PMAC PRINCE MAHIDOL AWARD CONFERENCE 2021

# WS304

## PREVENTING, DETECTING, RESPONDING TO AND RECOVERING FROM FUTURE THREATS

## | BACKGROUND

**A. Problem Statement**

COVID 19 has shown that pandemic can emerge any time, any place and with unpredictable results. It underlines the fundamental problem of the inability of the global community to be able to forecast the emergence of new disease threats, to prevent their emergence and response rapidly if they do.

Pre-requisites in being able to forecast and mitigate the impacts of new high impact viral pathogens are:

- Prior knowledge of the zoonotic viruses that are present in the wild life population.
- The capacity to detection early spill over events.
- Criteria, mechanisms and decision support system to eliminate new incursions in humans and/or their livestock before they cause any harm locally, regionally and globally

**B. Addressing the problem and challenges**

In order to address these three areas this session will explore the following:

- Systems and capacities required for routine, monitoring of new zoonotic pathogens spanning wild life, livestock and human populations
- Drivers and risks that generate “hot-spots” of new viral spill over events and their spread
- Socio-economics, data analysis, risk assessment, forecasting, refining hot spots and developing evidence-based policies underpinned by appropriate international, regional and national level endorsement and financial resources.

**Overview**

The COVID-19 pandemic underscores the urgent need to transform our public health culture from one that responds to the latest outbreak, to one that is better able to prevent the spillover of new viruses, detect them immediately when they do, and preposition far more effective biomedical and non-biomedical countermeasures and the systems for their delivery to respond to and build back better from future outbreaks should they occur. This power to “prevent, detect, respond to and recover from” will protect against not only human infections but similarly protect livestock animal populations which share our vulnerability to emerging viral threats, and by extension protect against the devastating effects viral threats can have on global food security and livelihoods of farming communities of the world. The COVID-19 pandemic underscores the urgent need to transform our public health culture from one that responds to the latest outbreak, to one that is better able to prevent the spillover of new viruses, detect them immediately when they do, and preposition far more effective biomedical and non-biomedical countermeasures and the systems for their delivery to respond to and build back better from future outbreaks should they occur. This power to “prevent, detect, respond to and recover from” will protect against not only human infections but similarly protect livestock animal populations which share our vulnerability to emerging viral threats, and by extension protect against the devastating effects viral threats can have on global food security and livelihoods of farming communities of the world.

## | OBJECTIVES

This session will discuss what is required to:

- Better characterize the global genetic makeup of viruses (virome) and other organisms with pandemic potential
- Ensure sustainable monitoring of spillover hotspots for early detection of emerging threats
- Target the animal-human interface to prevent future spillovers
- Build a more comprehensive ecologic database of potential viral and other organism threats while they are still circulating in animals to better predict future threats
- Transform the sciences of virology and bacteriology into big data sciences by generating a detailed genetic and ecologic profile of high consequence families
- Strengthen health systems’ capacities for early detection and containment of novel threats
- Develop and maintain sustainable public health and health care preparedness and response capabilities
- Build enhanced forecasting abilities for disease emergence, including a better understanding how the environment and a changing climate can contribute to emergence of threats and simultaneously decrease the ability to cope with a threat.

Panelist

# Dennis Carroll

*Chair, Leadership Board*

Global Virome Project
United States of America

Dennis Carroll

Dr. Dennis Carroll has over 30 years of leadership experience in global health and development. Until recently he served as the Director of the U.S. Agency for International Development's (USAID) Emerging Threats Division. In this position Dr. Carroll was responsible for providing strategic and operational leadership for the Agency's programs addressing new and emerging disease threats. He provided overall strategic leadership for the Agency's response to the West Africa Ebola epidemic. He currently heads the Global Virome Project, an international partnership to build the systems and capacities to detect and characterize future viral threats while they are still circulating in wildlife - enabling the world to better prepare before they spill over into us.

Dr Carroll was initially detailed to USAID from the U.S. Centers for Disease Control and Prevention as a senior public health advisor in 1991. In 1995 he was named the Agency's Senior Infectious Diseases advisor, responsible for overseeing the Agency's programs in malaria, tuberculosis, antimicrobial resistance, disease surveillance, as well as neglected and emerging infectious diseases. In this capacity Dr. Carroll was directly involved in the development and introduction of a range of new technologies for disease prevention and control, including: community-based delivery of treatment of onchocerciasis, rapid diagnostics for malaria, new treatment therapies for drug resistant malaria, intermittent therapy for pregnant women and "long-lasting" insecticide treated bednets for prevention of malaria. He was responsible for the initial design and development of the President's Malaria Initiative (PMI). Dr. Carroll officially left CDC and joined USAID in 2005 when he assumed responsibility for leading the USAID response to the spread of avian influenza. Between 2009 - 2019 he oversaw the Agency's Emerging Threats program spanning more than 30 countries across Africa and Asia.

Dr Carroll has a doctorate in biomedical research with a special focus in tropical infectious diseases from the University of Massachusetts at Amherst. He was a Research Scientist at Cold Spring Harbor Laboratory where he studied the molecular mechanics of viral infection. Dr. Carroll has received awards from both CDC and USAID, including the 2006 USAID Science and Technology Award for his work on malaria, including the design of PMI, and avian influenza, the 2008 Administrator's Management Innovation Award for his management of the Agency's Avian and Pandemic Influenza program, in 2015 USAID's Distinguished Service Award, and a 2018 Lifetime Achievement Award from the Scowcroft for International Affairs at Texas A&M University.