

HAWAII JOURNAL WATCH

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

CHILDREN'S PAIN REDUCED WITH A VIBRATING COLD DEVICE

For hospitalized children, a vibrating cold device (VCD) may reduce the pain of an intravenous (IV) catheter insertion as well as topical lidocaine. Researchers including Katherine Finn Davis, PhD, RN, of the School of Nursing and Dental Hygiene, conducted a randomized controlled trial of 224 children. Topical lidocaine was applied at least 30 minutes before the insertion; for those randomized to receive the VCD, the device was activated 15 to 45 seconds prior to the needle puncture. Results showed no significant difference in pain scores using two standardized pain scales. The time needed to complete the procedure was significantly shorter for the VCD group (3 minutes vs 41 minutes). Further research using the VCD is needed, the researchers wrote. The study (PMID 28121978) is published in *Pediatric Emergency Care*.

NATIVE HAWAIIANS HAVE THE SHORTEST HEALTHY LIFE EXPECTANCY IN HAWAII

Among the major ethnic groups in Hawai'i, Native Hawaiians have the shortest healthy life expectancy (HALE). Researchers led by Yanyan Wu PhD and Kathryn Braun DrPH, of the Office of Public Health Studies constructed HALE tables which adjust total life expectancy based on a self-reported health status. The greatest gap in HALE was between Native Hawaiians and Chinese Americans at birth. At that age, Chinese Americans had a HALE of 75.9, compared with 62.2 for Native Hawaiians, a gap of 13.7 years. The HALEs for Japanese, Filipino, and white were 74.8, 73.3 and 72.1 years, respectively. The findings highlight ethnic disparities in Hawai'i, the researchers wrote. The study (Pubmed ID: 31537119) is published in the *Asia Pacific Journal of Public Health*.

THE ROLE OF ORGANIZATIONAL CULTURE AT CHILD WELFARE AGENCIES

Among workers at child welfare agencies, greater use of evidence-informed practices and interventions is needed. For example, family-centered practice (FCP), which involves building collaborative relationships with families, is an expanding evidence informed practice. Researchers including Francie J. Julien-Chinn PhD, of the Myron B. Thompson School of Social Work, surveyed staff members at child welfare provider agencies to investigate the relationship between supervisory processes, such as reflective supervision and group supervision, and the agencies' culture toward learning. Results showed that reflective supervision, which involves asking questions to promote critical thinking, and group supervision, which involves team members working together to improve their professional practice, are positively associated with increased perceptions of a learning culture. The study is published in *Children and Youth Services Review*.

A HIGH-QUALITY DIET CAN BE DETECTED IN THE BLOOD

Eating a high-quality diet has been linked to higher blood levels of certain micronutrients and lower levels of inflammation mark-

ers, and a new study shows this link holds true in an ethnically diverse population. Researchers led by Cherie Guillermo MS, of the UH Cancer Center, examined data from 1806 participants in the Multiethnic Cohort study, which primarily includes individuals of African American, Native Hawaiian, Japanese American, Latino, and white ancestry in Hawai'i and California. Results showed that higher diet quality was associated with higher levels of lipid-soluble micronutrients, lower levels of inflammation markers, and healthier lipid and glucose metabolism. The study (PMID: 31291155) is published in the *Journal of the American College of Nutrition*.

HYPERTENSION IN NATIVE HAWAIIANS

For Native Hawaiians, there is complex relationship between discrimination experiences, the strength of their cultural affiliation, and whether they have hypertension. Researchers led by Claire Townsend Ing DrPH, of the John A. Burns School of Medicine, sent surveys to 540 households on Hawaiian Homelands. Thirty-two percent (171 households) responded. The researchers hypothesized that more experiences with discrimination would be linked with higher odds of having hypertension. However, among those with lower cultural affiliation, discrimination was linked with a decreased likelihood of having hypertension. Individuals less affiliated with the Hawaiian culture may not ruminate on their experiences of discrimination, making these experiences less stressful. Further work is needed on hypertension and sociocultural variables, the researchers wrote. The study is published in the *Asian American Journal of Psychology*.

MEASURING KILAUEA'S EMISSIONS

When the Lower East Rift Zone of Kilauea began erupting in May 2018, the volcano produced toxic sulfur dioxide (SO₂), sulfate aerosol particulates, and volcanic ash. Researchers led by Alvin Bronstein, of the Hawai'i State Department of Health, used a system of 20 sensors to measure SO₂ and respirable particulate matter (PM_{2.5}) across the region. They then analyzed the data to provide recommendations for advisories including "shelter in place" and "evacuation." Among all the sensors, the Leilani Estates lower sensor reported the highest SO₂ levels, reporting its maximum, 20ppm, for 17 868 of the 132 065 samples gathered before it was incinerated by lava. Overall, the air concentrations of the gases and aerosols fluctuated widely with wind shifts, which made making recommendations difficult. The results are published in *Clinical Toxicology*.

ANGIOSTRONGYLUS LARVAE CAN CROSS SOME RAINWATER CATCHMENT SEDIMENT FILTERS

The larvae of the nematode *Angiostrongylus cantonensis*, which causes rat lungworm disease, can traverse some of the filters designed to keep particles in rainwater catchment systems from entering household water supplies. Researchers including senior author Susan Jarvi PhD, of the Daniel K. Inouye College of Pharmacy set up a laboratory replica of a catchment system. Five commercially available sediment filters were tested. Larvae were obtained by drowning slugs collected from the lower Puna District of Hawai'i Island. Results show infectious-stage larvae were able to cross polypropylene sediment filters of 20- μ m, 10- μ m, 5- μ m, and 1- μ m filtration ratings. While larvae did not cross a 5- μ m carbon block filter, the authors caution homeowners to not assume any carbon block filter will provide 100% protection. The study (PMID: 31022202) is published in PLoS ONE.