



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



## **PLENARY SESSION 3**

**MANAGING EMERGING INFECTIOUS DISEASE AND AMR RISK ACROSS THE  
LIVESTOCK REVOLUTION**



## | BACKGROUND

**Plenary Scope:** Examine the evidence for how projected increases in livestock production in Africa and shifting production contexts in Asia over the 21st century will impact the risk of disease emergence, including zoonosis and AMR.

**Plenary Background:** Widespread demand for animal protein nutrition over the last half century has fueled an explosive growth in global livestock production systems. Between 2000 and 2030, demand for beef and dairy is expected to nearly double, and poultry to nearly triple. In select high growth regions, such as South Asia, demand for poultry is expected to soar to 725%.

Keeping pace with this demand, the production, marketing, and distribution of terrestrial and aquatic animal production has undergone transformational change. While rural livelihoods globally remain largely dependent upon grain, tubercle, and legume-based nutrition, an overall consolidation and commercialization of the production and marketing chains is shifting the disease emergence risk profile.

Increasingly, global animal product supply chains impact disease risk variably, through secondary and tertiary order effects that may be geographically separated. Within the context of zoonotic disease emergence risk, what are the linkages across geographically distinct areas where demand for animal protein is growing, the production of that protein, and the production of inputs such as animal feed? Can a total “emergence risk footprint” be developed to quantify this risk and prioritize reduced impact production scenarios? And what incentives and structures are needed to expedite a global shift toward such lower impact production systems?

The collective capacity to mitigate emerging zoonotic disease and AMR risks associated with increasingly complex global animal production chains will be dependent upon a robust understanding of the disease transmission drivers within these global systems. This session will enable a detailed evaluation of the role of animal production in potentiating zoonotic disease emergence and AMR, and will identify commonalities across regions, production contexts, and sectors that can inform applied risk mitigation approaches. While the session will focus on animal production systems, a balance with the role of anti-microbial use in crops, animal feed, and human health will need to be included.

<sup>1</sup> FAO. 2011. *Mapping supply and demand for animal-source foods to 2030*, T.P. Robinson & F. Pozzi. Animal Production and Health Working Paper. No. 2. Rome

## | OBJECTIVES

- Evaluation of terrestrial and aquatic animal production systems within the context of emerging zoonotic disease and AMR risk
- Understand how projected increases in livestock production in Africa and shifting production contexts in Asia over the 21st century will impact the future of farming systems and the risk of emerging zoonoses and AMR
- Identify common risk threads across regions, production contexts, and sectors that can inform applied risk mitigation approaches
  - Exploration of what is known about the quality and integrity of veterinary medicines - and their supply chains - used in animal production and their contribution to AMR risk.
- Review practical options for minimizing risks associated with increased animal production and marketing



Moderator / Moderator

## Dennis Carroll

*Pandemic Influenza and Other Emerging Threats Unit Director*

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Dr. Dennis Carroll currently serves as the Director of the U.S. Agency for International Development's (USAID) Emerging Threats Unit. In this position Dr. Carroll is responsible for providing strategic and operational leadership for the Agency's programs addressing new and emerging disease threats. Previously, Dr. Carroll was 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. 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.