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

Christine Kreuder Johnson

Director, EpiCenter for Disease Dynamics

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Christine K. Johnson is a Professor of Epidemiology at UC Davis investigating disease dynamics at the interface of animal, human, and environmental health through applied research to inform policy needed to mitigate risk and prevent pandemics. She directs the EpiCenter for Emerging Infectious Disease Intelligence, one of the new NIAID Centers for Research in Emerging Infectious Diseases. Prior to that she led surveillance activities for USAID's Emerging Pandemic Threats PREDICT program, a ten-year project to strengthen capacity for detection of emerging threats with implementing partners in over 30 countries. Dr. Johnson has pioneered ecosystem-level studies to investigate the impact of environmental change on wildlife health and improve detection of public health threats on the frontlines of disease spillover. She provides epidemiological support to federal and state agencies and advises on science-based policy for sustainable development to counteract threats to public health and conservation. At UC Davis, her accomplishments include the design of core didactic instruction in One Health, ecosystem health, and population health for graduate and professional degree programs and mentorship to students and post-doctoral scholars in applied research related to disease spillover and spread animal and human populations.