

# Hawai‘i Journal of Health & Social Welfare

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## **HAWAI‘I JOURNAL WATCH**

Karen Rowan MS

239

## **MEDICAL SCHOOL LOCATION AND SEX AFFECT THE IN-STATE RETENTION OF PEDIATRIC RESIDENCY PROGRAM GRADUATES IN HAWAI‘I**

David Kurahara MD; Faith D. Hamamura BA; Christine Ifuku JD; John J. Chen PhD; Chloe A. Liu MS; Elisabeth M. Seamon MPH; Chloe S. Miwa; Brienna Maestas BS; Ria Oba; Shilpa J. Patel MD; and Bruce Shiramizu MD

240

## **LIDOCAINE INFUSION FOR REFRACTORY PAIN FROM RAT LUNGWORM DISEASE — HONOLULU, HAWAI‘I**

Kirth Cucueco MD; Kristin BATHEN APRN-Rx; Daniel Fischberg MD, PhD

246

## **FIRE SAFETY BEHAVIORS AMONG RESIDENTIAL HIGH-RISE BUILDING OCCUPANTS IN HAWAI‘I: A QUALITATIVE STUDY**

Gary Glauberman PhD, RN, PHNA-BC, NHDP-BC

249

## **MEDICAL SCHOOL HOTLINE**

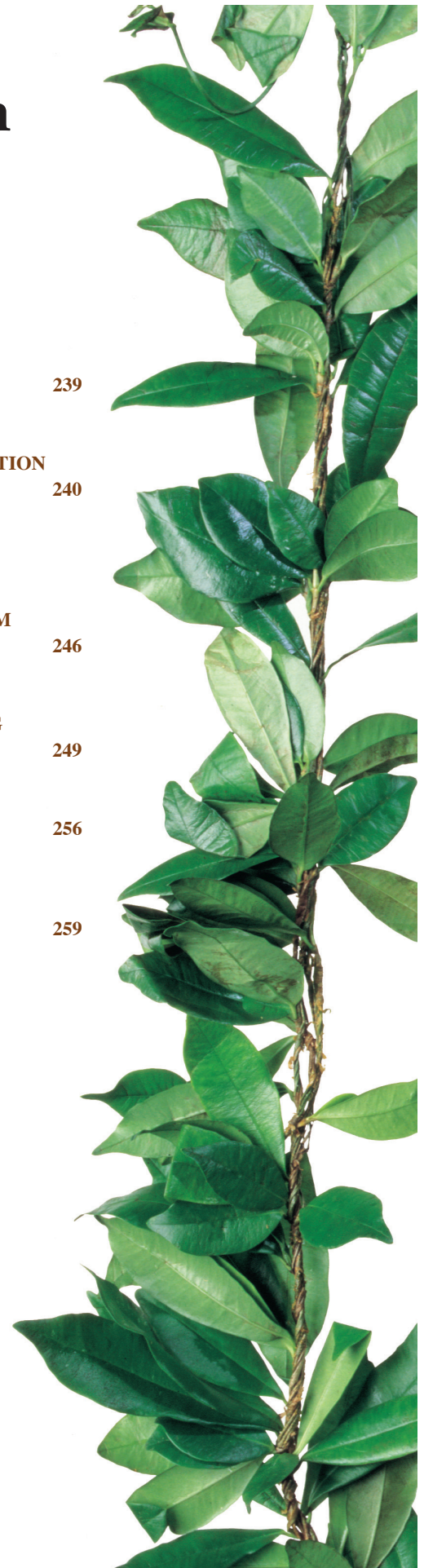
Student Well-Being and the United States Medical Licensing Step 1 Examination  
Damon Sakai MD

256

## **SOCIAL WORK IN ACTION**

Aloha E Dean Mokuau: *Mai Ka Ho‘oku‘i A Ka Hālāwai. From Zenith to Horizon*  
Theresa M. Kreif MSW, LSW; Kathryn L. Braun DrPH; and the leadership of the Myron B. Thompson School of Social Work

259



# Hawai'i Journal of Health & Social Welfare

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The aim of the Hawai'i Journal of Health & Social Welfare is to advance knowledge about health and social welfare, with a focus on the diverse peoples and unique environments of Hawai'i and the Pacific region.

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## Journal Contact Information:

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# HAWAII JOURNAL WATCH

KAREN ROWAN MS

## Highlights of recent research from the University of Hawai'i and the Hawai'i State Department of Health

### MENTAL HEALTH IN KOREAN OLDER ADULTS

The prevalence of mental distress among Korean older adults in America is high, yet this population tends to have low use of mental health services. Researchers including Seunghye Hong PhD, of the Myron B. Thompson School of Social Work, examined data from the Study of Older Korean Americans, a survey of Korean immigrants ages 60 and older in five states including Hawai'i. Results showed 30% of participants reported mental distress, and only 5.7% reported using professional mental health services. The participants with more physical health constraints were more likely to have high levels of mental distress and to utilize mental health services. Importantly, participants' with higher objectively measured mental distress but higher self-rated mental health were less likely to use mental health services than those with lower self-rated mental health. The researchers concluded that intervention efforts with this population should focus on promoting self-awareness and recognition of mental distress.

- Jang Y, Chiriboga DA, Park NS, et al. The role of self-rated mental health in seeking professional mental health services among older Korean immigrants [published online ahead of print, 2020 Apr 30]. *Aging Ment Health*. 2020;1-6. doi:10.1080/13607863.2020.1758908

### COMMUNICATION WITH FAMILIES DURING COVID-19

The COVID-19 pandemic changed the in-hospital experiences of families of children with medical complexity. Isolation procedures, visitation policies, and rounding practices increase family stress. A team of authors made up of parents, nurses, physicians, educators, and researchers, including Shilpa Patel MD, of the John A. Burns School of Medicine, asked family advisors and health care providers for suggestions on maintaining excellent communication in this setting. Family advisors said providing clear, timely communication reduces patient and family anxiety. Engaging family members with responsibilities to complete, such as recording patient symptoms, can help increase a sense of control, as can reinforcing the message that patients and families are experts about themselves. Programs such as Zoom and Skype can facilitate frequent communication. In summary, the authors wrote, changes in workflows to ensure patient- and family-centered care remain a priority can reduce stress of hospitalization.

- Rosenbluth G, Good BP, Litterer KP, et al. Communicating effectively with hospitalized patients and families during the COVID-19 pandemic [published online ahead of print, 2020 Jun 17]. *J Hosp Med*. 2020;10.12788/jhm.3466. doi:10.12788/jhm.3466

### FIRE SAFETY BEHAVIORS AMONG THE OCCUPANTS OF HIGH-RISE BUILDINGS

The behaviors of high-rise building occupants during emergencies is an important issue in disaster preparedness. In a scoping review aimed at describing literature on high-rise occupant fire safety behaviors, Gary Glauber PhD, of the School of Nursing and Dental Hygiene, examined 14 peer-reviewed articles. Results showed the occupants of commercial high-rise buildings reported high levels of participation in fire drills, but did not always then move to other floors, nor exit the building during drills. Commercial high-rise

occupants had insufficient knowledge of evacuation procedures and were not able to identify proper procedures. Occupants of residential high rises were less knowledgeable about buildings' fire safety features compared with commercial high-rise occupants. Most studies focused on commercial high-rise occupants; more research is needed on residential high-rise occupants' fire safety knowledge, attitudes, and behaviors. Public health nurses can engage high-rise residents in emergency preparedness planning.

- Glauber G. Scoping review of fire safety behaviors among high-rise occupants: Implications for public health nursing. *Public Health Nurs*. 2020;37(3):371-379. doi:10.1111/phn.12728

### CARCINOGENIC CHEMICALS IN WEEDS NEED FURTHER RESEARCH

Chemicals called 1,2-dehydroPAs are produced by weeds in agricultural systems throughout the world. In an opinion article, researchers including Russell Molyneux PhD, of the Daniel K. Inouye College of Pharmacy, outline the research avenues that could be used to investigate the possible role of 1,2-dehydroPAs in human cancers. In the body, these chemicals are metabolized to form compounds called 6,7-DHP-esters and other products, which damage liver cells. It is possible that these metabolic products cause mutations that lead to human health issues. Plausible examples include a liver disease called hepatic veno-occlusive disease, a lung disease called pulmonary veno-occlusive disease, and cancers such as rhabdomyosarcoma, a cancer of the muscles. The researchers concluded that more research is needed to know definitively whether these compounds are linked to these health conditions.

- Edgar JA, Molyneux RJ, Colegate SM. Linking dietary exposure to 1,2-dehydropyrrolizidine alkaloids with cancers and chemotherapy-induced pulmonary and hepatic veno-occlusive diseases. *J Agric Food Chem*. 2020;68(22):5995-5997. doi:10.1021/acs.jafc.0c02582

### FACILITATORS AND BARRIERS TO IMPLEMENTING SELF-MEASURED BLOOD PRESSURE MONITORING PROGRAMS IN HAWAII

When 5 community health centers in Hawai'i started programs in 2016 to teach patients to track their blood pressure at home with monitors, there was no standard, CDC-approved curriculum for such programs. Researchers led by David Stupplebeen, PhD, previously with the Office of Public Health Studies, conducted a process evaluation with program providers at these health centers. Researchers found the program inputs included grant funds for hiring support staff and monitors and educational materials donated by the American Heart Association. The programs succeeded in recruiting and enrolling participants, and providing patients with not only monitors, but also diet-related education, food preparation demonstrations, and referrals to nutritionists. Barriers to self-monitored blood pressure programs included inadequate material supports, data management difficulties, and staff turnover. The evaluation concluded that policy makers should consider developing protocols for self-measured blood pressure monitoring programs that can be used off the shelf and providing further supports to implementation sites.

- Stupplebeen DA, Pirkle CM, Sentell TL, et al. Self-measured blood pressure monitoring: Program planning, implementation, and lessons learned from 5 federally qualified health centers in Hawai'i. *Prev Chronic Dis*. 2020;17:E47. Published 2020 Jun 25. doi:10.5888/pcd17.190348

# Medical School Location and Sex Affect the In-State Retention of Pediatric Residency Program Graduates in Hawai'i

David Kurahara MD; Faith D. Hamamura BA; Christine Ifuku JD; John J. Chen PhD; Chloe A. Liu MS; Elisabeth M. Seamon MPH; Chloe S. Miwa; Brienna Maestas BS; Ria Oba; Shilpa J. Patel MD; and Bruce Shiramizu MD

## Abstract

The objective of this study was to assess the impact of medical school, sex, career choice, and location of practice of one pediatric residency program on physician workforce. This is a retrospective study of all categorical pediatric graduates of a residency program located in Honolulu, Hawai'i from 1968 to 2015. Information on medical school training, sex, career choice (general pediatrics or specialty), and location of practice were studied by examining data into five 10-year graduation periods. The program graduated 319 residents over nearly a 50-year timespan. Of these, 181 (56.7%) residents remained in Hawai'i to practice (adjusted odds ratio [OR] = 7.46, 95% confidence interval [CI]: 3.61-15.43). There were 125 (39.1%) graduates who relocated to the continental US with the majority moving to the West (55.2%), while other graduates moved to the South, Midwest, and Northeast (25.6%, 13.6%, and 5.6%, respectively). The remaining 13 (4.1%) graduates moved internationally. Female residents steadily increased over time ( $P < .001$ ), with females significantly choosing general pediatrics (OR = 3.05, 95% CI: 1.91-4.89). In the time periods with the highest percentage of University of Hawai'i medical school graduates, there was an increased percentage of graduates staying in Hawai'i. This study examined the regional and national impact of a small residency program. The results indicated that trends in gender and the impact of medical school location were important in establishing a pediatrician workforce for local communities. Support of both medical school and residency education should be considered when assessing future workforce needs.

## Keywords

Medical Education, Pediatric Workforce, Pediatric Residency, Pediatric Specialty, General Pediatrics

## Abbreviations

CI = confidence intervals  
IMG = International medical graduate  
JABSOM = John A. Burns School of Medicine  
OR = odds ratio  
KMCWC = Kapi'olani Medical Center for Women & Children  
UH = University of Hawai'i  
UHPRP = University of Hawai'i Pediatric Residency Program  
US = United States

## Introduction

The contributions to physician workforce from a specific residency program to the local and national communities have rarely been described in the literature.<sup>1</sup> One study evaluated the regional effect of closing family medicine residency programs, with the negative economic and geographic impact going undetected for years.<sup>2</sup> Hawai'i has the second-highest percentage of

active physicians over the age of 60 (32.9%) in the nation raising significant concerns for future physician workforce issues.<sup>3</sup>

Recent trends in the field of pediatrics have indicated a shift in gender and generational influences on the pediatric workforce.<sup>4</sup> In order to sustain an adequate number of pediatricians, it is necessary to closely examine current trends, anticipate future needs, and formulate recruitment and retention strategies. Therefore, a balance of pediatric generalists and specialists is necessary to adequately care for the pediatric population in Hawai'i and the Pacific Basin.

As of 2018, Hawai'i is currently impacted by a physician shortage of 513 full-time physician equivalents.<sup>5</sup> Data from 2016 revealed that 113 (33.5%) of 337 pediatricians in the state were over the age of 60. This may mean that many may retire in the next decade.<sup>6</sup> Assuming no new pediatricians were added to the state's workforce, the remaining general pediatricians would theoretically only cover two-thirds of the patient population over the next 10 years or be overburdened to take on more patients. These workforce trends should be examined to strengthen graduate medical education for the community in order to supply sufficient numbers of pediatricians for the childhood population. In addition, Hawai'i's geographic isolation further restricts training a pediatrician workforce with enough capacity to adequately care for the children in the entire state.

The education and training landscape for the study is unique because Hawai'i is geographically isolated from the continental United States (US). This program is the only civilian pediatric residency in the state and is affiliated with the sole medical school in the state, the University of Hawai'i John A. Burns School of Medicine (JABSOM). This manuscript evaluated the effect of physicians trained in 1 residency program on the entire country and addresses the impact of these pediatricians on the regional workforce needs. The objective of this paper focused on the impact of a residency program on the physician workforce by investigating the career paths, changing demographics, and location of practice from an entire pediatric residency program's history over nearly 5 decades.

## Methods

The University of Hawai'i Pediatric Residency Program (UH-PRP) maintained an alumni database featuring all graduates from

1968 to 2015. UHPRP is based at Kapi'olani Medical Center for Women & Children (KMCWC), the primary children's hospital in Hawai'i and the major tertiary referral hospital for most children in the Pacific Basin. All pediatric specialties are available at this hospital, including a pediatric intensive care unit and a tertiary neonatal intensive care unit. Currently, as of 2019, the pediatric residency program has 24 residents and adds 8 new interns per year with 2 post-graduate chief residents for a total size of 26 resident positions per year.

JABSOM is the only Liaison Committee on Medical Education-accredited medical school available in the Pacific Ocean, making the university an important source of recruitment for the pediatric residency program. The first JABSOM graduates of the 4-year medical school were in 1975.<sup>7</sup> In addition, a physician rating and comparison database was used to collect demographic data of the total pediatric workforce currently in Hawai'i.

Residency graduates were classified into 3 categories of medical schools: JABSOM, continental US medical schools, and international medical schools. The graduates were further categorized based on their career choice into general pediatrics or specialties. The lead author of this manuscript is the current program director of the pediatric residency and has a database of the graduates' last known practice. The database is updated when graduates move practice because credentialing must go through the pediatric residency program office. Only categorical pediatric residents were included in this study. Medicine/pediatric and triple-board psychiatry/pediatric graduates were excluded because these programs were only a short time period of the history of the pediatric residency program. The data were then grouped by roughly 10-year time periods based on their graduation year from the residency program. The first time period (1968–1975) was inclusive of 8 years due to limited information and shorter residency requirements. The subsequent 10-year time periods were defined as 1976–1985, 1986–1995, 1996–2005, and 2006–2015.

### **Statistical Analysis**

Data for the residency graduates were summarized by descriptive statistics and compared by time periods as described above. Unadjusted and adjusted logistic regression analyses were performed to evaluate the association between practicing in Hawai'i after residency and graduating from the local medical school. Odds ratios (OR) and respective 95% confidence intervals (CI) were derived. The OR were adjusted for the following possible confounding variables: residency training, sex, medical education, and year of graduation. A 2-sided *P* value of less than .05 was denoted as statistically significant. All data analyses were conducted using SPSS 23 software for Windows (Armonk, NY). Institutional review was done by Hawai'i Pacific Health Research Institute and was deemed exempt from full review by the Institutional Review Board.

## **Results**

### **Geographic distribution of UHPRP graduates**

There were 319 UHPRP graduates who completed the program over the 48-year time period. Following completion of the program, the graduates settled over a wide geographic area with their last known practice locations indicated in Figure 1. Of the total 319 pediatric graduates, 181 (56.7%) decided to stay and practice in the state of Hawai'i, while 13 (4.1%) moved to international locations, including Canada, England, Hong Kong, Japan, Micronesia, and Thailand. US Census Bureau regions were used to describe the distribution of these graduates across the country.<sup>8</sup> The remaining 125 (39.1%) moved to the continental US to practice. Of these, the majority at 55.2% (*n* = 69) relocated to the western region (excluding Hawai'i), followed by 25.6% (*n* = 32) to the southern region, 13.6% (*n* = 17) to the Midwest region, and 5.6% (*n* = 7) to the northeast region.

### **Differences in Resident Graduates by Time Period**

During 1986–1995, there was a significantly higher percentage of JABSOM graduates attending the residency program (68.1%, *P* < .001) compared to other time periods. Since then, there was a gradual decrease in JABSOM graduates within the residency program from 44.0% and 30.7% during 1996–2005 and 2006–2015, with an increase in graduates from other US and international medical schools. In the most recent time period (2006–2015), pediatric residency demographics were more evenly distributed with graduates from 29.3% international medical schools, 30.7% JABSOM, and 40.0% other US medical schools. In the last three 10-year time periods, an increasing number of pediatric residency graduates were more likely to practice in Hawai'i after residency graduation (*P* = .035).

### **Impact of JABSOM on Retention of Residency Graduates**

The majority of graduates, 56.7% (*n* = 181), remained in Hawai'i to practice medicine following graduation. The adjusted OR of JABSOM graduates practicing in Hawai'i compared to international medical graduates (IMG) was 7.46 (95% CI: 3.61–15.43; Table 2). The odds of in-state retention for US graduates from other medical schools compared to students from international schools was 1.84 (95% CI: 0.97–3.49). However, residency graduates who pursued specialty training were less likely to practice in-state compared to general pediatricians (OR = 0.38, 95% CI: 0.22–0.64).

### **Sex Influence on Pediatric Career Choice**

Over each of the time periods, a significant increase was observed in the percentage of female residents. For example, in the first time period 17.1% of the residents were female. This percentage increased to 61.3% by the most recent time period

( $P < .001$ ; Table 1). Overall, the number of females in the residency program increased in every time period since the first interval. In the last 30 years, the majority of UHPRP residents have been female with the most recent 10-year period being 61.3% (Table 1) in comparison to the overall female pediatrician workforce in Hawai‘i at 57.6% as of 2016.<sup>6</sup> With the increase in class size over recent decades, the number of males entering the program decreased, while the number of females increased.

### General Pediatrics Versus Specialist Career Choices

When studying the career choices of program graduates, there was an increase in general pediatrics and a decrease in specialty training, in contrast with the national trend.<sup>9</sup> In Table 1, the percentage of graduates entering specialty training decreased over the five 10-year time periods were 57.1%, 43.1%, 39.1%, 34.7%, and 36.0%, respectively. Conversely, the percentage of general pediatricians has increased steadily each time period at 42.9%, 56.9%, 60.9%, 65.3%, and 64.0%, respectively.

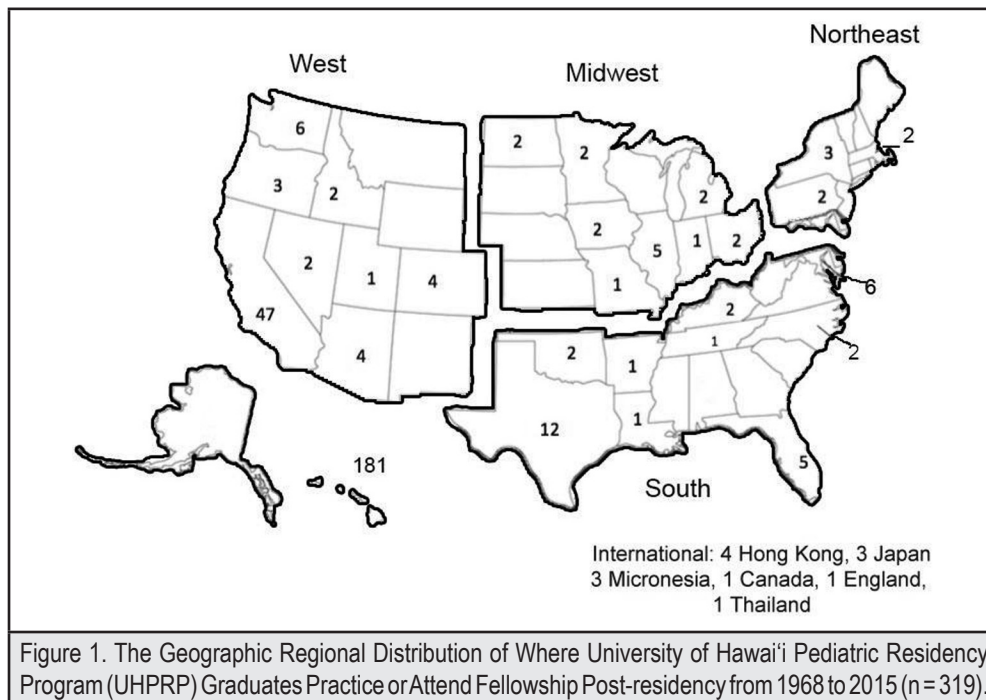


Table 1. Characteristics of JABSOM Pediatrics Residency Program Graduates, 1968–2015 <sup>a,b</sup>						
Characteristic	Year of Residency Graduation (N = 319)					P value <sup>c</sup>
	1968–1975 (n = 35)	1976–1985 (n = 65)	1986–1995 (n = 69)	1996–2005 (n = 75)	2006–2015 (n = 75)	
<b>Sex, n (%)</b>						
Female	6 (17.1%)	24 (36.9%)	37 (53.6%)	38 (50.7%)	46 (61.3%)	<.001
Male	29 (82.9%)	41 (63.1%)	32 (46.4%)	37 (49.3%)	29 (38.7%)	
<b>Medical Education, n (%)</b>						
International Graduates	16 (45.7%)	14 (21.5%)	8 (11.6%)	12 (16.0%)	22 (29.3%)	<.001
JABSOM Graduates	0 (0.0%)	23 (35.4%)	47 (68.1%)	33 (44.0%)	23 (30.7%)	
Other US Graduates	19 (54.3%)	28 (43.1%)	14 (20.3%)	30 (40.0%)	30 (40.0%)	
<b>Specialty Training, n (%)</b>						
General Pediatrician	15 (42.9%)	37 (56.9%)	42 (60.9%)	49 (65.3%)	48 (64.0%)	.21
Specialist	20 (57.1%)	28 (43.1%)	27 (39.1%)	26 (34.7%)	27 (36.0%)	
<b>Place of Practice, n (%)</b>						
Hawai‘i	16 (45.7%)	32 (49.2%)	50 (72.5%)	41 (54.7%)	42 (56.0%)	.035
Non-Hawai‘i	19 (54.3%)	33 (50.8%)	19 (27.5%)	34 (45.3%)	33 (44.0%)	

JABSOM = John A. Burns School of Medicine, US = United States. <sup>a</sup> There are 168 male and 151 female JABSOM residency program graduates during 1968–1975.

<sup>b</sup> The percentage (%) is compared to total number per category. <sup>c</sup> P values are based on Chi-square tests with comparisons over each time period.

Table 2. Adjusted Odds Ratios of JABSOM Pediatrics Residency Program Graduates Practicing in Hawai'i after Graduation by Characteristics, 1968–2015		
Characteristic	Practice in Hawai'i	
	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
<b>Year of Graduation</b>		
2006–2015 (Reference)	1.00	1.00
1968–1975	0.66 (0.30-1.48)	1.23 (0.50-3.01)
1976–1985	0.76 (0.39-1.48)	0.67 (0.31-1.44)
1986–1995	2.07 (1.03-4.15)	1.22 (0.55-2.71)
1996–2005	0.95 (0.50-1.80)	0.68 (0.33-1.42)
<b>Sex</b>		
Female (Reference)	1.00	1.00
Male	0.72 (0.46-1.13)	1.08 (0.63-1.84)
<b>Medical Education</b>		
International Graduates (Reference)	1.00	1.00
JABSOM Graduates	8.61 (4.44-16.67)	7.46 (3.61-15.43)
Other US Graduates	1.90 (1.03-3.49)	1.84 (0.97-3.49)
<b>Residency Training</b>		
General Pediatrics (Reference)	1.00	1.00
Specialist	0.31 (0.20-0.50)	0.38 (0.22-0.64)

OR = odds ratio, CI = confidence interval, JABSOM = John A. Burns School of Medicine, US = United States

## Discussion

This comprehensive study of a pediatric residency program in Hawai'i with only 1 medical school highlights the unique distribution of post-graduate residents, factors that may affect retention of pediatricians to address the state's workforce needs, and the changing sex profile of pediatric residents from 1968 to 2015. This study suggests that a pediatrician who completed both medical school and residency training locally was more likely to remain in the state to practice.

UHPRP graduates not only have a substantial impact on the pediatrician workforce in Hawai'i, but they also contribute to the physician workforce across the country. Out of 319 graduates, 138 (43.3%) chose to practice out of state. One way to quantify this impact would be to estimate the number of children cared for by UHPRP graduates by multiplying this number by the average number of children a pediatrician cares for in a career. If one uses 1,546 patients as the average number of patients cared for by a pediatrician, this would imply that UHPRP graduates have cared for 213,348 children outside of Hawai'i.<sup>10</sup>

To our knowledge, this is the first time that the majority of a single pediatric residency program has been analyzed and can be important information on the trends seen in medicine over a nearly 5-decade time period. In reviewing the literature, a few studies examining aspects of residency graduates over shorter periods of time were found. The Children's Hospital in Boston, affiliated with Harvard Medical School, reported the choice and activities of its residency graduates during 1974–1986. That study examined a large residency program over a shorter

timeframe with its focus on academic research careers, which is different from this study's focus on career paths, changing demographics, and location of practice.<sup>1</sup> Another study on a surgical residency over a 15-year time period examined the career path of 34 non-designated general surgery residents at Massachusetts General Hospital also in Boston.<sup>11</sup> Finally, a group reported 4 years of an internal residency program in Guyana affiliated with the University of Maryland which graduated 6 residents from its start in 2013 to 2017. This described some of the challenges and successes for a program in a resource limited environment and has a much different focus than in our study.<sup>12</sup>

UHPRP graduates have cared for a significant majority of Hawai'i's children, showcasing the program as a vital component to ensure the quality of pediatric care in the state. Assuming all 181 (56.7%) graduates are actively practicing clinical pediatrics in Hawai'i, the total impact could be as high as 279,826 children or more than 90% of the children in the state.<sup>10</sup> However, this may be overstated as recent graduates may not have yet cared for this many patients and others may have retired from practice. Similar studies could provide data for hospitals and state governments to understand the impact of residencies in meeting the healthcare needs of their local populations.

The likelihood of JABSOM graduates practicing in-state after residency was significantly higher than continental US medical schools or IMGs in our study. It is more likely for a resident who graduated from our local medical school to stay and practice in Hawai'i following residency. When looking at physicians who completed both in-state medical school and residency, Hawai'i has the highest retention in the country at 86.6%, which exceeds

the national median at 69.0%.<sup>6</sup> JABSOM's commitment to in-state students may contribute to this outcome.<sup>13</sup> Furthermore, completing both medical school and residency in Hawai'i could potentially increase in-state networking, leading to possible future improvements in the residents' knowledge of job opportunities and increase the comfort level of potential employers with residents' competency. These results may increase the likelihood of graduates choosing to practice in Hawai'i.

Comparatively, a cross-sectional study done in 2017 using a physician rating and comparison database was conducted to look at the total pediatric workforce in Hawai'i (n = 281), resulting in a finding of 36.7% (n = 103) who were UHPRP graduates. The difference may be accountable by this database including the pediatricians from the military systems (unpublished data).

Similar trends for physician retention have been observed elsewhere. A study from the University of Buffalo found that medical students with geographic ties to New York who graduated in 1989–1991 were more likely to practice locally mid-career. The likelihood of their local medical students practicing in the same area after residency graduation was found to be 15-fold greater in those who were not (OR = 15.7, 95% CI: 8.9–27.5). Their study looked at the graduates' mid-career locations, which was different than the focus of this study despite similar outcomes.<sup>14</sup>

The outcomes of IMG graduates who attended UHPRP were also examined. JABSOM gained accreditation as a 4-year institution in 1973, which may explain the absence of JABSOM graduates and the peak percentage of IMGs between 1968–1975.<sup>7</sup> Following that time period, there was a subsequent decrease in IMGs to 21.5% from 1976–1985 with the lowest percentage at 11.6% during 1986–1995. In 1996–2005, IMGs in the UHPRP increased and the proportion of IMGs peaked at 29.3% in 2006–2015. Currently, with hundreds of applicants a year for 8 positions, competition for these residency positions has increased. Historically, many IMGs in our residency program have already completed residencies and even fellowships prior to applying to this program and bring a wealth of pediatric experience.

The UHPRP data showed an overall increase in residents who chose general pediatrics and a slight overall decrease in those who chose specialty practices during 1968–2015, which contrasted national trends of increasing specialization.<sup>4,9</sup> The growing interest towards general pediatrics locally may be related to the greater number of female residents in our program since our data shows females are more likely to enter a career as a generalist. The increasing trend of female UHPRP residents reflects national trends. In 1975, females constituted 23.0% of the pediatric workforce nationally, which is comparable to Hawai'i's 17.1% during a similar time period.<sup>15</sup> Then, in 2012, 73.0% of pediatric residency graduates nationally were female, which is also comparable to 61.3% in Hawai'i during a similar time period for this study.<sup>16</sup> The data support the general trend of more females entering the field of pediatrics nationally.

Another important factor was that this program lacks fellowship opportunities, which may also influence career decisions, especially for graduates who did not want to relocate for fellowship training. However, career choice is a highly complex phenomenon, and many other factors can be involved. When deciding on a career choice, residents may be influenced by residency program size, availability of fellowship opportunities, medical school location, career location, debt, potential income, residency mentors, work-life balance, interest in specific disciplines, job opportunities, and family circumstances.<sup>4,9</sup> Likewise, media coverage of workforce shortages may play a role in decision making.<sup>17</sup> This trend potentially provides more primary care physicians for the local community's pediatric needs. These findings have potential implications for resident recruitment and training such as the need to offer family-friendly benefits like child care and flexible scheduling to attract potential applicants.<sup>18</sup>

Issues that influence whether a pediatric resident pursues specialty training and remains in Hawai'i may be multifactorial, including limited fellowship opportunities in the state, job market, and a higher cost of living. According to a 2011 study conducted by Rochlin and Simon, financial factors may also play a key role, based on their findings that pediatric fellowship training often resulted in decreased financial returns compared to general practice.<sup>19</sup> Pediatric residents with medium or high indebtedness are then more likely to practice general pediatrics or hospitalist medicine.<sup>20</sup>

In some situations, the residency program is unaware of where graduates have moved. Even though the program has tried to keep records, the data for 9 individuals was unavailable. Also, information on when graduates leave fellowship is not known.

By studying 1 pediatric residency program throughout its entire history, the impact of these trained pediatricians on the local workforce can be examined. Graduates from the UHPRP program mainly remained in-state to practice. However, 43.3% of graduates left the state and chose to practice in the continental US or international locations. From the standpoint of improving the pediatrician workforce in Hawai'i, the local medical school and the pediatric residency program should strive to provide valuable clerkship experiences for medical students to build interest in their specialties. The collected data of this study indicates that students who attend both medical school and residency in one location are more likely to remain in that area and contribute to the workforce locally and regionally.

More longitudinal research is required to further examine these emerging trends in the context of workforce sustainment. There are shortages in pediatric specialties including cardiology, endocrinology, hematology/oncology, gastroenterology, and neurology.<sup>21</sup> Recruitment of future pediatricians and pediatric specialists can start as early as medical school. Residency programs and medical schools can partner together to provide educational services that benefit the students, residents, and communities that they serve.



## Conflict of Interest

The authors have indicated they have no conflicts of interests relevant to this article to disclose.

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### Authors' Affiliations:

- Department of Pediatrics, John A. Burns School of Medicine, University of Hawai'i, Honolulu, HI (DK, FDH, CI, CAL, EMS, CSM, BM, RO, SJP, BS)  
- Department of Quantitative Health Sciences, John A. Burns School of Medicine, University of Hawai'i, Honolulu, HI (JJC)

### Correspondence to:

David Kurahara MD; 1319 Punahou St. #753, Honolulu, HI 96826;  
Email: davidk@kapiolani.org

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# Lidocaine Infusion for Refractory Pain from Rat Lungworm Disease — Honolulu, Hawai‘i

Kirth Cucuenco MD; Kristin Bathen APRN-Rx; Daniel Fischberg MD, PhD

## Abstract

Human infection with *Angiostrongyloides cantonensis*, or rat lungworm disease, manifests most commonly with neurologic symptoms that often include severe diffuse pain. While pain is reported by the majority of patients with rat lungworm disease, there are presently no published guidelines on the approach to pain management for these patients. Here we report a case of rat lungworm disease where severe refractory pain was the most prominent symptom and an intravenous lidocaine infusion was used as a successful treatment modality. Intravenous lidocaine has been shown to be safe and effective in neuropathic pain, refractory cancer pain, and peri-operative pain management. To our knowledge, this is the first case report on the use of lidocaine infusion for the management of refractory pain from rat lungworm disease, and among the first reports of any approach, to pain management for rat lungworm disease. We suggest that a lidocaine infusion protocol be considered when pain from rat lungworm disease fails to respond to first-line analgesics.

## Keywords

*Angiostrongyloides cantonensis*, rat lungworm disease, lidocaine infusion, pain

## Introduction

Rat lungworm disease (RLWD), or human *Angiostrongyloides cantonensis* infection, is prevalent mostly in Southeast Asia and the Pacific Islands, but has recently also been reported in the continental United States.<sup>1,2</sup> It has been increasingly diagnosed in Hawai‘i where there have been 77 cases from 2008 to 2017; 25% of these were reported in 2017.<sup>1</sup> RLWD is typically acquired by ingesting raw or undercooked food containing the larval stage of the worm. The larva migrates within the human brain and spinal cord prior to its death. Neural injury may follow from the host’s immune response to the decaying larvae, resulting in varying degrees of pain and neurologic disability, described as neuroangiostrongyliasis.<sup>3,4</sup> Neurologic symptoms may include headache, visual disturbance, fatigue or hyperesthesias.<sup>4</sup> Clinicians who encounter patients with a history of travel from endemic areas such as Hawai‘i, and presenting with pain and neurologic symptoms, should have a high index of suspicion for RLWD.<sup>2,5,6</sup> There are no recommended protocols to guide analgesic management. Published management strategies typically provide nonspecific recommendations for pain management.<sup>3</sup> Here we report a case of a patient diagnosed with RLWD, presenting with refractory pain.

## Case Report

A 29-year-old man lettuce farmer without significant past medical history presented to The Queen’s Medical Center in

Honolulu, Hawai‘i with 2 weeks of severe headache, joint pains, and fever. The patient described severe holocranial headache as well as a burning pain initially localized to the left upper extremity. The left upper extremity pains were also described as “stabbing” and “pins and needles” and were typically preceded by erythematous flushing with subsequent severe pain episodes. The pains became regional, at times affecting the lower extremities, at times the abdomen, although never in a dermatomal distribution. Over the course of the hospitalization, the quality of the pains also varied and additional descriptors included “cramping” and “crushing.” Diffuse allodynia was prominent on exam. The patient was eventually confirmed to have RLWD with findings consistent with larval tracks in the brain using magnetic resonance imaging (Figure 1), and a positive polymerase chain reaction test of cerebrospinal fluid.

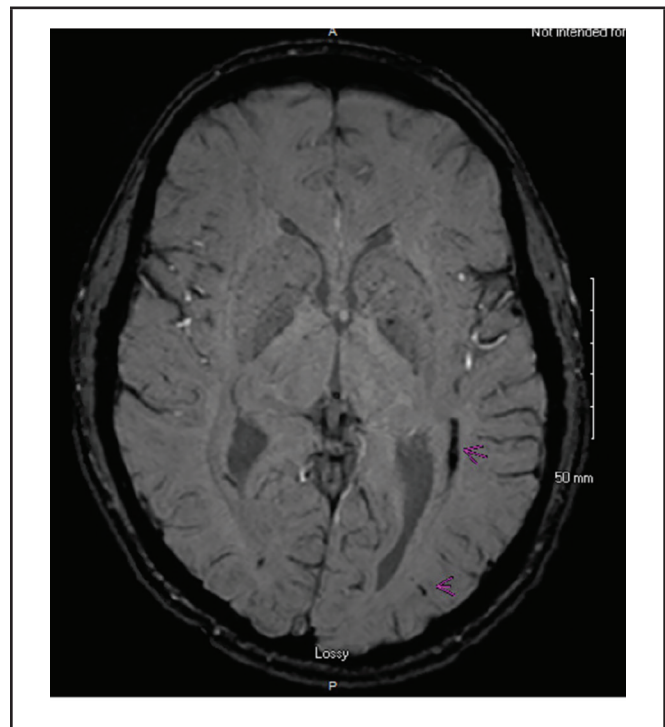
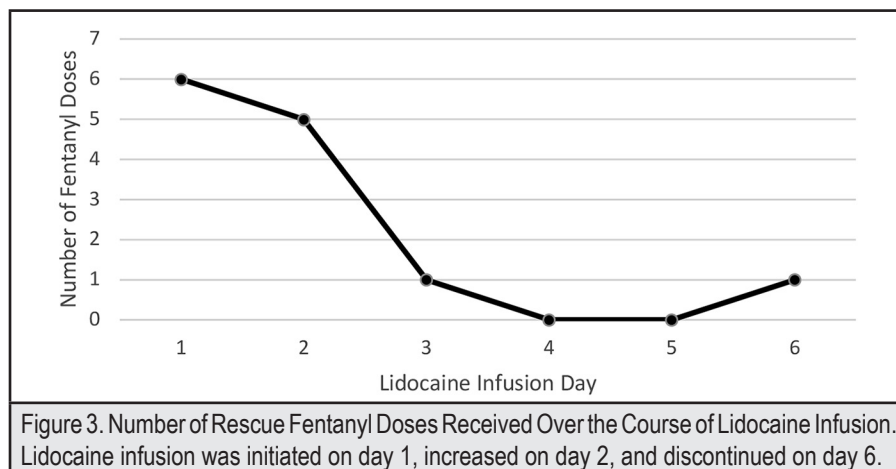
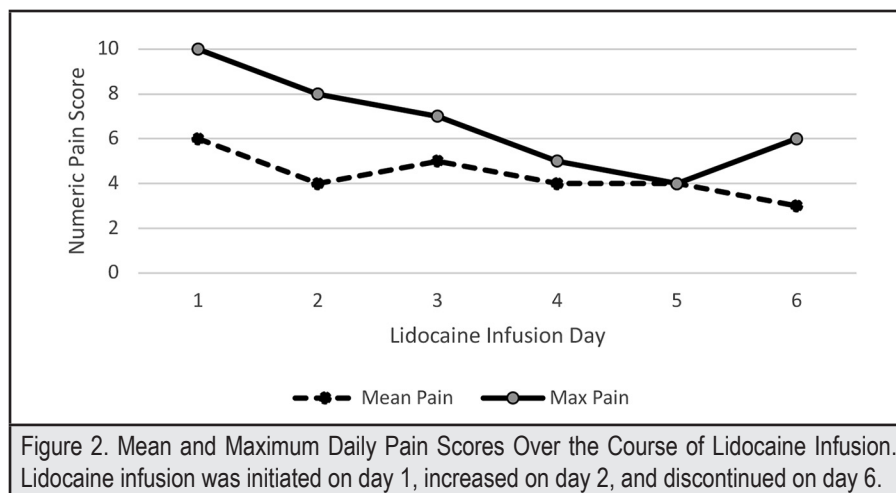


Figure 1. Magnetic Resonance Imaging of Patient Brain Using Susceptibility Weight Imaging. This image shows prominent dilated perivascular spaces in the cerebral hemisphere and cerebellum with multiple curvilinear tracks most prominent in the left temporal lobe consistent with eosinophilic meningitis.

For pain, the patient was initially treated with the oral non-opioid analgesics ibuprofen and acetaminophen. However, given the persistence of severe episodic, migratory, regional pain, gabapentin was added for a presumed neuropathic pain component along with the steroid prednisone and the oral opioid oxycodone. The headache, ascribed to increased intracranial pressure, was transiently relieved by serial lumbar punctures. However, the patient continued to report severe and incapacitating episodes of migratory, regional, burning pain throughout his body despite serial trials of gabapentin (titrated to 1200 mg every 8 hours), pregabalin (75mg 3 times a day), baclofen (5 mg every 8 hours), nortriptyline (50 mg at bedtime), oral hydrocodone/acetaminophen (10-325 mg every 4 hours as needed), and then intravenous fentanyl (via patient controlled analgesia bolus doses of 10 µg every 10 minutes as needed with clinician rescue boluses of 25 µg every 3 hours as needed). The patient was bedbound, unable to sleep, mobilize, or participate in physical therapy due to uncontrolled pain.

Given the patient’s severe refractory and disabling pain, a lidocaine infusion was initiated on hospital day 12 utilizing our

hospital’s protocol for severe and/or neuropathic pain. A bolus of 1 mg/kg was administered intravenously over 30 minutes followed by a continuous infusion rate of 0.5 mg/kg/hr. At the time of the start of the infusion, pain was most severe in the lower extremities. Mean pain scores the day of and prior to initiation of the lidocaine infusion were 6 (range: 3-10). Pain was described as “all over,” or 8 out of 10, with occasional sharp bursts of stabbing pain approximately 17 hours after the initiation of lidocaine, so the dose was increased to 1 mg/kg/hr on hospital day 13. Within 4 hours of dose titration, the patient, who was previously bed-bound, was able to ambulate 160 feet with physical therapy. That night, the nursing notes documented the patient was able to sleep. Mean and maximal pain scores declined over the course of the lidocaine infusion (Figure 2) as did intravenous fentanyl rescue doses (Figure 3). Lidocaine infusion was stopped after 6 days on hospital day 17. Sustained release oxycodone was discontinued and the patient was discharged on hospital day 19 on an analgesic regimen of low dose immediate release oxycodone (morphine equivalent daily dose of 30 mg or less on the 2 final days of hospitalization), gabapentin, nortriptyline, and cyclobenzaprine.



## Discussion

Pain associated with RLWD can be severe and difficult to control. However, there is no consensus on how to best manage pain due to neuroangiostrongyliasis.<sup>2,3,7</sup> The pain may present acutely within days and last several weeks or become chronic.<sup>2,7</sup> Given the lack of standardized pain management guidelines for patients with acute pain from RLWD, providers may be at a loss to treat pain that is refractory to standard approaches or rely heavily on opioid analgesics. Recent reports have described ketamine infusion to manage pain due to RLWD.<sup>7,8</sup> A lidocaine infusion is another option to treat refractory pain syndromes and was, therefore, offered to our patient.<sup>9,10</sup>

Lidocaine, an amide local anesthetic, is widely used topically and by local infiltration. However, physicians outside of the specialty of pain management or anesthesia may be less familiar with the use of intravenous lidocaine for acute and chronic pain. The inflammatory process in RLWD from the decaying larvae injures neurons that then may develop abnormal, spontaneously, and pathologically active sodium channels. The exact analgesic mechanism of action for lidocaine infusion is unknown, however has been postulated to be suppression of ectopic and aberrant sodium channel activity.<sup>11-14</sup> Intravenous lidocaine has been shown to be safe and effective in neuropathic pain, refractory cancer pain, and peri-operative pain management.<sup>9,11</sup> Because our patient had severe neuropathic pain that was refractory to multiple first-line treatments, we initiated our institution's lidocaine infusion protocol for severe and/or neuropathic pain with prompt decrease in pain and intravenous opioid requirement and improvement in function.

The protocol at our institution involves starting with a bolus dose of 1-2 mg/kg administered intravenously over 30 minutes. Continuous infusion rates typically range from 0.5-2 mg/kg/hr and are titrated to the lowest effective dose.<sup>15</sup> Opioids and other pain medications are then decreased. Vital signs, pain and clinical assessments for toxicity are monitored every 4 hours. Neither telemetry nor serum lidocaine level monitoring is considered necessary but may be ordered at the discretion of the treating physician. Typical analgesic therapeutic lidocaine blood levels occur at less than 3 µg/ml. Side effects of lidocaine toxicity are typically dose-related. At serum levels 4-6 µg/ml, a patient may experience lightheadedness, peri-oral numbness, metallic taste, hypertension, anxiety, restlessness, slurred speech or confusion. The infusion is slowed or stopped if a patient reports any of these symptoms. When used for analgesia, blood levels rarely approach 8 µg/ml, where more severe events may occur such as visual or auditory disturbances, muscle twitching, and hypotension. At increasing levels, above 12 µg/ml, patients are at risk for seizures, coma, and death.<sup>16</sup> Lidocaine infusions should be avoided in patients with hypersensitivity to lidocaine or amide-type local anesthetics. Caution is advised in patients with any degree of heart block, heart failure, or seizure disorder. Patients with impaired renal or hepatic function can be expected

to have reduced lidocaine clearance and should be considered at increased risk for developing toxicity.<sup>12</sup>

Intravenous lidocaine has been recommended to treat refractory neuropathic pain and pain in the terminally ill.<sup>11,14</sup> More recently, its benefits have been reported to achieve early recovery after surgery and in the emergency department setting.<sup>9,12</sup> To our knowledge this is the first case report of the management of refractory neuropathic pain secondary to RLWD using a lidocaine infusion. We suggest that a lidocaine infusion protocol be considered when pain from RLWD fails to respond to first-line analgesics.

## Conflict of Interest

None of the authors identify any conflicts of interest.

### Authors' Affiliations:

- Department of Medicine, John A. Burns School of Medicine, University of Hawai'i, Honolulu, HI (KC)
- Division of Palliative Medicine of the Department of Geriatric Medicine, John A. Burns School of Medicine, University of Hawai'i, Honolulu, HI (DF)
- Pain & Palliative Care Department, The Queen's Medical Center, Honolulu, HI (KB, DF)

### Correspondence to:

Kirth Cucueco MD; 1356 Lusitana St., 7th Fl., Honolulu, HI; Email: kirth@hawaii.edu

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# 2019 WRITING CONTEST POST-GRADUATE WINNER

## Fire Safety Behaviors Among Residential High-Rise Building Occupants in Hawai'i: A Qualitative Study

Gary Glauberman PhD, RN, PHNA-BC, NHDP-BC



Gary Glauberman

Dr. Gary Glauberman is an Assistant Professor at the University of Hawai'i at Mānoa (UHM) School of Nursing and Dental Hygiene in Honolulu, Hawai'i. He serves as the Director of the UHM Nursing's Advanced Population Health Nursing program. He is certified in advanced public health nursing and has clinical practice experience in occupational health nursing. His areas of expertise include community/public health nursing, disaster nursing, and global health.

### Abstract

The world's population is rapidly urbanizing. Today, the majority of people live in cities and many live in high-rise buildings. High-rise buildings pose many challenges with regards to occupant safety, including fire prevention and evacuation safety. The purpose of this study was to describe factors that influence fire safety behaviors among residents of high-rise buildings and the strategies that population health nurses can use to support health education for people living in high-rise environments. An exploratory, descriptive qualitative research design with purposive sampling was used. Twelve residents from 8 high-rise buildings in Honolulu, Hawai'i participated in this study. In-depth semi-structured interviews were conducted and recorded, followed by thematic analysis of the interview transcripts. Five key themes emerged from the study: (1) attitudes towards fire safety, (2) building fire safety culture, (3) perceived ability to prepare for fires, (4) intentions to prepare, and (5) occupant fire preparedness behaviors. Gaps in knowledge regarding high-rise building fire safety were identified that contributed to residents' risk and vulnerability. Fire safety is of relevance to all nurses who work with populations. Population health nursing practice addresses the health, safety, and emergency preparedness needs of clients and communities. More research should be done to improve understanding of fire safety behaviors among high-rise residents to help population health nurses and other professionals mitigate the risk of fire in residential high-rise buildings and keep individuals and families safe during actual emergencies.

### Keywords

emergency preparedness, evacuation, fire safety, high-rise building, interviews, population health nursing, qualitative research, Theory of Planned Behavior

### Abbreviations

EP = emergency preparedness  
HR = high-rise  
TPB = Theory of Planned Behavior  
US = United States

The world's population is urbanizing at a rapid rate with the majority of people now living in cities.<sup>1</sup> As a result, cities are experiencing an increase in high-rise (HR) building construction, erecting structures with exceedingly taller heights and greater occupant densities.<sup>2,3</sup> HR buildings are defined as buildings greater than 75 feet in height from the ground level to the highest floor.<sup>4</sup> The rapid expansion of residential HR buildings has also occurred in Hawai'i. The City of Honolulu, which is relatively small in terms of land area, has more than 470 HR buildings. It now ranks sixth among cities in the United States (US) for the number of HR buildings.<sup>5</sup> As HR occupancy becomes commonplace, the health and safety of HR building occupants are of mounting concern. People who live and work in HR buildings are susceptible to emergencies resulting from natural, human-caused, and building-related hazards, including utility disruptions, elevator or other building system failures, flooded areas, and structural weaknesses.<sup>6</sup> Fire poses a great risk to HR building occupants. In the US, during 2009–2013, there was an average of 40 civilian deaths and 520 injuries due to HR fires per year. Most of these HR fires occurred in apartments and other multi-family housing structures.<sup>4</sup> The September 11, 2001 attacks on New York City's World Trade Center towers resulted in the deadliest HR fire in history. The fires and building collapses that followed the attack resulted in the deaths of 2791 civilians and firefighters.<sup>7</sup>

Fire safety refers to preventing fire, limiting the spread of fire and smoke, extinguishing a fire, and enabling a quick and safe exit.<sup>8</sup> HR fire safety research has increasingly focused on the interactions between infrastructure, procedures, and behaviors of building occupants.<sup>9</sup> Research on commercial HR building occupants has found that fire safety of occupants depends

greatly on behaviors before and during fires.<sup>10-13</sup> Little research has been conducted on residential HR building occupants' fire safety behaviors. Current disaster preparedness research and educational programs have largely overlooked important aspects regarding residential HR building occupant fire safety. Honolulu has a high density of HR condominium buildings, and HR fire safety is an important public health issue for the city. The purpose of this study was to describe factors that influence fire safety behaviors among residential HR building occupants living in Honolulu and identify relevant priority areas for nursing research and practice.

Population health nurses focus on improving population health through assessing and addressing the multiple determinants that influence health, safety, and well-being. Key roles of population health nurses include advocating for safe living environments, promoting healthy behaviors, and partnering with communities to create conditions in which people can be healthy. In regard to preparing communities for disasters, the goals of population health nurses reflect the practice standards of public health nursing, which aim to protect the population against the risk of disasters and support an all-hazards approach to emergency preparedness.<sup>14</sup> Because of this perspective, population health nurses are well-suited to engage clients and partners in research, practice, and policy regarding residential HR fire safety.

## Methods

A qualitative research study using semi-structured key informant interviews was conducted in Honolulu, Hawai'i between August and October 2018. The overarching research question for this study was "What are the factors that influence fire safety and evacuation preparedness among residential HR building occupants?" The study was granted exempt status by the University of Hawai'i Human Research Protection Program review board.

## Participants and Sampling

Twelve residents of 8 HR buildings participated in the study. Inclusion criteria for participants included English-speaking persons aged 18 or older who were HR building residents in Honolulu at the time of the study. Purposive sampling using a snowball recruitment technique was used to recruit participants. Sampling continued until data saturation was reached. Participants provided written consent before participating in the study. A gift card was provided to each participant in appreciation for their time. Buildings from which the participants were recruited were concentrated in the urban Honolulu area and were included on a publicly available list developed by the City & County of Honolulu and the Honolulu Fire Department as having an elevated risk for a HR fire. These buildings were deemed as having elevated risk due to being at least 10 stories in height, having interior hallways, and lacking fire sprinkler systems.

## Data Collection

A sociodemographic questionnaire was developed to collect information about participants and their households. It included questions about previous experience with HR fires, building evacuation, and prior exposure to emergency or fire safety training. An initial semi-structured interview guide was developed to collect qualitative data. It was informed by the Theory of Planned Behavior (TPB)<sup>15</sup> and refined after input from City and County of Honolulu HR fire safety experts for appropriateness and validity. Each interview lasted 30-60 minutes and was audio recorded.

## Data Analysis

Responses to the sociodemographic questionnaire were analyzed using descriptive statistics. Interviews were recorded and transcribed. Thematic analysis of the interview transcripts was performed by two researchers using techniques described by Nowell, Norris, White, Moulès.<sup>16</sup> Various techniques were practiced to maintain trustworthiness.<sup>17</sup> For example, credibility was enhanced through extended engagement with participants and frequent member checks. Direct quotations were employed to achieve transferability of findings. An audit trail was maintained to enhance the study's confirmability. Dependability of the findings was enhanced through double-coding of the transcripts. Two researchers worked independently, then compared results and mutually resolved the few differences in coding.

## Results

### Demographics

The majority of the participants (n=9, 75%) were female. Participant ages were evenly distributed among young, middle-aged, and older adults. The majority of participants had some college education (n=11, 92%). Seven participants (58%) reported that at least 1 member of the apartment household was 65 years or older. The large majority of participants (n=11, 92%) owned their apartment versus being a renter. The years of tenure living in the HR building was evenly split between 0-5 years and ≥6 years. Most had apartment insurance (n=11, 92%). Participant and household characteristics are summarized in Table 1.

**Participant experience with HR building fires.** Most of the participants (n=8, 67%) reported having had prior experience with a fire event in the HR building where they currently live. Of these 8 participants, 2 experienced 3 fires in their HR building, 3 experienced 2 fires, and 3 experienced 1 fire in their current building. One experienced a fire in their own apartment. Seven of the participants reported having to evacuate their building due to a fire, in which 3 participants had to evacuate once, 2 evacuated twice, and 2 evacuated 3 or more times. A summary of prior experience with HR building fires and evacuation is provided in Table 2.

	n	(%)		n	(%)
<b>Sex</b>			<b>Household member &gt;65 years old</b>		
Male	3	(25)	Yes	7	(58)
Female	9	(75)	No	5	(42)
<b>Age (years; n=11)<sup>b</sup></b>			<b>Number of household members</b>		
25-39	3	(27)	One	5	(42)
40-64	4	(36)	Two	5	(42)
65-79	4	(36)	Three	2	(17)
<b>Highest education completed</b>			<b>Years in current HR</b>		
High School	1	(8)	0-5	6	(50)
Associate	0	(0)	6-10	1	(8)
Bachelor	6	(50)	11-15	3	(25)
Graduate	5	(42)	>15	2	(17)
<b>Tenure</b>			<b>Total years lived in HR</b>		
Owner	11	(92)	0-5	5	(42)
Renter	1	(8)	6-10	1	(8)
			11-20	2	(17)
<b>Insurance Policy</b>			>20	4	(33)
Yes	11	(92)			
No	1	(8)			

HR = high-rise. <sup>a</sup> Total of 12 study participants. <sup>b</sup> One participant declined to answer.

**Prior emergency preparedness (EP) training.** Half of the participants had prior EP training (Table 2). Specific types included annual fire and safety training at work, occupational training, annual fire safety video at school, and fire drills. Half of the participants had experience working in an HR, which are subject to the US Occupational Safety and Health Administration regulations regarding fire prevention, such as periodic drills and emergency planning. Table 3 summarizes the types of EP training experienced by participants.

### Qualitative Findings

Five primary themes emerged from the data. Themes and sub-themes mapped to TPB theoretical model and are summarized in Table 4 and discussed below.

#### (1) Attitudes Towards Fire Safety

**Fire risk perception.** All participants felt some degree of risk for fire in their building. Residents of lower floors, namely the second through fifth floors, described a lower fire risk perception than those living on higher floors due to closer proximity to the ground and the option to escape from their window or balcony. Participants living on lower floors were less inclined to prepare for evacuation or initiate evacuation immediately in response to a fire alarm. One person stated, *“Its five stories,*

	n	(%)		n	(%)
<b>Fire in current HR</b>			<b>Household member EP training</b>		
Yes	8	(67)	Yes	6	(50)
No	4	(33)	No	6	(50)
<b>Fire in own apartment</b>			<b>Experience working in HR</b>		
Yes	1	(8)	Yes	6	(50)
No	11	(92)	No	6	(50)
<b>Fire incidences in current HR (n=8)<sup>a</sup></b>			<b>Experience evacuating HR</b>		
One	3	(38)	Yes	8	(67)
Two	3	(38)	No	4	(33)
Three	2	(25)			
			<b>Number times evacuated HR (n=7)<sup>b</sup></b>		
			One	3	(43)
			Two	2	(29)
			Three or more	2	(29)

HR = high-rise, EP = emergency preparedness.

<sup>a</sup> Eight of 12 study participants experienced fire in their current HR.

<sup>b</sup> Eight of 12 study participants had experience evacuating a HR, with 1 participant being unable to recall how many times.

Types of emergency preparedness training
• Annual fire safety or emergency preparedness
• Crisis management
• Annual fire safety class
• Partner's occupational training
• Annual school fire safety video about proper use of a fire extinguisher
• Emergency or disaster training, fire drills, earthquake preparedness drills

*so it's not too bad. If I were on the 15th or 20th floor, I would probably be a little more cautious and probably be more aggressive in being prepared.”*

All participants lived in buildings that lacked sprinkler systems, and most stated that they would feel safer if their building had sprinklers. However, many opposed retrofitting fire sprinkler systems into their building because they believed the cost of retrofitting sprinklers outweighed any safety benefit. Some participants shared that fire sprinklers were not necessary because sufficient safeguards were already in place to ensure safety, such as their buildings' structure, or efforts by building management to bolster fire safety among residents.

Table 4. Thematic Analysis from Semi-Structured Interviews about High-Rise (HR) Fire Safety		
TPB domain	Theme	Subthemes
Behavioral beliefs/attitudes	Attitudes towards fire safety	Fire risk perception influenced by beliefs <ul style="list-style-type: none"> <li>• Causes of high-rise fires</li> <li>• Floor of residence (higher floor = greater risk)</li> <li>• Fire sprinkler systems</li> <li>• Fire hazard risk assessment</li> </ul> Prior experience with HR building fire <ul style="list-style-type: none"> <li>• Direct</li> <li>• Indirect</li> </ul> Self-responsibility for household fire safety
Normative beliefs/subjective norms	Building fire safety culture	Building management fire safety leadership <ul style="list-style-type: none"> <li>• Inspections, enforcement drills</li> <li>• Communication with residents</li> <li>• Occupant trust in building management</li> <li>• Management linkages with EP community</li> </ul> Occupant perception of neighbors' fire safety Social connectedness of the building community
Control beliefs/perceived behavioral control	Occupant perceived ability to prepare for fires	Self-efficacy related to prior knowledge and training in fire safety and EP
Behavioral intentions	Intentions to prepare for fire	
Behavior	Occupant fire preparedness behaviors	Fire prevention and preparedness <ul style="list-style-type: none"> <li>• Fire safety precautions and equipment</li> <li>• Awareness of building fire safety features</li> </ul> Evacuation preparedness <ul style="list-style-type: none"> <li>• Awareness of evacuation routes</li> <li>• Cues for evacuation</li> <li>• Barriers to swift evacuation</li> </ul>

TPB = Theory of Planned Behavior, EP = emergency preparedness.

Participants' assessment of fire hazard risks also influenced their fire risk perception. This subtheme emerged from a combination of remarks expressing complacency or comfortableness, fatalism, risk denial, avoidance, or a false sense of security regarding the risk of fire in their building. These beliefs prevented many from adopting fire safety behaviors. One participant who had recently experienced a fire in his building stated, *"I need to buy at least [a fire extinguisher]. I'm going to put up some smoke alarms... but I haven't done it yet. It should be a priority but it's not for me. Playing the odds I guess."*

**Prior experience with HR building fires.** Having direct experience with a fire in their building spurred action to improve household fire safety. Participants described purchasing fire safety supplies, planning evacuation routes, or adopting other EP behaviors. One individual explained that after a fire occurred in her building, she created a detailed family emergency plan that included multiple contact persons, meeting places, adequate insurance coverage, and a financial cushion. Persons who had indirectly experienced a HR fire, such as witnessing a neighboring building fire or learned about a HR fire from the media or a neighbor, explained that these experiences had prompted them to purchase new fire safety equipment, recheck existing supplies, or discuss fire safety in their building.

**Self-responsibility for household fire safety.** Participants who felt a strong sense of self-responsibility for their household's fire safety tended to be well prepared for fires. Others who ex-

pressed an expectation that their buildings' management should take the lead in preparing residents for fires were less likely to have fire safety knowledge or engage in fire safety behaviors.

## (2) Building Fire Safety Culture

**Building management fire safety leadership.** Buildings with strong fire safety leadership demonstrated proactive steps towards preventing fires and preparing residents for emergencies. Examples of building-level fire safety leadership included fire safety inspections, enforcement of rules, evacuation drills, communication to residents, and establishing linkages with the local EP agencies. Residents who lived in buildings with a greater degree of fire safety leadership were more likely to possess fire safety equipment and had greater confidence and trust in building leadership. In buildings with less evidence of fire safety leadership, residents felt that building management should take more initiative on fire safety efforts on behalf of residents.

**Occupant perception of neighbors' fire safety.** Most participants felt that residents of their buildings were not prepared for fires. Reasons given for this were that their neighbors are too busy, careless, don't understand the causes of fires or how to prevent them, or don't follow fire safety rules. Participants who felt their neighbors practiced poor fire safety habits described varied emotions about this situation, such as disapproval, annoyance, anger, and fear. One participant explained a need



to mitigate her own risk for fires due to the behaviors of her neighbors, stating, *“If you’re going to live in a HR building... you’re going to be surrounded by a bunch of people you don’t know and whose lifestyles you don’t know... Because of that, you need to do all you can to protect yourself and your condo.”*

**Social connectedness of the building community.** Individuals with higher levels of engagement with the building community tended to have higher levels of household fire preparedness. These individuals attended board meetings, had served on the resident board of directors, or maintained personal connections with their buildings’ managers or staff. Participants with less engagement with building matters tended to have lower levels of awareness building fire safety features and policies. Experiencing a fire in their building had the effect of galvanizing social connectedness among neighbors and building management and staff. Increased connectedness among neighbors resulted in residents helping each other improve household fire safety. For example, one participant stated, *“I bought [a fire extinguisher] for my next-door neighbor after finding out that she’s a single mom with two kids.”*

### (3) Occupant Perceived Ability to Prepare for Fires

Participants who lived in a household where at least 1 member had received some form of fire safety or EP training were much more confident in their ability to prepare for household fires and were more likely to practice fire safety or EP behaviors. For example, participants who had worked in nursing, in the military, or with utility companies maintained a very high level of household fire preparedness. Elementary school fire safety education was also very influential among participants in generating positive beliefs about self-efficacy for fire preparedness. Parents of children who received fire safety training also benefitted from their children’s education. Participants without exposure to fire safety or EP training had lower confidence in their ability to prepare for fires. These persons expressed that they would like building management to organize fire safety training sessions for residents. One person explained, *“I just don’t know what I’m doing! So the building should do something about that.”*

### (4) Intentions to Prepare for HR Fires

Participants expressed various intentions to better prepare their households for fire, describing plans to purchase equipment, seek out more knowledge and training, and engage with building leadership to improve fire safety for the entire building. Even though many participants had intentions to prepare for building fires, this did not always result in the actual adoption of household fire safety behaviors. This attitude was true even for participants who had direct experience with 1 or more fires in their building.

### (5) Occupant Fire Preparedness Behaviors

**Fire safety precautions and equipment.** Possession of basic household fire safety equipment varied greatly among participants. While most participants reported having either smoke alarms or fire extinguishers in their homes, few had both. People were not certain of the expiratory date of their fire extinguishers and expressed doubt in their ability to use them. Participants admitted to not replacing expired batteries in their smoke alarms. The low battery warning signal made by smoke alarms was considered very annoying to residents. A common reaction to this alert was to remove batteries from the unit without replacing them or to remove the unit from the wall.

**Awareness of building fire safety features.** Most participants knew where fire extinguishers were located in the hallways. Many people were not aware that their unit entry doors were designed to remain closed at all times to deter fire from spreading. Participants who had experienced a fire in their building only learned this after a fire had occurred.

**Evacuation preparedness.** Participants with experience evacuating from HR buildings tended to know at least 1 evacuation route out of the building. Experience with evacuating was gained from occupational training or having had experience evacuating from their units due to a false alarm or actual fire. Most persons understood that they could not use elevators during fires, though some learned this only after a fire occurred in their building. Participants without experience evacuating had less knowledge about evacuation routes or lacked confidence in getting out during an emergency. Some participants did not know the location of emergency stairwells, had never entered their buildings’ stairwells or had only noticed emergency stairwell entrances after a fire had occurred.

**Evacuation cues and barriers to swift evacuation.** Fire alarms were not perceived as a serious evacuation cue. Participants described varied reactions to the alarm, such as seeking more information, waiting for 1-5 minutes before acting, or completely ignoring it. Repeated exposure to false alarms or tests had desensitized participants to the alarm. Other cues prompted residents to evacuate, including seeing smoke or fire, hearing people scream, seeing emergency vehicles or equipment, and being told to evacuate by others. Physical or sensory impairments were described as an important factor influencing participants’ ability to quickly evacuate from their building. Engaging in multiple pre-evacuation actions, such as gathering items and preparing children or pets for evacuation, was another common barrier.

## Discussion

Personal attitudes regarding fire safety, building fire safety culture of neighbors and building management, and perceived ability to prepare their household for fires all contributed to residents' intentions to prepare for HR fires. Occupants with higher levels of perceived risk are more likely to evacuate faster and interpret cues as dangerous faster, decreasing the total amount of time to evacuate from a building.<sup>13,18</sup> Findings from this study suggest that HR residents who have not ever experienced a building emergency may not perceive fire as an urgent threat. Furthermore, negative attitudes towards fire safety influence attitudes and prevent individuals from taking action. Such factors are also known to serve as barriers to household EP.<sup>19,20</sup>

Organizational leadership has previously been identified as an influencing factor for commercial HR occupant fire preparedness.<sup>13,21</sup> This study found that residential HR occupants also seek building-level leadership to prepare for and respond to emergencies. Residents of buildings with proactive managers tended to be more knowledgeable regarding fire safety and benefit from the linkages building leadership make with local EP agencies. Population health nurses should encourage HR communities to build bonds among residents and their surrounding neighborhoods which will support greater fire safety within their buildings. Persons who report higher levels of engagement with their community are more likely to adopt household EP behaviors.<sup>20</sup> Furthermore, communities with strong communal linkages or bonds have personal and professional social networks that can be leveraged in disaster situations.<sup>22</sup>

Participants who had positive beliefs about their ability to prepare for fires were more likely to have adopted more fire preparedness behaviors. This finding is consistent with research regarding commercial HR occupants.<sup>11,13,18</sup> While commercial HR buildings are federally mandated to conduct periodic drills and emergency planning, residential HR buildings do not all have the same requirements. This finding indicates an area of concern, since many HR residents may not be exposed to fire safety or EP training unless they receive such exposure in the workplace, or seek it out on their own. Furthermore, participants in this study often lacked basic fire safety equipment, such as functioning smoke alarms and fire extinguishers. While this reflects what is known about household fire safety in the US,<sup>23</sup> this finding is particularly concerning among residential HR occupants, where a fire in 1 household can spread to multiple units. The absence of functional smoke alarms is a primary risk factor for death and injury in residential fires.<sup>24</sup> Population health nurses must be attuned to the differences in fire preparedness between commercial HR building occupants and residential HR building occupants.

## Implications for Population Health Nursing Research and Practice

Population-focused nursing interventions emphasize primary prevention to promote the health of populations and prevent injury and premature death.<sup>14</sup> Findings from this study indicate multiple areas where population health nurses can engage in promoting fire safety and evacuation preparedness among residential HR residents. Population health nurses can work with individual clients and families to improve fire safety in their units by conducting fire safety audits, which could be done during regularly scheduled home visits. Evacuation plans can be discussed and tailored to include special considerations for vulnerable members including the elderly and disabled. At the building community level, population health nurses can leverage existing partnerships with fire departments or other EP agencies to provide fire safety or EP training at health fairs or other venues convenient for HR residents. Population health nurses may also partner with building associations to cultivate fire safety leadership. For example, nurses can facilitate linkages between communities and local EP agencies or assist with the creation of building-specific educational materials for residents. At the systems level, population health nurses can advocate for health policies that improve residential HR safety, such as legislation mandating the installation of advanced fire safety features in residential buildings. Finally, generating knowledge and greater awareness of this topic through research can further influence policy to support systems change.

## Limitations

This exploratory, qualitative study was limited to a single geographic area in Honolulu and involved a small number of participants. A majority of the participants were female, had high levels of education attainment, and were apartment owners. Demographics of study participants may not be representative of all HR dwellers in Honolulu. Further research among other HR residents in other areas is highly recommended. Qualitative descriptive research studies may pose risks for interviewer bias; however, strategies to enhance the rigor and credibility were used to reduce bias and subjectivity.

## Conclusion

Findings from this study are significant because they bring to light important factors influencing fire safety behaviors among HR residents, a growing population in many cities. Improved understanding of fire safety behaviors among HR residents will help population health nurses and other professionals mitigate the risk of fire in residential HR buildings and keep individuals and families safe during actual emergencies. The knowledge gained from this study can be used to inform fire safety education

programs, policies, and future research on this topic. The next steps include the administration of a larger, quantitative survey regarding fire safety among high-risk building occupants across Honolulu County and the neighbor islands. Such information can inform the development of population health strategies to provide fire prevention and safety education to the HR building occupants in the state.

### Conflict of Interest

None of the authors identify any conflict of interest.

#### Author's Affiliation:

- School of Nursing and Dental Hygiene, University of Hawai'i at Mānoa, Honolulu, HI

#### Correspondence to:

Gary Glauberman PhD, RN, PHNA-BC, NHDP-BC; Email: [glauberm@hawaii.edu](mailto:glauberm@hawaii.edu)

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# MEDICAL SCHOOL HOTLINE

## Student Well-Being and the United States Medical Licensing Step 1 Examination

Damon Sakai MD

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

After completing their first two years of medical school, students across the nation challenge the United States Medical Licensing Examination (USMLE) Step 1, which tests the application of the biological sciences to the practice of medicine. At the John A. Burns School of Medicine (JABSOM) at the University of Hawaii, students are provided with eight additional weeks of “dedicated study time” for this exam in between the second and third years. Passing the Step exam is required for them to progress in the curriculum. More significantly, their numeric score has a tremendous impact on their competitiveness for elite residency programs, making it the most “high-stakes” exam of their lifetime to date. It is not surprising then that students report overwhelming anxiety and depression associated with this rite of passage.<sup>1,2</sup> These reflections by JABSOM students capture a depth to their emotions that may surprise faculty and administrators. Revealed is the unprecedented level of anxiety, the sense that their self-worth is determined by their exam score, and the trials and tribulations they undergo that may affect their years after the exam is over. But in these reflections are also words of encouragement and tips for success that would benefit not only our students, but the entire medical school community who collectively share in the responsibility to promote their personal health and well-being.

### An Unprecedented Level of Anxiety

Many students felt the anxiety they experienced studying for this exam was higher than any they'd experienced before.

Anxiety and inadequacy. These were the feelings that defined my Step 1 experience. Knowing that a single exam could determine my future filled me with dread.

Studying for something with so much weight on my future is probably the most anxiety-inducing thing I've done. I cried, laughed, and cry-laughed.

During my Step 1 study period I would wake up, and within 15 minutes my palms would start to sweat. They would sweat so much that the keys on my computer keyboard would fill with little puddles of water. It would usually subside by lunch, at which point my stomach would knot up and I'd develop heartburn.

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Around 3 days before my test I took a practice exam at the testing site. My score was in the “okay” range. That was reassuring. Then that same day I began feeling very overwhelmed. It's like it all hit me in that moment, and I started to cry. I'm usually a pretty positive person, and it's pretty uncharacteristic of me to burst into tears over an exam. But it happened. I took a break and listened to some music that I liked. I reached out to some of my friends for prayer and support. I worked out for a little bit. After a while I felt better and ready to focus again.

### The Trials and Tribulations

Students found themselves isolated from friends and family, disheartened by feelings of fear and depression as they tried to learn a seemingly infinite amount of information in too short a time span.

Studying for Step 1 felt like I was in a bunker in a post-apocalyptic world. I stayed alone at home for 2 months straight, only ever venturing into the unfamiliar outside world when I needed to collect more food from the Chinese restaurant nearby. I stayed up later and later each day to study, and by the midpoint of my dedicated study period, I had become completely nocturnal, eating breakfast at 10 pm and going to bed at noon. The days blurred together easily since each day was the same: wake up, study, sleep. There was hardly a night that went by where I wasn't dreaming of Step 1 while I slept.

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My mom is cooking for me upstairs. My friends see me on my study breaks. My sister sends me care packages. I owe a debt to all who have supported me along the way, including my ex-boyfriend, who supported me for five and a half years, but who I ultimately lost because I was too busy to be a good partner...

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I was most surprised by the toll on my emotion well-being. I found that when I didn't do well on a practice test it would dictate how I felt for the rest of the day. I struggled with feelings of anxiety and isolation from “the rest of the world”.

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Mother's Day happened to fall on the day before my Step 1 exam. My family planned to fly to O'ahu to have Mother's Day dinner with my sick grandma. Exhausted, I chose instead to get some extra sleep before my test and missed the dinner with my mom and grandma. The anxiety I had about my exam and the guilt I

felt not attending the dinner, ended up keeping me up all night long. I love my family, and this is all for them. Even knowing that, I don't know if I made the right decision.

## Equating Exam Performance with Self-Worth

During their preparation, students sometimes questioned whether they were worthy of becoming a doctor.

Studying for Step 1 was the first time I truly doubted myself. I doubted my abilities as a student. I doubted my career choice to be a physician. I doubted my worth as a person.

There were days I didn't feel capable and questioned my ability to pursue a career in medicine.

Let's wait till we get your Step 1 score. If it's lower than 230, you cannot consider this program. – *JABSOM Faculty Advisor*

The Step 1 exam is a challenge because of the weight the medical community places on it. It determines your career, residency program, and your worth as a medical student.

## Student Recommendations on Improving Their Well-Being

Students found family and friends were important in building their confidence and helping them overcome fears.

My parents were the source of confidence and faith I needed to continue to believe that I was a good student, that I made the right choice to become a physician, and that I was worth much more than my Step 1 score. They reminded me that for most people, it takes time to develop mastery, and as long as I stayed the course, I would eventually learn the knowledge I needed to be successful.

I felt very isolated and "stir-crazy" at home. So, I decided to study at school where I knew some of my classmates were also studying, which ended up being the best decision for me. Many of the students at school would eat lunch together and it was a great time to relieve stress and feel united in our misery.

It took me a while but I figured out what things I needed to do to manage my wellbeing like exercising, getting dinner with friends, even going home to Maui for a weekend. I realized that sometimes sacrificing study time to do something to make myself feel better would help me in the long run. Board study is a marathon not a sprint.

When I felt demoralized I turned to classmates who could commiserate with me and my family who would provide a sympathetic ear. From the outset the JABSOM faculty said that the people in our lives will carry us through our darkest days and this could not have been truer, especially during the 8 weeks of 12-hour study days.

Don't drop your loved ones for this test because having them by your side makes this huge pill easier to swallow.

I am so grateful to my friends, classmates, and family who surrounded me with love and support. They helped me regain my confidence and kept me laughing through the most demanding period of medical school to date.

While studying for Step 1, I spent most of my time indoors, not leaving the house for days at a time. One day, I decided to study at a cafe. As I walked down the street, I felt a sudden, euphoric sensation. The sun was warm on my face. The scent of freshly cut grass was in the air and a breeze ruffled my hair. I remembered for the first time in a long time that I was lucky to be in Hawaii. Being outside felt like visiting an old friend. I vowed to get out more during my exam preparation. I heard there are beaches nearby.

Every morning we'd roll into the library, set up our study areas and plow through content, notes, and test questions for weeks and weeks on end. During that toughest of times we'd find ways to lift each other up, by bringing in treats or coffee, taking breaks to do puzzles or play with Play-Doh. Rumor has it a kitten was smuggled into the building in a shoebox for a morale boost, but I'll never tell. I am just so happy this group of caring, supportive, fun, talented, passionate group of young doctors will be out in the world soon sharing what they learned and spreading joy.

## Lessons Learned from the Experience

Learning medicine is a journey. There is no finish line. The real treasure is the lessons and the wisdom that you gain along the way.

Here's a mnemonic about the Step 1 exam: Sobs and Tears... Even so, Persevere!

My biggest lesson learned is that my test score doesn't determine who I am as a person. This has helped me grow as a person, a medical student, and future doctor.

Although it is important to strive to learn all we can, we must remember we will build that knowledge over a lifetime. Therefore, we shouldn't place too much pressure on ourselves for just one two-month period, for one exam. We have to forgive ourselves, reality check ourselves, and continue to celebrate the small victories.

What we do for our communities is far more important than the three-digit score that follows our names.

## Conclusion

In addition to its impact on well-being, students feel pressured to study only the content they deem "board relevant". This has frustrated educators who want students to also focus on skills needed for the third-year like how to interview and examine a patient. This licensing exam, designed to serve as a way to "rank" students has become an impediment to thoughtful curriculum innovation and reform. Due in large part to these consequences, the National Board of Medical Examiners announced in February 2020, that beginning in 2022, the USMLE Step 1 Examination will be reported as pass/fail only, eliminating the numerical score completely.<sup>4</sup>

This is a welcomed change. JABSOM will continue to warn students about the risk associated with studying for this exam and proactively reach out to students to check on their personal health during their dedicated study time. Despite their challenges it is worthwhile to note that the students writing these reflections, the JABSOM Class of 2021 collectively scored *above the national average* for the USMLE Step 1 Examination. This is just one more reason to be proud of our JABSOM students.

Author's Affiliation:

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

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# SOCIAL WORK IN ACTION

## **Aloha E Dean Mokuau: *Mai Ka Ho'oku'i A Ka Hālāwai.* From Zenith to Horizon**

Theresa M. Kreif MSW, LSW; Kathryn L. Braun DrPH; and the leadership  
of the Myron B. Thompson School of Social Work

*Social Work in Action* is a solicited column from the social work community in Hawai'i. It is edited by HJMPH Contributing Editor Sophia Kim PhD, of the Myron B. Thompson School of Social Work at the University of Hawai'i at Mānoa.

Dean Noreen Mokuau retires this year after a decade of service as Dean of the Myron B. Thompson School of Social Work (MBTSSW) and after nearly 40 years of service to the University of Hawai'i at Mānoa (UHM). As a Native Hawaiian woman, she is committed to education that is anchored in excellence and founded in the unique attributes of Hawai'i and the Pacific-Asia region. With a deep aloha for Hawai'i, her work is rooted in 'ohana and community. As with all things in Hawaiian culture, there is appreciation and acknowledgement of people, land, and spiritual realm. She acknowledges that her life work is based on the direction and guidance of her own 'ohana with special credit to the legacy of her parents.

From her cultural lens, she has taught the importance of the links of our past, present, and future, in which we trace our historical legacy, highlight the foundation of our contemporary work, and envision growth for the future. She has been known to begin speeches by sharing her genealogy and the influence of family and place on her work. In these "talks," she has often said that all members of her family—past, present, and future—stand with her in the sharing of stories and information. In addition, she has reinforced the value of genealogy in the MBTSSW by linking the life of the School's namesake, Myron "Pinky" B. Thompson, with present and future direction of MBTSSW. For many of us highlighting these links accentuates the meaning and purpose of our work when framed in the context of both our personal and professional lineage.

With a foundation in genealogy, her lifetime commitment to social justice and health equity has borne out many "firsts." Dean Mokuau is the first Native Hawaiian woman to be awarded a doctorate in social work which she earned from the University of California Los Angeles, the first Native Hawaiian dean of a school of social work, and the first faculty to hold the Barbara Cox Anthony Endowed Co-Chair in Aging at the University of Hawai'i at Mānoa. Her roles as a leader, scholar, instructor, and agent of change weave together her commitment to social justice and health equity through her leadership hallmarks, including *kākou* (support) engagement and the building of

a *kauhale*.<sup>1</sup> Under her leadership, MBTSSW prioritized the perspective that interdisciplinary partnership and community engagement for educational excellence will help us lift the most vulnerable among us.

In the same manner that her life work is founded in genealogy, it is also grounded in *pilina*, the relationships and connections with people and place. She considers the UHM as a second home and a place where she has developed roots and special connections with people who have strengthened her roles as teacher, program chair of the BSW, MSW and PhD programs, and dean. Since becoming dean in 2010, she supported the reaccreditation of the Department of Social Work for the maximum term, the reapproval of the social work PhD program, and the formal establishment of the BA Degree in Public Health. She also stewarded the launch of the first fully online degree program (BSW) at the University of Hawai'i at Mānoa in Fall 2018. Her *kāko'o* efforts were instrumental in improving the US News & World Report ranking of MBTSSW from the top 33% (2012) to the top 20% (2019) nationally. Her focus on interdisciplinary collaboration was instrumental in her reorganization of the school from a single academic unit (social work) to three academic units (social work, public health, and center on aging).<sup>1,2</sup> She was also essential in finalizing and securing three endowments for the schools, including the Barbara Cox Anthony Endowed Chair (\$2 million), the Dr. Richard and T. Rose Takasaki Endowed Professorship for Social Policy (\$1 million), and the Lili'uokalani Trust Endowed Professorship (\$500,000).

While her scholarly work has applicability for all disenfranchised populations, it prioritizes Asian and Pacific Islanders, with special attention to Native Hawaiians. She has edited three books, authored more than 100 publications, and provided more than 50 national and international presentations. She has been Multiple Principal Investigator (with Dean Jerris Hedges) for more than \$40 million in interdisciplinary extramural grants including Ola HAWAII (Health And Wellness Achieved by Impacting Inequalities) and RMATRIX II (RCMI Multidisci-

plinary and Translational Research Infrastructure Expansion), both funded by the National Institute for Minority Health and Health Disparities.<sup>3</sup> She has also been the Co- Investigator of Hā Kūpuna: National Resource Center for Native Hawaiian Elders, funded by the US Administration on Aging.<sup>4</sup> She has held elected positions on the Social Work Board of Directors of the Bachelors Program Directors (BPD) and the National Association of Deans and Directors (NADD) of Schools of Social Work. She was appointed to positions on the National Committee on Minority Affairs of the National Association for Social Workers (NASW) and the Commission for Diversity and Social and Economic Justice of the Council on Social Work Education (CSWE); and held scholarly positions as editorial/consulting board member for *Social Work* and the *Journal of Social Work Education*.

The substance of her work champions equity, cultural diversity, and social and economic justice. Her seminal contributions are organized around Native Hawaiians. In her recent works, she links health disparities with historical trauma and social determinants, such as socioeconomic status, the physical environment, discrimination, and legislative policies. For example, while multiethnic Hawai‘i is one of the healthiest states in the United States, health disparities continue to plague the approximately 24% of the state’s population who are Native Hawaiians. In Hawai‘i, Native Hawaiians have the shortest life expectancy of the largest ethnic groups, high rates of mortality from cancer and heart disease, and experience disproportionate rates of poverty, incarceration, and addictions.<sup>5-8</sup> Based on her life’s work and that of many other scholars and providers, there is increasing recognition of the merit of culturally anchored programs to reduce the effects of social issues. These programs are strengths-based in the honoring of cultural values and practices and are community engaged and interdisciplinary in scope. For many Native Hawaiians, this translates into the fundamental emphasis on the relationships of individual, family, community, environment, and spiritual realm, and their participation in the development and delivery of social services.<sup>9-18</sup> Dean Mokuau recognizes that there is a continued need for vigilance to ensure survival and thriving for Native Hawaiians and other disenfranchised groups.

Shortly following her appointment as the MBTSSW Dean in 2010, she provided *kāko‘o* to Anake Lynette Paglinawan to secure funding from the Office of Hawaiian Affairs for the continuation of the Hawaiian Learning Program in social work (2011-2017). Beginning in 2017, Dean Mokuau secured funding from the Hawai‘i Medical Services Association Foundation and Hawai‘i Pacific Foundation, Inc, to develop and began teaching an innovative course called *Ke A‘o Mau* (Learning Preserved), presenting the wisdom of Native Hawaiian *kumu loea* (expert teachers). The class emphasized Hawaiian-anchored practices that may yield solutions to the array of social and health disparities confronting Hawaiians and other populations today. The signature interdisciplinary course is organized around principles

and practices that support cultural competency in work with Native Hawaiians. It is designed to maximize learning from *kumu loea* in areas that impact health and social justice such as *‘ōlelo* (language), *mea ‘ai* (food and nutrition), *mele* (song), *ho‘oponopono* (family conflict resolution), *aloha ‘āina* (caring for the land), and *lomilomi* (massage). *Kumu loea* represent diverse fields, including social work, public health, law, Hawaiian history, and medicine. Associated with Ke A‘o Mau and *kumu loea*, Dean Mokuau, along with *hoaloha* (friends) Dr. Kathryn Braun and Mr. Kukunaakalā Yoshimoto, are presently working on a book, *Hoho‘i i ka Māno Wai: Returning to the Source of Life*. This book documents the *mo‘olelo* (stories) of *kumu loea* who are renowned experts in culturally anchored practices, including *lomilomi*, *lua*, *ho‘oponopono*, *mele*, *mana*, *‘āina momona*, and navigation. Most of these practices were suppressed following the colonization of the Hawaiian archipelago and the illegal overthrow of the Kingdom of Hawai‘i. The reemergence and refinement of these practices requires knowledge exchange from one generation to the next. Thus, each chapter explores how *kumu loea* learned their practice and how they are teaching and influencing the next generation.<sup>19</sup>

Community service is a benchmark of social work, and Dean Mokuau has served in a number of roles for government and community organizations. For example, she has been a board or advisory committee member of the John Howard Association, Papa Ola Lōkahi, the Queen Lili‘uokalani Children’s Center, and Blueprint for Change.

Perhaps her most devoted service contribution locally has been to Queen Emma and King Kamehameha IV through her work at The Queen’s Medical Center, the largest private hospital in Hawai‘i. Her affiliation with Queen’s began in 2003, when she was appointed as Vice-Chair of Board of Trustees of Queen Emma Land, and in 2004 when she was asked to chair the Native Hawaiian Health Committee of The Queen’s Health System and became the vice-chair of the Quality and Patient Safety Committee of the Queen’s Medical Center; she held these roles until 2012. In 2005, she joined the Board of Trustees for The Queen’s Medical Center and served as its chair from 2007-2012. She also served on the board of the Queen Emma Foundation. During her decade in service to Queen’s, Dean Mokuau advocated for improvements to care that helped to fulfill the intent of the medical center’s founders, Queen Emma and King Kamehameha IV, which was “to provide in perpetuity quality health care services to improve the well-being of Native Hawaiians and all of the people of Hawai‘i.”

Dean Mokuau’s work has not gone unnoticed. As a distinguished teacher and mentor, she was awarded the UH Presidential Citation for Meritorious Teaching in 1994, the National Association of Social Workers, Hawai‘i Chapter’s Social Work Educator of the Year Award in 1996, the UH Regents Excellence in Teaching Award in 1997. For her service commitments, she was awarded the UH Wo and Lau Ching Community Award in 2001, the



Association of Baccalaureate Social Work Program Directors' President's Medal of Honor in 2008, the National Association of Social Workers, Hawai'i Chapter's Lifetime Achievement Award in 2014. Distinctions for her scholarly performance with its focus on Native Hawaiians and aging include the Native Hawaiian Chamber of Commerce O'ō Award for outstanding achievements in the Native Hawaiian community in 2014; the Educator of the Year, Native Hawaiian Educators Association in 2015, and the American Society on Aging Award for Excellence in Multicultural Aging in 2015.

Her leadership has ensured synergy among social work, public health, and gerontology and greater connectivity with allied professions. As Dean Mokuau notes, "Let us work collectively for a just and healthy world, in this time as we continue to witness escalating violence, debilitating diseases, health epidemics, traumatic natural disasters, and dangerous international conflict. As we confront today's challenges, our call to action is in educational excellence that builds a cadre of professionals who are leaders with a deep understanding of humanity and who hold the knowledge and skills that will lead to transformational change in social justice and health equity." In her address to graduates in Spring 2020, she underscored their *kuleana* as the next generation of social workers and public health workers. She also called upon the *mana* (spiritual powers) that reaches from the zenith to the horizon to guide and fortify them for the work ahead. We now call upon this *mana* to guide and fortify Dean Mokuau as she moves purposively towards a new life. *Mai ka ho'oku'i a ka hālāwai.*

### Acknowledgments

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### Authors' Affiliations:

Department of Social Work, Myron B. Thompson School of Social Work, University of Hawai'i at Mānoa, Honolulu, HI and Office of Public Health Studies, Myron B. Thompson School of Social Work, University of Hawai'i at Mānoa, Honolulu, HI

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# Hawai'i Journal of Health & Social Welfare (HJH&SW)

## Guidelines for Publication of HJH&SW Supplements

The Hawai'i Journal of Health & Social Welfare (HJH&SW) partners with organizations, university divisions, and other research units to produce topic-specific issues of the journal known as supplements. Supplements must have educational value, be useful to HJH&SW readers, and contain data not previously published elsewhere. Each supplement must have a sponsor(s) who will work with the HJH&SW staff to coordinate all steps of the process. Please contact the editors at [hjhswh@hawaii.edu](mailto:hjhswh@hawaii.edu) for more information if you would like to pursue creating a supplement.

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 HJH&SW editorial staff to make certain the educational objectives and value of the supplement are optimized during the planning process.

2. Supplements should treat broad topics in an impartial and unbiased manner. They must have educational value, be useful to HJH&SW readership, and contain data not previously published elsewhere.

3. Supplements must have a sponsor who will act as the guest editor of the supplement. The sponsor will be responsible for every step of the publication process including development of the theme/concept, peer review, editing, preliminary copy editing (ie, proof reading and first round of copy editing), and marketing of the publication. HJH&SW staff will only be involved in layout, final copy editing and reviewing final proofs. It is important that the sponsor is aware of all steps to publication. The sponsor will:

- a. Be the point of contact with HJH&SW for all issues pertaining to the supplement.
- b. Solicit and curate articles for the supplement.
- c. Establish and oversee a peer review process that ensures the accuracy and validity of the articles.
- d. Ensure that all articles adhere to the guidelines set forth in journal's [Instructions to Authors page](#), especially the instructions for manuscript preparation and the statistical guidelines.
- e. Obtain a signed [Copyright Transfer Agreement](#) for each article from all authors.

- f. Comply with all federal, state, and local laws, rules, and regulations that may be applicable in connection with the publication, including ensuring that no protected health information appears in any article.
- g. Work with the editorial staff to create and adhere to a timeline for the publication of the supplement.
- h. Communicate any issues or desired changes to the HJH&SW staff in a timely manner.

4. Upon commissioning a supplement, the sponsor will be asked to establish a timeline for the issue which the sponsor and the HJH&SW editor(s) will sign. The following activities will be agreed upon with journal publication to take place no later than 24 months after signing. Extensions past the 24 months will be subject to additional fees based on journal publication rates at that time:

- Final date to submit a list of all articles, with working titles and authors
- Final date for submitting Word documents for copy editing
- Final date for submitting Word documents for layout
- Final date to request changes to page proofs (Please note that changes to page proofs will be made only to fix any errors that were introduced during layout. Other editing changes will incur an additional fee of \$50 per page.)

5. The cost of publication of a HJH&SW supplement is \$5,000 for an 8-article edition with an introduction from the sponsor or guest editor. Additional articles can be purchased for \$500 each with a maximum of 12 articles per supplement. This cost covers one round of copy editing (up to 8 hours), layout, online publication with an accompanying press release, provision of electronic files, and indexing in PubMed Central, SCOPUS, and Embase. The layout editor will email an invoice for 50% of the supplement to the designated editor for payment upon signature of the contract. The remaining will be due at the time of publication. Checks may be made out to UCERA.

6. The sponsor may decide to include advertisements in the supplement in order to defray costs. Please consult with the HJH&SW advertising representative Michael Roth at 808-595-4124 or email [rothcomm@gmail.com](mailto:rothcomm@gmail.com) for assistance.

7. Supplement issues are posted on the HJH&SW website (<http://www.hawaiijournalhealth.org>) as a full-text PDF (both of the whole supplement as well as each article). An announcement of its availability will be made via a press release and through the HJH&SW email distribution list. Full-text versions of the articles will also be available on PubMed Central.

8. It is the responsibility of the sponsor to manage all editorial, marketing, sales, and distribution functions. If you need assistance, please contact the journal production editor. We may be able to help for an additional fee.

9. The editorial board reserves the right of final review and approval of all supplement contents. The HJH&SW will maintain the copyright of all journal contents.

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### Sample Workflow and Timeline for a Supplement

1. The sponsor contacts the HJH&SW editors ([hjhs@hawaii.edu](mailto:hjhs@hawaii.edu)) to discuss the supplement topic, estimated timeline, length and cost. HJH&SW staff will review the journal requirements for articles and share our review process with the sponsor. **Time frame: 2 weeks**

2. The sponsor will complete the draft contract and pay a non-refundable deposit of \$2500 or half the contract value. **Time frame: 3 days**

3. The sponsor will solicit articles for the supplement. **Time frame: 3-6 months**

Articles must comply with:

- [Instructions for Manuscript Preparation and Submission of Research Articles](#)
- [Instructions for Manuscript Preparation and Submission of Columns](#)
- [HJH&SW Statistical Guidelines](#)
- [HJH&SW Style Guide for Native Hawaiian Words and Phrases](#) [AMA Manual of Style](#) A free summary can be found [here](#).

4. The sponsor will oversee the article selection, peer review, and editing process. We recommend that time be allowed for at least two rounds of reviews for each article. **Time frame: 3-6 months**

- Ensure that each article includes Institutional Review Board (IRB) review and approval, and a statement disclosing any conflicts of interest.
- Obtain a [Copyright Transfer Agreement](#) signed by all authors for each article.

5. *Optional:* During this time, the sponsor can solicit advertisements for the supplement to help defray costs for publication and/or printing. To initiate this process, the sponsor will work the HJH&SW advertising representative Michael Roth at 808-595-4124 or [roth-comm@gmail.com](mailto:roth-comm@gmail.com).

6. The sponsor or their designee will conduct a final review of each article to ensure adherence to HJH&SW guidelines and AMA style.

**Time frame: 2 weeks**

7. For each article, the sponsor will submit the final Word document and Copyright Transfer Agreement to the HJH&SW journal production editor. The journal production editor will send the articles to the copy editor for final journal style review. Copyediting will be 8 hours per edition plus 1 hour per article for additional articles purchased. Any additional hours will be billed at \$100 per hour.

**Time frame: 2 weeks**

8. The sponsor will submit the final articles to the layout editor for formatting. **Time frame: 1 month**

Acting in the role of guest editor, the sponsor will include a column introducing the supplement.

**IMPORTANT:** All articles submitted for layout should be in their finalized form. Page proofs will be returned to the sponsor for their review and approval, but changes will only be made to fix any errors that were introduced during the layout process. Any editing or changes to the text or figures after the initial copy layout will incur a fee of \$50 per page.

9. The sponsor will review the electronic copy from the layout editor and submit any final corrections. **Time frame: 5 working days**

10. The layout editor will make the final corrections and provide a finished electronic copy of the supplement to the sponsoring editors to allow time for printing.

11. The managing editor will work with the sponsor to draft a press release. Sponsors should contact the managing editor at least 30 days prior to the date of publication to plan and script the press release. Sponsors are encouraged to submit 1-2 photos to accompany the press release. Note that obtaining signed photo releases is the responsibility of the sponsor.

12. The supplement will be published online along with the press release. An electronic copy will be sent to our subscribers and circulation lists, and the edition will be forwarded to the National Library of Medicine for indexing and made available for no cost access to the public.

Revised 2/6/20

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