

Day 2 – Disease and Invasive Vectors & One Health (both sessions)

The discussion focused on the impact of climate change on disease vectors and human health. Key points included the shifting ranges of disease-carrying insects like mosquitoes and ticks, influenced by rising temperatures and altered precipitation patterns. Examples highlighted were the expansion of Lyme disease and West Nile virus in the US, and the potential for malaria in Texas and Florida. Strategies to combat these threats involve enhanced surveillance, biosecurity measures, and public awareness campaigns. Emphasis was placed on the need for collaboration across sectors and the integration of climate considerations into existing public health initiatives to mitigate the risks posed by climate change.

Action Items

- [] Assess environmental health risks and impacts of recovery, and manage risks to prevent future wildfires.
- [] Continue monitoring H5N1 viruses from human cases and investigate potential for emergence of strains that can be transmitted person-to-person.

Outline

Introduction to Panelists and Topic Overview

- Lirio Hittle introduces the panelists: Dr. Sandra Chang (Professor of Tropical Medicine), Dr. Sarah Kemble (State Epidemiologist), and Dr. Jeomhee Hasty (Entomologist).
- Dr. Sandra Chang provides an overview of One Health and its relevance to climate change, emphasizing the interconnection between human, animal, and environmental health.
- Dr. Sarah Kemble discusses the human aspect of One Health, focusing on infectious diseases and global perspectives.
- Dr. Jeomhee Hasty talks about his work on vector-borne diseases in Hawaii, including statewide vector surveillance and control strategies.

Dr. Sandra Chang's Presentation on One Health and Climate Change

- Dr. Sandra Chang explains the concept of One Health, defining it as a collaborative, multisectoral approach to health issues.
- She highlights the importance of addressing silos in health, emphasizing the interconnectivity of human, animal, and environmental health.
- Dr. Chang provides a brief history of One Health, starting with the establishment of the CDC's Veterinary Public Health Division in 1947.

- She mentions the Manhattan Principles and the Global Risk Forum as foundational documents for One Health.

Impact of Climate Change on Human Health

- Dr. Sandra Chang discusses the UN's promotion of One Health as a global approach to health issues.
- She outlines the Quadripartite organization under the UN, composed of FAO, UNEP, WHO, and OIE, focusing on emerging and re-emerging diseases.
- Dr. Chang lists global priorities for One Health, including antimicrobial resistance, food safety, and mental health.
- She emphasizes the role of climate change in exacerbating various health threats, such as wildfires, extreme weather events, and vector-borne diseases.

Case Study: Wildfires and Their Impact on Health

- Dr. Sandra Chang presents a detailed case study on the impact of wildfires in Lahaina, highlighting the extensive damage and subsequent health consequences.
- She describes the direct health impacts, including respiratory issues, cardiovascular disease, mental health issues, and food insecurity.
- The recovery effort involves state and federal agencies, community engagement, and the application of technology and telehealth.
- Dr. Chang stresses the importance of reducing carbon emissions to prevent future wildfire emergencies.

Emerging Pandemic Potential: Avian Influenza

- Dr. Sandra Chang addresses the growing concern about the H5N1 avian influenza and its potential to cause the next pandemic.
- She reports on the ongoing multi-state outbreak in the US, affecting dairy cows, poultry, and wild birds.
- Dr. Chang details the measures being taken to protect farmworkers and prevent the emergence of a human-to-human transmissible strain.
- She highlights the impact of H5N1 on wildlife species and the need for a One Health approach to prevent future pandemics.

Climate Change and Public Health Impacts

- Dr. Sarah Kemble transitions to discussing climate change and its impacts on public health, specifically infectious diseases.
- She recounts a personal story involving a rare case of primary amebic meningoencephalitis (PAM) in Minnesota, linking it to warmer temperatures.

- Dr. Kemble discusses the increasing prevalence of dengue fever in the Americas and its potential spread to the US.
- She highlights the threat posed by thawing permafrost, releasing ancient pathogens like anthrax, and the implications for public health.

Expanding Range of Vector-Borne Diseases

- Dr. Kemble continues to explore the impact of climate change on vector-borne diseases, referencing a modeling study on dengue fever.
- She notes recent local outbreaks of dengue fever in Los Angeles and the challenges of identifying and managing such cases.
- She discusses the potential for new vector-borne diseases to emerge as climate change alters animal behaviors and habitats.
- She emphasizes the need for proactive measures and collaboration among various sectors to address these health threats.

Antibiotic Resistance and Water Quality Concerns

- Dr. Kemble touches on the growing issue of antibiotic resistance, linking it to climate change and increased infections.
- She shares an alarming statistic from Nature magazine, indicating a correlation between rising temperatures and antibiotic resistance.
- Dr. Kemble discusses the impact of harmful algal blooms on water quality, citing an incident in Salem, Oregon, where the entire city was placed under a "do not drink" order.
- She highlights the presence of microorganisms in water sources, such as a pinkish discoloration in a Maui pond, raising concerns about water safety.

Strategies for Addressing Climate Change and Health Risks

- Dr. Kemble outlines potential strategies for addressing climate change and health risks, including modeling disease and climate impacts.
- She emphasizes the importance of protecting drinking water and investing in new antimicrobial agents and stewardship practices.
- Dr. Kemble calls for continued advocacy for policies that prioritize public health and resource allocation.
- She concludes with a note of cautious optimism, suggesting that collective action and innovative solutions can bend the curve of increasing health risks.

Transition to Next Session and Audience Questions

- Lirio Hittle thanks the panelists and audience for their participation, noting the importance of addressing climate change and health issues.

- The session transitions to the next panel, featuring Dr. Jeomhee Hasty and Matthew Kurano from the Hawaii Department of Health.
- Audience members raise questions about the impact of rising sea levels on Pacific island diseases and the potential for disease introduction via migrants.
- Discussion includes the importance of biosecurity, public engagement, and research in addressing climate change and health threats.