

and education, thus maximizing the investment required to mount a large-scale exercise.

Methods: During emergency management exercises in Mumbai, India between 2008 and 2010, video recordings of prior exercises were used to augment training for clinicians, administrators and public health practitioners. During the exercises, videos depicting scenario-based disaster drills were produced for use as teaching and evaluation tools focused on pre-hospital care, trauma life support, and hospital operations. Videos are distributed digitally and online, extending the teaching impact of multi-day courses and serving as a benchmark for future exercises.

Results: During the 2010 exercise in Mumbai, approximately eight hours of video footage were recorded by professional producers, and by participants in the evaluation and monitoring track of the course. That footage was added to a library from exercises in Ahmedabad and Mumbai, India, in 2007 and 2008. Video was used as a tool for immediate feedback on participant performance as well as the foundation for ongoing instruction. Videos allowed students to be sensitized to important issues prior to taking part in a drill, and to participate in the post-drill evaluation process.

Conclusion: Video documents of disaster management exercises serve as a valuable addition to an ongoing program of emergency management education and preparedness. Short video pieces increase the effectiveness of a teaching program by providing re-usable, easily accessible, and setting-specific teaching tools.

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(A85) Analysis of Health Risk Perception and Behavior Changes during Elevated Temperatures for an Urban Chinese Population

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Background: Limited research has been conducted to understand the relationship between heat wave warnings with public awareness and behavioral changes in the Asian population. The Hong Kong Observatory introduced the “very hot weather warning” in 2000 to alert the public of heatstroke and sunburn in Hong Kong. However, the population’s behavioral responses to these weather alerts is unclear. Moreover, the relationship between perceived health risks and behavioral changes has not been examined. The goal of this study is to examine the health risk perceptions and behavioral changes following public heat wave warnings in Hong Kong.

Methods: A cross-sectional, population-based, telephone survey, using the last-birthday method was conducted within two weeks following a heat wave warning in 2009. A heat warning and a health study instrument, based on Intergovernmental Panel on Climate Change (IPCC) guidelines and related literature was developed and validated. Descriptive and multivariate logistic regression analyses were conducted.

Results: The questionnaire was completed by 1,123 individuals whose socio-demographic characteristics were comparable to 2009 Hong Kong population census data. Of respondents, 83.6% were aware of the heat wave weather warning. Multivariate logistic regression of socio-demographic factors indicated that being female, those in middle age groups, and those with higher educational attainment was significantly associated with heat wave warning awareness. Among those aware of the public warning, the majority were unconcerned about potential adverse health effects, < 40% were aware of the community heat-related preparedness plans, and < 50% changed their behavior to mitigate the potential adverse health impacts of hot weather.

Conclusion: This is the first study to examine climate change and health behavioral responses in an urban Chinese population. Future research direction should further investigate correlations between awareness and health protective actions, as well as the drivers for health behavioral changes that mitigate the impact of climate change.

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(A86) Emergency Department Patient Presentations during the 2009 Heatwave in Adelaide

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Background: Recordings of heatwaves date back to the early 1900s and usually are associated with high mortality. In Australia, heatwaves have been the major cause of natural hazard-related deaths. Heatwaves usually do not carry the global media coverage associated with other disasters, and frequently, are referred to as silent disasters. The main impact of heatwaves is on health and human life.

Objectives: Preliminary results are presented for the 2009 heatwave, investigating the emergency department patient presentations from three public hospitals in Adelaide, a city in the central southern area of Australia.

Methods: Demographic and syndromic data were obtained from emergency department records. Ethics permission was obtained prior to data collection. Heatwave conditions occurred from 26 January–07 February 2009. Two non-heatwave periods were day-matched approximately two weeks before and after the heatwave. Data were analyzed by age groups, gender, and ICD codes for chronic conditions.

Results: The two largest groups of people presenting were between 15 and 64 years of age and > 75 years of age during the heatwave and non-heatwave periods. During the heatwave period, both groups had significant increases in patient presentation related to renal problems (ICD 10: N000–N3999) and dehydration and hyperthermia (ICD10: E86, T67). The latter syndrome was far more accentuated during the heatwave, with emergency department patient presentations rising from 2 (non heatwave) to 62 presentations for the 15 and 64 years cohort and from 4 (non heatwave) to 91 for the > 75 years cohort. Cardiovascular- and respiratory-related presentations showed slight increases during the heatwave, while mental health had high presentations for the 15–64 year cohort throughout heatwave and non heatwave periods.

Conclusions: Both young and older people were affected by heatwave, and precautionary warning should be used throughout the community to alert people of the dangers underlying extreme heat conditions.

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(A87) Sea-Level Rise Disaster in Micronesia: Sentinel Event for Climate Change?

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Background: In 2007, several atoll islands in the Federated States of Micronesia (FSM) were inexplicably flooded by sea water.

Objectives: To describe the impact of an acute-onset sea-level-rise disaster in 2 coral atoll populations.

Methods: Households of Lukunoch and Oneop islands, FSM were assessed for demographics, asset damage, food availability, and water quantity and quality. Every fourth household on Lukunoch, ($n = 40$), was randomly selected and surveyed. All Oneop households were surveyed ($n = 72$). Prevalence data were analyzed.

Results: A total of 112 total households were surveyed representing 974 inhabitants. On Lukunoch, roughly half of all households surveyed reported at a partial loss of their primary dietary staple and source of calories (taro and breadfruit). Six (15%) of 40 Lukunoch households surveyed (95% CI, 6%–30%) reported a complete loss of taro and four (10%) of the 40 households (95% CI, 3%–24%) reported a complete loss of breadfruit. On Oneop, nearly all households reported at least a partial loss of these same food staples. Twenty four (31%) of all 76 Oneop households reported a complete loss of taro and another 24 (31%) households reported a complete loss of breadfruit. One third of all households surveyed reported a complete loss. On Lukunoch 11(28%) of 40 households, (95% CI, 15%–43%) reported damage from well salination, but none were damaged to the point of a complete loss. Forty-nine (64%) of 76 Oneop households reported salination and five (6%) reported complete loss of their well.

Conclusion: These findings suggest that FSM populations experienced disastrous losses due to a sea level rise event damaging crop productivity and freshwater sources.

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(A88) Public Health Consequences of Climate Change in the Republic of Palau: A Photojournalism Project

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Introduction: The Republic of Palau, like other small, island, developing states, is particularly vulnerable to climate change due to a number of factors, including: (1) small size; (2) remoteness; (3) limited natural resources; and (3) vulnerability to disasters and extreme weather events. Other factors include social and economic factors such as: (1) economies sensitive to external shocks; (2) high

population growth rates and densities; (3) poorly developed infrastructure; (4) limited financial and human resources; and (5) emigration. The (US) Centers for Disease Control and Prevention (CDC) partnered with the Republic of Palau Ministry of Health (MoH) and Southern Illinois University (SIU) to investigate public health consequences in Palau. The goal of the project is to reduce morbidity and mortality due to climate change in Palau by improving awareness using three tools: (1) a photojournalism book to document the local experience in Palau; (2) a marketing campaign to increase awareness in Palau about climate change as it relates to human health; and (3) a Website to raise regional and international awareness of the findings, and act as a forum for discussion and resource-sharing.

Methods: The CDC, SIU, and Palau MoH conducted interviews with community members including government officials, traditional leadership, fishermen, gardeners, physicians, scientists and local residents to explore their experiences concerning climate change in their community. Photojournalists took thousands of images documenting locally identified effects of climate change that were perceived as having direct or indirect health consequences for the people of Palau.

Results: Coral bleaching, beach erosion, irregular rainfall, sea level rise, and salt water inundation directly impact food security and tourism in Palau, while other less obvious, but important consequences, such as potential loss of traditional practices and cultural identity were also identified.

Conclusions: The people of Palau reported significant impact from climate change on agriculture, economics, health, and culture.

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(A89) The Greenhouse Effect in Nigeria

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The atmosphere contains gases that act like the glass in a greenhouse. They are transparent to visible light from the sun, and allow it to pass through to the earth below; but they absorb and trap infrared light radiated outward from the earth and convert it into heat. The principal “greenhouse gases” are chlorofluorocarbons (CFCs), methane, and most importantly, carbon dioxide. The concentration of greenhouse gases is rising due to two factors: (1) the manufacturing of CFCs; and (2) the burning of fossil fuel at a tremendous, and still increasing rate. If this trend is not reversed, research predicts that there will be a steady rise in the temperature of the earth. This global warming could cause drastic climatic changes with devastating results, including: (1) shifting of seasonal winds, with the creation and spreading of deserts in the northern areas; (2) alteration in crop patterns with social upheaval; (3) starvation; and (4) the inundation of large areas of land. When this chaos begins, developing countries such as Nigeria, Kenya, etc. also will be affected, along with developed countries. The solution to the problem of CFCs in principle, though not in practice is simple: STOP MAKING THEM!! But one cannot burn carbon without producing carbon dioxide. Which is why new ways to produce energy must be used?

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