} Although the extant data provide strong support for the effectiveness of trauma-informed systems of care, it has yet to be established whether such positive outcomes can be replicated in geographic regions with high racial and ethnic diversity, like the State of Hawai'i. Therefore, an important feature of AMHD's TIC-IT is the application and evaluation of trauma-informed care services, delivery principles, and consumer recovery outcomes, and the determination about whether program outcomes are equitable across gender, race, and ethnic lines.

What are TIC-IT's Overall Goal and Related Strategic Objectives?

The goal of TIC-IT is to establish a sustainable trauma-informed system of care within AMHD. To achieve this goal, AMHD set out to accomplish three broad and interconnected strategic objectives:

- Objective 1: Develop a workforce of trained trauma-informed providers of care.
- Objective 2: Establish universal trauma screening and assessment across provider agencies.
- Objective 3: Implement trauma-specific evidence-based practices within provider agencies.

Figure 1 summarizes key elements of TIC-IT, including its basic assumptions, goals, objectives, and populations of focus. Figure 1 also summarizes TIC-IT grant activities at administrative, provider, and consumer levels that are geared toward establishing a trauma-informed system of care.

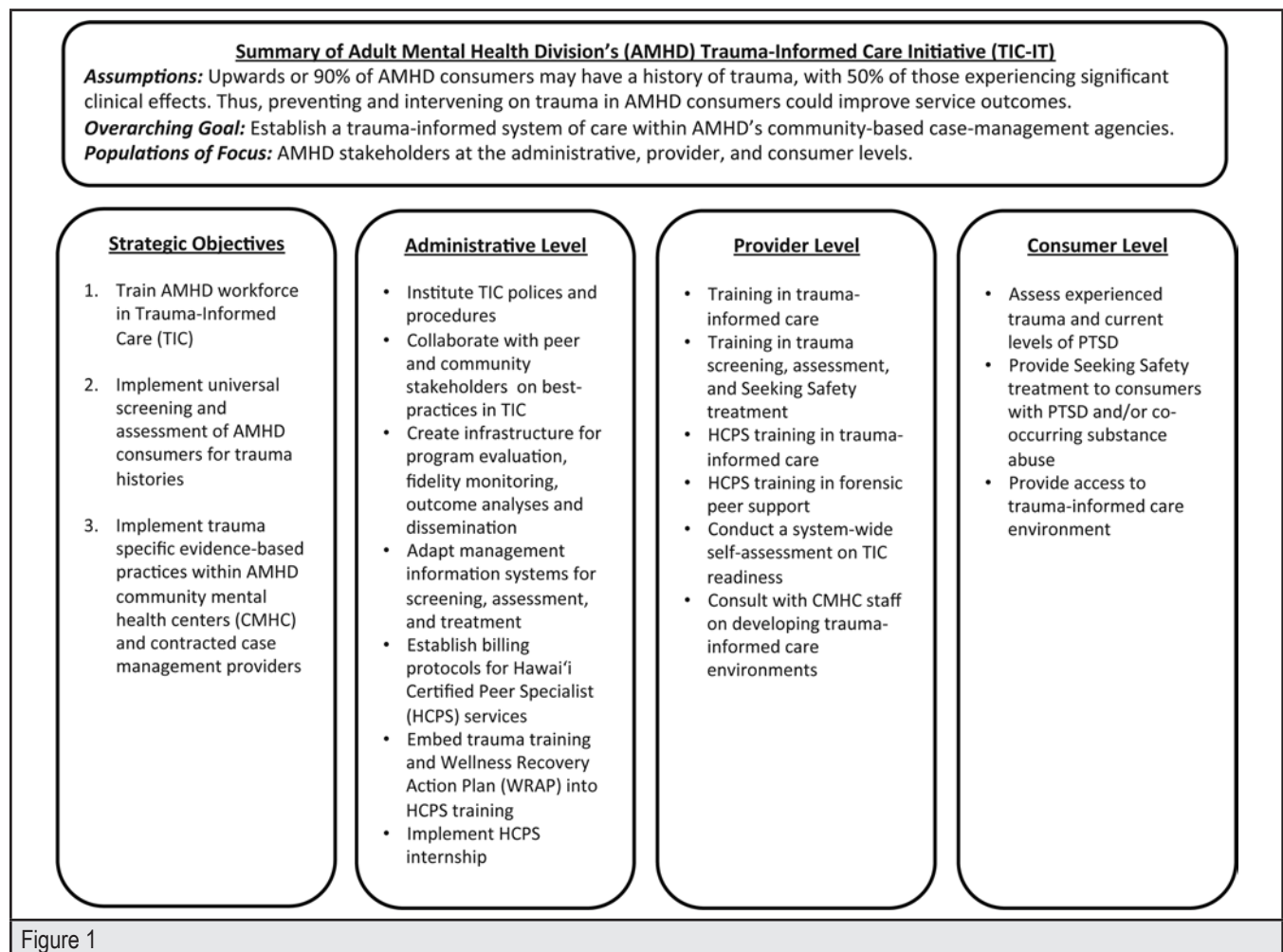


Figure 1

What are TIC-IT Populations of Focus?

TIC-IT targets all those who either provide or receive case management services from a community mental health center or contracted provider. The TIC-IT transforms AMHD's system of care by achieving its strategic objectives to implement trauma-informed care best-practices at administrative, provider, and consumer levels.

At the administrative level, TIC-IT focuses on involving AMHD stakeholders in the development and implementation of formalized trauma-informed policies and procedures. At the provider level, TIC-IT focuses on creating trauma-informed environments and infrastructures within AMHD's 8 community mental health centers (CMHC) and 12 contracted providers of case management services. At the consumer level, TIC-IT focuses on building AMHD's capacity to provide trauma-informed care to the over 10,000 individuals it serves each year.

What TIC-IT Activities are Related to Workforce Development?

Workforce development activities represent the foundation for TIC-IT and are geared toward sustainability. At the administrative level, workforce development activities include organizing peer stakeholders and supporting the formation of a Peer Advisory Board (PAB). The PAB consults with AMHD administration on (a) the development of trauma-informed policies and practices, as well as (b) the implementation of new trauma-informed curriculum for training Hawai'i Certified Peer Specialists (HCPS). Workforce development activities also are targeted toward AMHD's CMHC and contracted provider agencies, such as conducting system-wide self-assessments on trauma-informed care readiness, and offering trainings on trauma screening, assessment, and treatment methodology. Based on Harris & Fallot's (2001) model, AMHD's CMHCs are examining their readiness to implement trauma-informed care services, and receiving one-on-one consultation with Dr. Fallot on agency specific trauma-informed care practices. Results and progress from these self-assessments and consultations also are being shared with AMHD administration so as to translate CMHC best-practices into new trauma-informed policies and procedures. Workforce development activities also are continuing to educate providers on the core elements of trauma-informed care and methods to reduce the impact of vicarious trauma on providers. Additionally, providers are receiving ongoing training on methods to screen consumers for a history of trauma, and assess whether such histories meet criteria for PTSD. Finally, TIC-IT includes several workforce development activities targeted toward expanding and enhancing its HCPS program. Most critical has been working with Hawai'i's Department of Human Services to establish Medicaid billing codes and rates in its state plan amendment for peer support services provided by HCPS. Other workforce development activities targeted towards HCPS providers include formalizing the Peer Specialist's role in CMHC reorganization, and integrating Supported Employment,¹⁴ Wellness Recovery Action Planning (WRAP),¹⁵ and Forensic Peer Support into the training curricula and certification process.

What TIC-IT Activities are Related to Universal Screening and Assessment?

Administrative policies and procedures are being modified to institute protocols for (a) consistently screening AMHD's consumers for a history of traumatic life experiences, and (b) assessing whether such experiences meet diagnostic criteria for PTSD. In general, these protocols standardize methodology and recommend specific psychometric tools that aid in ascertaining which consumers may benefit from trauma-specific treatments for PTSD and co-occurring substance use problems. Efforts are ongoing to train AMHD's providers in administering and scoring of the Trauma Assessment for Adults scale (TAA-R)¹⁷ and the PTSD Check List for Civilians (PCL-C).¹⁸ Both tools were developed by the US Veterans Administration, and have shown high reliability, validity, specificity, and sensitivity in previous research.¹⁹ Providers also are trained on the use of decision rules for TAA-R screening and PCL-C assessment, such that only those who screen positive on the TAA-R are assessed for PTSD with the PCL-C. Consumers are expected to benefit from this method because it minimizes the likelihood of false negatives and false positives, while maximizing the likelihood that those who are in need of trauma-specific services receive referral in a manner that is timely and least intrusive.

What TIC-IT Activities are Related to Implementation of Evidence-based Practices?

At the core of AMHD's TIC-IT is the implementation of two inter-related evidence-based practices: (a) Seeking Safety treatment and (b) Supported Employment. The Seeking Safety treatment is a standardized group intervention for consumers who present PTSD symptomatology with or without co-occurring substance use problems. Evidence has shown Seeking Safety is an effective and efficacious treatment for PTSD symptomatology across a number of different target populations,²⁰ and is consistent with the philosophy of trauma-informed care. The incorporation of Seeking Safety treatments into AMHD's services array is connected to TIC-IT's universal screening and assessment objective and related administrative, provider, and consumer level activities. Specifically, it is expected that policies and procedures instituting universal trauma screening and assessment among provider agencies will lead to increases in Seeking Safety referrals, which in turn, will lead to increases in the number of consumers benefiting from trauma-specific services. The TIC-IT project supports the development of an AMHD administrative infrastructure for Seeking Safety program evaluation, fidelity monitoring, outcome analysis and dissemination. The TIC-IT project also supports provider training in Seeking Safety treatment delivery, which also is aligned with workforce development activities. These efforts include training both qualified mental health professionals and peer-support staff on Seeking Safety group facilitation, which is expected to enhance these providers' capacity to collaborate while working at AMHD's CMHCs and contracted case management agencies.

The second evidence-based practice implemented through AMHD's TIC-IT is the Supported Employment of candidates for the HCPS program. The HCPS training has been offered to consumers in Hawai'i since 1992, and AMHD's TIC-IT enhances and expands this program by integrating basic concepts of the trauma-informed care and Supported Employment models. Through AMHD's TIC-IT, the HCPS training curriculum was revised, with the consultation of administrative, provider, and consumer (peer) stakeholders, to include modules on trauma-informed care and WRAP.¹⁵ These trauma-specific practices are now integrated into the HCPS training, accompanying the nationally established core curriculum (ie, The Georgia Model),²¹ and Hawai'i-specific cultural adaptations. The key adaptation of the HCPS program to come about through AMHD's TIC-IT is the inclusion of the Supported Employment component, permitting HCPS candidates the opportunity to complete a 13-week paid internship (195 hours total) at an AMHD service provider agency or CMHC. The HCPS internship is entered into after successful completion of coursework and prior to receiving certification. During the HCPS internship, consumers receive structured supervision by agency staff and participate in regular peer support meetings sponsored by AMHD administrative staff. At the administrative level, this Supported Employment track is monitored for fidelity and evaluated for outcomes, while developing an HCPS workforce capable of providing trauma-specific services in the form of co-facilitating Seeking Safety groups and working with consumers to develop WRAP documents. This expansion of the HCPS program also adds to the array of billable services that can be provided by HCPS in the workforce. For consumers, becoming an HCPS can be viewed as an integral step toward recovery and individual empowerment, while those receiving HCPS services benefit from working with para-professionals trained in both peer support and trauma-informed care.

Conclusion

Considerable research has shown traumatic life experiences play a key role in the development, maintenance, and treatment of SPMI. Acknowledging this evidence, the AMHD is taking the initiative to transform its system of care in ways that are trauma-informed. Like other initiatives across the nation and in Hawai'i, AMHD's TIC-IT is implementing several strategic objectives that target sustainable organizational change at the administrative, provider, and consumer levels. Implemented in 2011, AMHD's TIC-IT is continuing to make significant progress towards achieving its overarching goal, establishing a sustainable trauma-informed workforce, instituting universal trauma screening and assessment within provider agencies, and offering integrated trauma-specific services that reduce the impact of trauma on consumer recovery. To date, TIC-IT project has trained 1,209 members of AMHD's staff and contracted providers in trauma-informed care, completed 2,053 trauma screening and assessments with AMHD consumers, with 111 of them offered the Seeking Safety treatment, and matriculated 55 HCPS candidates and supported employment interns. These

achievements are in spite of several changes in leadership and TIC-IT staff, as well as prolonged difficulties with contracting of trauma-specific services. Nevertheless, TIC-IT is establishing several key infrastructures for the sustainability of AMHD's trauma-informed care approach, and analyses are underway to evaluate the impact that this project is having on AMHD's services delivery processes and consumer recovery outcomes. Results of this program evaluation will be the subject of a forthcoming final report and peer-reviewed publication at the conclusion of AMHD's TIC-IT grant funding period.

Conflict of Interest

None of the Authors report a conflict of interest.

Acknowledgement

The Trauma-Informed Care Initiative is supported by a grant from the Substance Abuse and Mental Health Services Administration (SM060159). The authors would like to thank TIC-IT team members: Dr. Mark Fridovich, Dr. James Westphal, Kathleen Merriam, Randy Hack, and Sunny Algozo for their tireless efforts to help this project achieve its goals, specific aims, and intended purposes.

Authors' Affiliations:

- Hawai'i State Department of Health, Office of Program Improvement and Excellence, Honolulu, HI (MJE, SK, SYCW, KK)
- University of Hawai'i-Manoa, Department of Psychology, Honolulu, HI (MJE)
- Hawai'i Pacific University, Department of Psychology, Honolulu, HI (SK)

References

1. Felitti VJ, Anda RF, Nordenberg D, Williamson DF, Spitz AM, Edwards V, Koss MP, Marks JS. Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults. *American Journal of Preventive Medicine*. 1998;14:245-258.
2. Lommen MJ, Restifo K. Trauma and posttraumatic stress disorder (PTSD) in patients with schizophrenia or schizoaffective disorder. *Community Ment Health J*. 2009;45(6):485-96.
3. Subica AM, Claypoole KH, Wylie AM. PTSD's mediation of the relationships between trauma, depression, and substance abuse: Evaluating a comprehensive model. *Schizophrenia Research*. 2012;136:104-109.
4. Briere J, Woo R, McRae B, Foltz J, Sitzman R. Lifetime victimization history, demographics, and clinical status in female psychiatric emergency room patients. *J Nerv Ment Dis*. 1997;185(2):95-101.
5. Mueser KT, Salyers MP, Rosenberg SD, Goodman LA, Essock SM, Osher FC, et al. Interpersonal trauma and posttraumatic stress disorder in patients with severe mental illness: Demographic, clinical, and health correlates. *Schizophrenia Bulletin*. 2004;30:45-57.
6. Mauritz MW, Goossens PJJ, Draijer N, van Achterberg T. Prevalence of interpersonal trauma exposure and trauma-related disorders in severe mental illness. *European Journal of Psychotraumatology*. 2013;4:10.3402/ejpt.v4i0.19985.
7. Resnick SG, Bond GR, Mueser KT. Trauma and posttraumatic stress disorder in people with schizophrenia. *J Abnorm Psychol*. 2003;112(3):415-23.
8. Suarez E, Jackson DS, Slavin LA, Michels MS, McGeehan KM. Project Kealahou: Improving Hawaii's System of Care for At-Risk Girls and Young Women through Gender-Responsive, Trauma-Informed Care. *Hawaii J Med Public Health*. 2014;73:12.
9. Harris M, Fallot RD. Envisioning a trauma-informed service system: A vital paradigm shift. *New Directions for Mental Health Services*. 2001;3:22.
10. Substance Abuse and Mental Health Services Administration (SAMHSA). *Technical Assistance Package 3. Implementing Trauma-Informed Approaches in Access to Recovery Programs*. 2008.
11. Jennings A. *Models for Developing Trauma-Informed Behavioral Health Systems and Trauma-Specific Services*. National Center for Trauma-Informed Care, Center for Mental Health Services, SAMHSA. 2004 & 2008.
12. Jennings A. *Trauma informed mental health service systems: Blueprint for action*. Alexandria, VA: National Association of State Mental Health Program Directors, National Technical Assistance Center for State Mental Health Planning; 2004.
13. Cocozza JJ, Jackson EW, Hennigan K, Morrissey JP, Glover Reed B, Fallot R, Banks S. Outcomes for women with co-occurring disorders and trauma: Program-level effects. *J Subst Abuse Treat*. 2005; 28:109-119.
14. Becker DR, Whitley R, Bailey E.L., Drake RE. Long-term employment outcomes of supported employment for people with severe mental illness. *Psychiatric Services*. 2007;58:922-928.
15. Cook JA, Copeland ME, Jonikas JA, Hamilton MM, Razzano LA, Grey DD, Floyd CB, Hudson WB, et al. Results of a Randomized Controlled Trial of Mental Illness Self-management using Wellness Recovery Action Planning. *Schizophrenia Bulletin*. 2011; doi: 10.1093/schbul/sbr012.

16. Short R, Woods-Nyce K, Cross SL, Hurst M, Gordish L, Raia J. The impact of forensic peer support specialists on risk reduction and discharge readiness in a psychiatric facility: A five-year perspective. *International Journal of Psychosocial Rehabilitation*. 2012;16(2): 3-10.
17. Resnick HS, Falsetti SA, Kilpatrick DG, Freedy JR. Assessment of rape and other civilian trauma-related post-traumatic stress disorder. Emphasis on assessment of potentially traumatic events. In T.W. Miller (Ed.). *Stressful life events*. Madison: International Universities Press. 1996:231-266.
18. Blanchard EB, Jones-Alexander J, Buckley TC, Forneris CA. Psychometric properties of the PTSD checklist (PCL). *Behavioral Research & Therapy*. 1996;34:669-673.
19. Grubaugh AL, Elhai JD, Cusack KJ, Wells C, Frueh BC. Screening for PTSD in public-sector mental health settings: The diagnostic utility of the PTSD checklist. *Depression and Anxiety*. 2007;24:124-129.
20. Najavits LM. *Seeking Safety: A Treatment Manual for PTSD and Substance Abuse*. New York, NY: Guilford; 2002.
21. Georgia Certified Peer Specialist Project. March, 2013. <http://www.gacps.org/Home.html>.

“hiki no” (can do) – Hawaiian Saying



THIS LIGHT COULD SET YOU FREE.

In 2004, one of Dr. Jim Olson's patients, a 17 year-old girl, emerged from surgery with "a rather large piece of cancer," mistaken for normal brain tissue, still left in her brain. Dr. Olson, a pediatric oncologist at Seattle's Fred Hutchinson Cancer Research Center, was extremely frustrated by that case and decided to make a molecule that would light up malignant cells. Building on an idea he came up with as a medical student at University of Michigan in the 1980s (a senior faculty scoffed and called him "Buck Rogers"), this is exactly what he has done. The molecule that he calls "tumor paint" binds to cancer cells and makes them glow. The surgeon can see the exact border between malignant cells and healthy ones. The molecule is 500 times more sensitive than an MRI, and could be a lifesaving aid in detecting the precise areas to target in cancer surgery. Tumor paint, derived in part from the venom of a Middle-Eastern scorpion known as the deathstalker, is in clinical trials in Australia. Additional trials are planned in the United States later this year. If these and other trials are successful, the next step will be to seek approval by the US Food and Drug Administration.

OPHTHALMOLOGY GETS A BLACK EYE.

American ophthalmologists and eye surgeons around the world can take pride and enjoy the reflection of a cataract surgical procedure that is remarkably successful. No operation yields so much productivity, relief of visual distress, increased work performance, and patient satisfaction. But it comes as a sad surprise when a colleague is arrested and held in custody, charged with 46 counts of health-care fraud for submitting false claims to Medicare. Over the years between 2004 and 2013 Dr. Solomon Melgen obtained \$105 million in payments for six of those years. He first gained attention last year in the Wall Street Journal as Medicare's top biller. Following his indictment, Dr. Melgen was arrested by federal authorities on bribery charges along with New Jersey Senator Robert Menendez who faces charges of corruption. Both have pleaded not guilty.

PASTEURIZATION PREVAILS IN THE U.S.A.

In Italian cities you can stroll to a nearby vending machine and fill your recyclable glass bottle with fresh raw milk. Customers love it: "The milk is great, like drinking directly from the cow." Vending machines that dispense fresh, unpasteurized milk have proliferated in Italy and much of Europe in recent years. The stainless steel mechanical fridges can be found in supermarket parking lots, town squares and on roaming milk-mobiles. Within the European Union, countries are left to make their own laws on how and if raw milk may be sold. One popped up in the food hall of luxury London Department store Selfridges, sitting beside designer cupcakes. The United Kingdom's Food Standard Agency (FSA) launched a lawsuit against Selfridges claiming the farmer and department store breached food hygiene regulations. Proponents say high-tech features make the milk machines safe. It isn't happening in the United States where raw milk sales are heavily regulated and banned outright in many states. The Food and Drug Administration has gone so far as to raid dairy farms suspected of vending illicit dairy products. Having grown up on raw milk, I never knew how risky it was to consume, or was it really that dangerous?

HEY, GOVERNOR. THIS IS OUR ONLY MEDICAL CENTER.

Maui Memorial Medical Center is in dire financial straits and the Board wants desperately to sell or partner with a Honolulu group. For a first-time-ever approach, the legislature has proposed an avenue that will jeopardize union contracts. The MMMC is staffed by two unions: the Hawai'i Government Employees Association (HGEA) and Union of Public Workers (UPW). Not surprisingly, they are adamantly

opposed. All that remains is for the matter to be forwarded for floor vote and, if passed, the governor's signature. At the eleventh hour, the governor stepped in and sent the matter to a committee. This is sad for the hospital that must now reduce services, sad for the health care of Maui's people and ultimately sad for a weak governor.

PUT 'ER THERE, PAL. WELL, MAYBE NOT.

Artifacts from ancient Greece suggest that the handshake began as a general gesture of peace, revealing one's open palm as a symbol of honesty and trust. The custom of the open palm gesture subsequently evolved into the modern form of the handshake. Today the handshake represents an international symbol of respect, friendship, peace, congratulations, good sportsmanship, and formal agreement, as well as greeting and departure. In the current era of health care reform, innovative practices toward the prevention of disease lead to more robust hand hygiene programs to help limit the spread of disease. Hospitals and doctors' offices may have "handshake-free zones." Hand hygiene has long been known to help prevent hospital-acquired infections, but compliance with programs is limited. Patients and visitors to the health care setting generally have low compliance, and health care personnel compliance averages 40%. Should the handshake be banned from the health care environment? Could a fist bump be a realistic substitute?

SPREAD ON SOME DEET. IT WORKS A LITTLE.

Burning, itching question: why do mosquitoes ignore me, but find my wife delicious? Mosquitoes find their mammalian prey through sensing body heat and carbon dioxide. Pregnant women and large people are more vulnerable. There is no scientific basis to prove that having high cholesterol or diabetes will keep them away. Nor will taking B vitamins, eating garlic or taking specific medications have any effect. Females must have a blood meal to complete their reproductive cycle and produce eggs, so you can ignore the males.

WHEN A MARRIAGE CANNOT BE SAVED, GO TO SARASOTA SPRINGS.

A Sarasota Springs resort has brought to America a divorce package already successful in six European cities. When a level-headed couple decides it is over and wants out, they can go to the Gideon Putnam resort and spa. The couple checks in on Friday and checks out on Sunday completely separated and single again. For \$5,000 all the niceties are managed, and Gideon Putnam provides single room comforts to help keep clients entertained. So far, they have hosted four divorces, but the European company that imported the idea has managed "hundreds" in Europe.

ADDENDA

- 84% of people who become vegetarians eventually give up and return to eating meat.
- You are more likely to be struck by lightning than attacked by a shark.
- Number of bacteria that can transfer between partners during a 10 second kiss – 80 million, but no one seems to care.
- Ever go to a marriage ceremony when you know this couple won't last? You can't say anything, but why spend \$100 for a wedding gift? Instead buy a lottery ticket and wish them luck.
- There are two kinds of air travel in the United States, first class and third world.
- I am in the prime of senility.

ALOHA AND KEEP THE FAITH rts

(Editorial comment is strictly that of the writer.)

Guidelines for Publication of HJM&PH Supplements

The following are general guidelines for publication of supplements:

1. Organizations, university divisions, and other research units considering publication of a sponsored supplement should consult with the editorial staff of HJMPH to make certain the educational objectives and value of the supplement are optimized during the planning process. It is important that the sponsoring editor is aware of all steps to its publication. Please contact Drs. Kalani Brady or Michael Meagher for further information.
2. Supplements must have educational value, be useful to HJMPH readership, and contain data not previously published to be considered for publication.
3. Supplements must have a sponsoring editor who will be involved in every step of the development, editing, and marketing of the publication since HJMPH staff will only be reviewing final proofs.
4. Supplements should treat broad topics in an impartial, unbiased manner. Please prefer specific classes of drugs, rather than products, unless there are compelling reasons or unique properties of the drug (product) that justifies its treatment.
5. The authors are solely responsible for the content of their manuscripts and the opinions expressed. They are also responsible for the replicability, precision, and integrity of the data and may be asked to sign a statement to that effect prior to publication. All authors are required to disclose any primary financial relationship with a company that has a direct fiscal or financial interest in the subject matter of products discussed in submitted manuscripts, or with a company that produces a competing product. The sponsoring editor must ensure that each article submitted incorporates a disclosure statement from the authors within the body of the text. For more information, please refer to the Disclosure Statement within "Instructions to Authors" on the journal website.
6. All supplement manuscripts should undergo editorial and peer review. It is the responsibility of the sponsoring editor to ensure the integrity of authorship and review process. In addition, sponsorship implies compliance with all federal, state and local laws, rules and regulations that may be applicable in connection with its publication.
7. Publication of a HJMPH supplement is a flat fee of \$3,000 (electronic edition) plus the required State of Hawaii sales tax. The subscription manager will email an invoice to the designated editor for payment. Checks may be made out to UCERA. (There may be additional costs for hard copy prints. Please contact Drs. Brady or Meagher.)
8. The sponsoring editor may decide to include advertisements in the supplement in order to defray costs. Please consult with the HJMPH advertising representative Michael Roth at 808-595-4124 or email rothcomm@lava.net for assistance.
9. Supplement issues are posted online for full-text (PDF) retrieval on the HJMPH website at www.hjmp.org. An announcement of its availability will be made through our normal email distribution list. Full-text will also be available on PubMed Central.
10. It is the responsibility of the supplement editor and contributing team members to manage all editorial, marketing, sales, and distribution functions. If you need assistance, please contact our production manager. We may be able to help for an additional fee.
11. Timing of a supplement issue publication will be formalized once all required materials have been submitted to the production manager and payment made.



MIEC Belongs to Our Policyholders!

Gary A. Okamoto

Gary Okamoto, MD
Board of Governors



Keeping true to our mission

MIEC has never lost sight of its original mission, always putting policyholders (doctors like you) first. For almost 35 years, MIEC has been steadfast in our protection of Hawaii physicians with conscientious Underwriting, excellent Claims management and hands-on Loss Prevention services; we've partnered with policyholders to keep premiums low.

Added value:

- No profit motive and low overhead
- Local Honolulu claims office
- Dividends for an average savings of 28% on 2015 premiums for Hawaii physicians*

For more information or to apply:

- www.miec.com
- Call 800.227.4527
- Email questions to underwriting@miec.com

* On premiums at \$1/3 million limits. Future dividends cannot be guaranteed.

MIEC 6250 Claremont Avenue, Oakland, California 94618 • 800-227-4527 • www.miec.com

UCERA_ad_12.30.14

MIEC

Owned by the policyholders we protect.