



**PMAC** | PRINCE MAHIDOL  
AWARD CONFERENCE **2018**



## **PARALLEL SESSION 2.4**

**CHANGING DYNAMICS: EMERGING INFECTIOUS DISEASES AND ANTIMICROBIAL  
RESISTANCE IN AN ERA OF EXPANDING GLOBAL HUMAN POPULATION  
GROWTH AND MOVEMENT**



## | BACKGROUND

The global human population is projected to peak at over 11 billion this century. Accelerated human population growth and corresponding changes in demography, along with associated food and companion animal population increases, are altering disease dynamics and will continue to drive emerging infections and transmission over the course of the next century. This session will explore the connections among infectious disease emergence, antimicrobial resistance (AMR), and changing human and animal population dynamics. We will explore the state-of-the-art in emerging disease and AMR detection and forecasting and answer the question, "How can we minimize emerging disease and AMR risks linked to changing demography."

## | OBJECTIVES

This session aims to explore and address the impacts of growing human and animal populations and unplanned mega-cities and peri-urban settlements on disease emergence, amplification, and global distribution. Accordingly, presenters will also tackle the risks associated with surging global trade and travel and illustrate how forecasting can inform risk mitigation.

### Specific Objectives:

- Explore projected demographic trends over the 21st century and their impact on expected zoonotic disease emergence and AMR
- Enhance understanding of how trends in demography will differ regionally; how differences in agricultural productivity and marketing practices will impact emerging disease risk, including spread of AMR; and how purchasing power and animal protein demand will have global supply chain impacts and associated emerging disease risk
- Highlight practical, evidence-driven approaches to defining, forecasting, and mitigating human demographic-driven emerging disease risk



## Panelist

### Christine Johnson

*Professor and Researcher*

UC Davis  
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Christine Kreuder Johnson is Professor of Epidemiology and Associate Director of the One Health Institute in the School of Veterinary Medicine at UC Davis where she directs the EpiCenter for Disease Dynamics. Her research activities focus on zoonotic disease spillover and spread dynamics, epidemiologic drivers of zoonotic disease transmission, ecosystem level processes that impact wildlife population health and emerging infectious diseases, and mechanisms underlying species declines. She provides epidemiologic support to national and state agencies during unusual outbreak events and has developed and implemented risk-based approaches for surveillance and standardized risk assessment to enable systematic data analysis across a range of field studies from the local to global scale. 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 primary mentorship to over 45 graduate students and post-doctoral scholars. Since 2009, Professor Johnson has served as epidemiologist for USAID's Emerging Pandemic Threats PREDICT project, optimizing global surveillance activities to identify infectious disease threats at high-risk animal-human interfaces and working with host country governments and international organizations to meet global health priorities. Since 2014, she has directed surveillance activities for PREDICT to implement concurrent animal and human sample and data collection needed to detect disease spillover, amplification, and spread and inform risk mitigation strategies.