PMAC PRINCE MAHIDOL AWARD CONFERENCE 2021

WS301

ACCELERATING ADVANCES IN SCIENCE AND TECHNOLOGIES TO "PREVENT, DETECT, RESPOND TO AND RECOVER FROM" FUTURE THREATS

| BACKGROUND

The COVID-19 pandemic has dramatically illustrated our collective vulnerability when we lack readily available biomedical countermeasures and interventions to control a novel threat. Our limited capacity to create these responses de novo compounds the problem. There is an urgent need to expand our knowledge about future viral threats BEFORE they directly threaten us, and to have in hand tools and capabilities to respond rapidly upon their onset. Our investments must move beyond advancing science and technology alone, but also focus on the processes and systems that link these advances to policy making. Despite extraordinary achievements over the past decades, particularly in the areas of genomics, big data and artificial intelligence, the sciences associated with pandemics and epidemics have largely remained outliers. We also lack understanding of the ecological and climate-related drivers that will contribute to future pandemics and/or epidemics. There have been few notable advances in our ability to forecast future outbreaks or reduce the likelihood of future 'spillovers', and early detection and rapid response remain great challenges. Globally, we still have an inadequate capabilities and capacities to generate new biomedical countermeasures and interventions that are broadly applicable across viral and bacterial populations and available prior to a pandemic and/or epidemic and readily available to support a rapid response.

| OBJECTIVES

This session will explore the following questions:

- How can key technologies that have a place in addressing epidemic and pandemic threats shift from their current reactive use to a far more proactive approach?
- What is the role of 'big data' and artificial intelligence in harnessing scientific innovation for forecasting and responding to pandemics and epidemics?
- What is the role of climate and weather as drivers of pandemics and/or epidemics, and how can we integrate climate and/or weather information and data into health tools or systems to prepare for future health challenges?
- What systems, processes and institutional capacities are required to ensure that advances made in scientific knowledge and technologies are appropriately incorporated into policies and practices for maximum impact?
- How can we collectively benefit and use evidence from research and development on diagnostics, vaccines, and therapeutics to improve their availability and accessibility for present and future threats?

Speaker

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Post-doctoral research fellow Nantasit Luangasanatip is a health economist and mathematical modeler at the Mahidol Oxford Tropical Medicine Research Unit (MORU) in Bangkok, Thailand. Currently a member of the Economics & Implementation Research Group (EIRG) in MORU's Mathematical and Economic Modelling (MAEMOD) department, Nantasit joined MORU in 2010. His work is to assess cost-effectiveness of new interventions and their clinical implications. He experienced in assessing cost-effectiveness of interventions to prevent healthcare-associated bacterial infections in hospital with resource limited settings, studying economic evaluation of portable devices for post-marketing medicine quality surveillance in a lower-middle country, evaluating cost-effectiveness of melioidosis vaccine in global perspective to explore the country-specific optimal targeted strategy, as well as cost-effectiveness of rotavirus vaccine in Thai and Bhutan context.