



PMAC | PRINCE MAHIDOL
AWARD CONFERENCE **2018**



MAKING THE WORLD SAFE FROM
THE THREATS OF EMERGING INFECTIOUS DISEASES




| BACKGROUND

The Prince Mahidol Award Conference (PMAC) is an annual international conference focusing on policy-related health issues. The Prince Mahidol Award Conference 2018 is co-hosted by the Prince Mahidol Award Foundation, the Thai Ministry of Public Health, Mahidol University, the World Health Organization, The World Bank, U.S Agency for International Development, Japan International Cooperation Agency, The Rockefeller Foundation, with support from other key related partners. The Conference will be held in Bangkok, Thailand, from 29 January - 3 February 2018. The theme for PMAC 2018 is “Making the World Safe from the Threats of Emerging Infectious Diseases”.

We live in an era when the emergence of novel infectious disease agents is posing an increasing threat to global health and security. The threat from novel infectious diseases is accelerating at a pace and with an intensity unprecedented in human history, driven by increasing human populations, climate change and surging global travel. The possibility that a single lethal microbe could suddenly emerge and sweep through every household, through every community without regard to national borders or social and economic standing is a shared fear across the globe. Just the fear can cost billions, as illustrated by recent Ebola and Zika virus panics in little-affected countries. But the reality of the threat is all too clear, proven by the decades of response to the HIV-AIDS pandemic. Yet the world is not prepared to either mitigate the impact of an emergent disease threat or prevent its emergence.

Zoonotic and AMR related diseases account for more than 95% of all emerging infectious diseases reported during the second half of the 20th century. In this century the emergence of SARS, pandemic influenza, MERS, and the spread of Ebola and Zika reflect the world’s increasing vulnerability to novel zoonotic threats. The simultaneous emergence of pathogens resistant to antibiotic therapies raises the prospect of a “post antibiotic” world. While the drivers underlying the emergence of zoonotic and antibiotic resistant diseases are complex, human behaviours and their impact on animal populations and the environment are understood to be central to the emergence of both disease threats. The role of increasing animal-human contact in the emergence of zoonotic diseases has been well documented and been increasingly the focus of One Health initiatives across the globe. The contribution made by the inappropriate use of antibiotics in animal husbandry to AMR is less well documented but in recent years has been increasingly understood to be a core driver behind the emergence and global spread of antibiotic resistant organisms, along with inappropriate “prescriber-user” practices associated with antibiotic use in clinical care. Changing environmental and climatic conditions have also been closely linked to the emergence of novel infectious diseases. That infectious disease emergence is closely associated with practices and behaviours at the animal-human-environment interface speak to the importance of an expanded multi-sectoral alliance across the animal, human and environmental sectors to address the threats posed by both zoonosis and AMR. The Global Health Security Agenda and related One Health movement provide important frameworks for mobilizing international action.

¹ K. E. Jones et al., Global trends in emerging infectious diseases. *Nature* 451, 990-993 (2008).





THE RISING THREAT OF ZONOTIC DISEASES

Since the Influenza Pandemic of 1918 when between 50-100 million died (5-10% of the human population) we have been fully aware of how vulnerable our place on this planet is.

Even in the absence of significant global mortality, epidemics and pandemics can cost tens of billions of dollars, reversing development gains and pushing communities and households into poverty. The SARS outbreak in 2003 cost the economies of East Asia between \$30-50 billion and estimates of the global economic cost of an influenza pandemic range from \$374 billion, for a mild pandemic, to \$7.3 trillion, for a severe pandemic - with a 12.6% loss of gross domestic product.

Strategically, policies to address a potential pandemic threat are constrained by an unresolved debate over the use of adaptive measures - that aim through the use of technological measures to reduce the impact of diseases after they have emerged vs mitigation measures - that focus on the underlying causes of disease emergence. The adaptive tools we traditionally rely on to protect us from the world of infectious diseases - vaccine and therapeutics - too often are shown ineffective against a novel threat; and, the timely development and deployment of new and effective biomedical countermeasures is undercut by the speed at which the threat spreads


Similarly, our ability to mitigate the emergence of new threats is undermined by a lack of knowledge about the viral ecology and the drivers, including human behaviors, which propel the emergence of a new threat. It is at these moments we realize just how few our adaptive and mitigation options are - and how vulnerable the global community is. After each episode the world admonishes itself for being ill prepared to deal with a global threat - but after decades of largely reacting adaptively to each event, with only a tangential focus on mitigation, we are only marginally better able to deal with the next one.


A "POST ANTIBIOTIC WORLD"

The development and commercialization of antimicrobials stands as a defining achievement of 20th century medical practice. Antimicrobials heralded an era of expanded life expectancy, paved the way for advanced medical and surgical treatments, improved animal health and welfare, and made possible curative therapy for once fatal infections. Decades of superfluous and inattentive use of antimicrobials across the human and animal health sectors now threaten these advancements. The pace of reported treatment failures and antimicrobial resistance (AMR) in common pathogens is increasing, with multi-drug resistant pathogens creating the prospect of a 'post antibiotic' world. In the absence of interventions, AMR-associated human mortality is projected to soar from a current rate of 700 000 to over 10 million annually by 2050—as readily treatable infections become life threatening, and routine procedures are rendered unsafe. Asia is expected to account for half of this projected global mortality. The impact of AMR on morbidity and mortality is matched by a substantial economic burden, with resistance linked to aggregate losses anticipated to exceed USD 100 trillion by 2050.

Antimicrobial resistance is exacerbated by the unregulated use of antimicrobials across both the human health and animal health sectors. A particular concern is the shared use of same classes of antibiotics in humans and in animals, potentially exacerbating the selection pressures on pathogen populations in animals and humans that encourage the development of resistance and exchange of resistance genes. By example, in the United States the livestock production industry accounts for 80% of the total use of antibiotics used for treatment of human infections.

² O'Neill, J. Review on Antimicrobial Resistance. Tackling a Global Health Crisis: Initial Steps. 2015





Antimicrobial resistance is one of the three flagship topics for the tripartite (FAO, OIE and WHO) collaboration. At the Sixty-eight World Health Assembly in May 2015, the World Health Assembly endorsed the Global Action Plan (GAP) on AMR and requested to strengthen the tripartite collaboration between FAO, OIE and WHO for combating antimicrobial resistance in the spirit of the “One Health” approach. The Global Action Plan, which ensured a One Health approach and consistency with Codex Alimentarius and OIE inter-governmental standards and guidelines, aims to ensure continuity of successful treatment and prevention of infectious diseases with effective and safe medicines that are quality-assured, used in a responsible way, and accessible to all who need them. Guided by this global action plan, the Member States, the Secretariat, and their international and national partners aim to: (1) improve awareness and understanding of antimicrobial resistance; (2) strengthen knowledge through surveillance and research; (3) reduce the incidence of infection; (4) optimize the use of antimicrobial agents; and (5) develop the economic case for sustainable investment that takes account of the needs of all countries, and increase investment in new medicines, diagnostic tools, vaccines and other interventions.

A high level meeting on anti-microbial resistance was held in September 2016 at the United Nations General Assembly, generating a statement of global commitment to address AMR through a multi-disciplinary approach.

PMAC 2018 WILL BE ACTION FOCUSED.

Protecting the world from the threat of zoonotic diseases and ensuring effective stewardship of antibiotics requires a common and well-coordinated multi-sectoral effort. While there has been significant progress in building multi-sectoral One Health action against zoonotic diseases, AMR efforts remain highly siloed with an unequal focus on the respective contributions made by the inappropriate use of antibiotics in clinical care and animal production, as well as limited opportunities for bringing human, animal and environmental health sectors together to forge a common strategy. There is an urgent need to bring a comprehensive One Health risk mitigation approach to address zoonotic and AMR related diseases that addresses the direct consequences of animal-human interactions and contributory pressures related to environmental and climate changes.


PMAC 2018 will provide an important setting for fostering policy and strategic action by engaging multi-sectoral experts in zoonosis and AMR, as well as climate change and related environmental fields from across the public and private sectors, international organizations, foundations, academics and non-governmental organizations, as well as critical players in Global Health Security Agenda (GHSA). Importantly, a PMAC sponsored “Making the World Safe from the Threats of Emerging Infectious Diseases” would build on PMAC 13’s highly successful conference on One Health and lead to real change.

PMAC 2018 WILL BUILD ON PAST PMAC THEMES.

Since 2007, the Prince Mahidol Award Conference has been organized as an annual international conference focusing on policy-related public health issues of global significance - including, Universal Health Coverage, Health Equity, Meeting the Needs of Vulnerable Populations, and addressing the threats posed by infectious diseases. Each of these meeting has brought together leading public health leaders and stakeholders from around the world to propose concrete solutions and recommendations. PMAC 2018 will explicitly look to build on the successes of past PMACs and to identify opportunities to further contribute to the systems and capacities required to address the comprehensive health needs of the world’s populations.

³ Global Action Plan on Antimicrobial Resistance, http://www.who.int/drugresistance/global_action_plan/en/

⁴ <http://www.un.org/pga/71/2016/09/21/press-release-hl-meeting-on-antimicrobial-resistance/>





| OBJECTIVES

1. To accelerate progress in the adoption of multi-sectoral approaches for addressing zoonotic diseases and antimicrobial resistance
2. To advocate for evidence-based priority setting and policy decisions for zoonotic diseases and antimicrobial resistance
3. To share knowledge and experience in addressing the challenges posed by zoonotic diseases and antimicrobial resistance
4. To promote a greater understanding of the range and nature of the “drivers” underlying the emergence of new disease threats and options for their mitigation
5. To highlight emerging demographic, climatic and travel trends to better understand how disease emergence will evolve over the course of this century
6. To underscore the collateral socio-economic and development benefits associated with a One Health Agenda





Sub-Theme 1

Learning from the Past: Towards Effective and Sustainable Policies, Practices and Capacities for “Prevention, Detection and Response” to Emerging Zoonosis and Antimicrobial Resistance



SUB-THEME 1

This sub-theme is focused on presenting evidence for how efforts across the globe over the past two decades to address zoonotic and AMR related threats are contributing to more effective policies, practices and capacities for “prevention, detection and response” to EIDs. Given the inherent multi-sectoral aspects of disease emergence this is an opportunity to learn from recent experience with efforts such as the Global Health Security Agenda (GHSA), International Health Regulations, the One Health movement, and other platforms illustrating challenges and solutions for building effective partnerships for addressing zoonosis and AMR.

Issues to be discussed under this sub-theme are:

1. Evidence for optimal policies, regulations and systems for addressing EIDs

What we have learned from country, regional and global level experiences in addressing EIDs


- Case studies illustrating successes and failures; how well do we manage and mitigate present threats (e.g. MERS CoV, Nipah virus, Zika virus, Zoonotic Influenza, Ebola virus, AMR, and others)
- Organizational options for building sustainable national-level partnerships across multi-ministerial groups, including Health, Agriculture, Environment, Finance and Education
 - What are the policy requirements
 - What are the human resource requirements
 - What are the organization requirements
 - What are resource requirements
- How are these experiences translated to the sub-national level
 - What are the equivalent requirements for provincial/county level operations

2. Evidence for optimal global and regional level structures for addressing EIDs

What are the lessons learned on building global and regional level partnerships, including the GHSA, One Health and Planetary Health, to address EIDs

- How effective have global and regional partnerships been in building multi-sectoral alliances to enable country level actions
 - What are the policy requirements
 - What are the human resource requirements
 - What are the organization requirements
 - What are resource requirements

What is the evidence for proactive, flexible structures that enhance capacities and preparedness across the prevention-detection-response continuum?

- What have we learned from the pandemic vaccine development banks; consortia for conservation of antimicrobials?
 - What can we learn from parallel efforts, such as those addressing global climate change and carbon emissions?
 - What examples demonstrate the ability to bridge the apparent dichotomy between capacity building and a research agenda concerning emerging zoonoses and AMR?
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3. Evidence of novel, upstream approaches to earlier detection and trends monitoring, including but not limited to:

- Novel surveillance postures and strategies,
- digital diseases detection,
- crowdsourcing big data,
- predictive analytics on disease distribution

4. Evidence for more sustainable approaches for “prevention, detection and response”

What are examples of sustainable financing structures? What have we learned from:

- The World Bank Pandemic Emergency Financing Facility?
- Evolving schemes for engaging insurance companies to “share” pandemic risk?
- Efforts to quantify cost attributable to zoonotic disease and AMR burden, project pandemic influenza economic impact, and make a credible investment case for prevention and risk mitigation?

What are examples of “preparedness” activities that address long-term sustainability?

- What have we learned from the World Bank and WHO’s joint effort to develop strategies for both pandemic and “all hazards” preparedness and related long-term financing schemes?

Which financing models have proven utility in employing an evidence driven approach to discouraging high risk practices and incentivizing risk mitigation in approaching pandemic prevention as a global public good?





Sub-Theme 2

Harnessing the Power of Public-Private-Community (PPC)
Partnerships for “Preventing, Detecting, and
Responding” to Zoonosis and AMR



SUB-THEME 2

This sub-theme is focused on examining the evidence for building effective partnerships that bring together community, private sector and public sector resources for sustainably addressing the threats posed by zoonosis and AMR. As with the previous sub-theme, the inherently multi-sectoral nature of zoonosis and AMR requires active engagement across multiple stakeholders. In addition to the Public sector, Private sector actors who may be directly engaged in activities that inadvertently contribute to “drivers” for EIDs will need to be actively involved in any efforts to better mitigate the consequences of their activities. Similarly, communities are key stakeholders, both as consumers and potential contributors to some of the drivers that underlie disease emergence (e.g. inappropriate use of antibiotics in rearing of livestock and aquaculture)

Issues to be discussed under this sub-theme are:

1. **Evidence for strong PPC partnerships that have contributed to “prevention, detection and response” to Zoonosis and AMR**

What are the lessons from PPC partnerships in addressing EIDs

- Country, regional or global examples of how PPC partnerships have been able to harness across each of the constituencies to address EIDs in ways that greatly enhanced the overall impact
 - What were the incentives for PPC partnerships
 - What were the roles and responsibilities of each group
 - What were the metrics for valuing the PPC partnerships
 - What were the operational factors for sustainability of PPC partnerships

2. **Evidence of successful outreach and community empowerment**

What are examples of how risk communications have successfully affected community and/or individual level practices and behaviors on a scale significant enough to reduce the risk from zoonotic threats and/or AMR

3. **Evidence for an active and sustainable engagement of the private sector**

- What are examples of how private sector partners have been actively and sustainably engaged in efforts to address zoonotic threats and/or AMR
- What can be learned from partnerships with biomedical industry in developing and marketing vaccines and medical countermeasures? Employing novel diagnostic platforms enabling rapid detection and response to emerging threats?
- What are examples of partnerships with industry in the use of non-medical countermeasures within communities to help mitigate, prevent, and control infectious disease threats? Employing new technologies and platforms for health communication and the application of non-pharmaceutical interventions

4. **Evidence for how consumer advocacy can contribute to change policies and practices**

5. **Evidence of economic benefits from PPC**





Sub-Theme 3

Understanding the Selection Pressures Underlying Emergence of Zoonotic Diseases and Antimicrobial Resistance and the Broad Benefits Realized From Promoting Healthy Animals and Healthy People




SUB-THEME 3

This sub-theme is focused on both:

- a.) exploring the contributions made by climate change, population growth, global travel, habitat change, expanding settlements, resource extraction, increased livestock and crop production and other underlying drivers that contribute to the emergence of new zoonotic and anti-microbial disease threats, and
- b.) examining the broad benefits that are accrued from promoting practices across multiple sectors that aim at reducing these drivers and the risk of zoonotic diseases and antimicrobial resistance.

There has been a general recognition that the adoption of a core set of best practices that are designed to directly target the drivers associated with zoonosis and AMR are likely to simultaneously contribute to positive outcomes across a range of “other” domains and the achievement of the United Nations Sustainable Development Goals, such as food security, household wealth and economic growth, as well as healthier environments and sustainable communities.

a.) Issues to be discussed under this sub-theme will allow a presentation of the evidence for the drivers of EID emergence:

1. **Evidence for Climate Change in Increasing Infectious Disease threats and models projecting future impact**
 - How does climate change contribute to spread of infectious disease threats
 - Topics to be considered could include: impact on vector ecology, animal migration, altered range and distribution of reservoir host species;
 - variance in freshwater availability, sanitation, and waterborne disease
 2. **Evidence for demographic and population change on increasing Infectious Disease threats, including how settlement patterns (peri-urbanization), population movement (increased air travel, trade etc), habitat change (impact on animal bio-diversity) contribute to disease emergence and spread**
 3. **Evidence for how increased economic activity impacts on increased Infectious Disease risk, including how expanded incursions of extractive industry operations and agricultural intensification into wildlife domains increase risk for “spillover” and spread of novel diseases**
 - Options for how “risk” can be mitigated at the site of industry operations or in planning/selecting where industry operations occur
 4. **Evidence for how increased livestock production and marketing in geographic “hot spots” for disease emergence may increase risk of pathogen “spillover” and spread**
 - How projected increases in livestock production in Africa and shifting production contexts in Asia over the 21st century will impact on the risk of disease emergence, including zoonosis and AMR
 - Models for likely changes in terrestrial and aquatic animal production and marketing patterns over the coming century
 - Models for potential increased environmental impact that could elevate risk
 - Options for minimizing risks associated with increased livestock production and marketing
 - Considering the impact of a global supply chain of agricultural commodities and production inputs (e.g. animal feed), and trans-continental risk management strategies
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b.) Issues to be discussed under this sub-theme also will allow a presentation of the evidence to broad collateral benefits accrued from targeting the drivers of EID emergence:

5. Evidence that adoption of practices to reduce zoonotic and AMR risks associated with livestock production would also contribute to more efficient and more profitable operations

- How do improved biosecurity and husbandry practices that strengthen control of pathogenic zoonotic viruses improve the overall health of livestock and the environment
 - Reduced animal diseases
 - Improved animal health can lead to increased livestock productivity and reduced input costs for production
 - Enhanced productivity and yield per animal production unit
 - Reduction in prophylactic antibiotic use
- How does proper management of antimicrobials in livestock production and aquaculture improve economic returns
 - Improved hygienic conditions, nutrition, and vaccination in animal husbandry associated with reduced use of antibiotics and corresponding returns on investment
 - What can be learned from the experience of countries that have phased out and enacted regulatory controls on use of antimicrobials in animal production
 - AMR reduces potency of veterinary drugs and negatively affects animal health
 - Consumer demand for antimicrobial residue free animal source foods
 - Market based incentives and penalties for reduced antimicrobial use and enhanced adherence to drug withholding periods, minimizing residues in products entering the food chain
 - Best practices in strengthening antimicrobial usage regulatory and enforcement structures in animal production

6. Evidence that reduction in habitat fragmentation has led to the control of zoonosis

- How does habitat fragmentation impact on both vector-borne and non vector-borne diseases
 - Evidence that changes in habitat leads to changes (increase/decrease) the transmission dynamics of infectious diseases (e.g. chikungunya, malaria)

7. Evidence that that the real and/or projected economic impact from emerging zoonoses and AMR has informed resource allocation policies and an investment case for prevention

- What practices and approaches have shown promise in fostering decision making informed by economic analyses
- What novel structures have proven utility in transcending the challenge of inequitable sectoral cost and benefit distribution
 - Evidence for one or more sectors bearing the cost for benefits accruing to different sectors/stakeholders (e.g. H7N9 control in China: costs borne by producers and markets, but benefits accrue to health sector; or resource extraction and disease emergence: costs borne by health sector, but benefits accrue to industry and land planning/mining/forestry entities)



| VENUE AND DATES OF THE CONFERENCE

Centara Grand at Central World Hotel, Bangkok

Monday 29 - Tuesday 30 January 2018	Side Meetings
Wednesday 31 January 2018	Field Trip
Thursday 1 - Saturday 3 February 2018	Main Conference

| STRUCTURE OF THE CONFERENCE

This is a closed, invitation only conference host by the Prince Mahidol Award Foundation, and the Royal Thai Government, together with other international co-hosts. The conference consists of:

- 1. Pre-conference**
 - Side meetings
 - Field trip
- 2. Main conference**
 - Keynote speeches
 - Plenary sessions
 - Parallel sessions
 - Synthesis: Summary and recommendations
 - Poster display

| PRE-CONFERENCE PROGRAM

Monday 29 January 2018

09:00-17:30	Side Meetings
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Tuesday 30 January 2018

09:00-17:30	Side Meetings
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Wednesday 31 January 2018

06:30-18:00	Field Trip
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| MAIN CONFERENCE PROGRAM

Thursday 1 February 2018

09:00-10:30	Opening Session & Keynote Address Opening Session by Her Royal Highness Princess Maha Chakri Sirindhorn Keynote Address <ul style="list-style-type: none"> ◦ Prince Mahidol Award Laureate 2017 ◦ Prince Mahidol Award Laureate 2017 ◦ Mercedes Tatay, International Medical Secretary, Médecins Sans Frontières, Switzerland
10:30-11:00	Break
11:00-12:30	Plenary Session 0 : Vision 2100: Re-Imagining the End Game for the End of the Pandemic Era
12:30-13:30	Lunch
13:30-14:30	Plenary Session 1 : Leadership Needed for Managing Emerging Infectious Diseases of the 21st Century
14:30-16:30	PS1.1 : Lessons Learned in Managing Emerging Infectious Diseases (EID) PS1.2 : Strategic Information and the Evolution of Emerging Infectious Diseases: Lessons from the Past and New Opportunities PS1.3 : Safeguarding Medicines in the Era of AMR: What Do We Know? What Works? PS1.4 : Financing Pandemic Preparedness: Where is the Money? PS1.5 : One Health on the Move: Nomadic Communities
16:30-17:00	Break
17:00-18:00	Plenary Session 2 : Futures of Partnerships for a Safer World

Friday 2 February 2018

08:30-09:30	Plenary Session 3 : Managing Emerging Infectious Disease and AMR Risk across the Livestock Revolution
09:30-10:00	Break
10:00-12:00	PS2.1 : Beyond MERS and Zika: Are we Prepared for the Next Big Epidemic? PS2.2 : AMR: Addressing Excessive and Inappropriate Use of Antibiotics PS2.3 : Dealing with an Inter-Connected World: Partnerships for Preparedness, Detection and Response during High Visibility Events PS2.4 : Changing Dynamics: Emerging Infectious Diseases and Antimicrobial Resistance in an Era of Expanding Global Human Population Growth and Movement PS2.5 : Reducing the Gap: Addressing Neglected Disease; Neglected Populations
12:00-13:00	Lunch
13:00-15:00	PS3.1 : Global Partnerships for Country Outcomes PS3.2 : Lessons Learned from a One Health Approach to AMR PS3.3 : Climate Change and Emerging Diseases: The Importance of Resilient Societies PS3.4 : Shifting Landscapes - Real and Figurative: Understanding How Altered Land Use is Driving Disease Emergence PS3.5 : Policy Coherence: Effective Partnerships for Global Health
15:00-15:30	Break

15:30-17:30	<p>PS4.1 : Moving Forward and Outward: Progress in Implementation of Global Frameworks and Initiatives</p> <p>PS4.2 : Multi-sectoral Partnerships for Action on AMR</p> <p>PS4.3 : Community Systems: the Bedrock of Responses to EID and AMR</p> <p>PS4.4 : Finding the Win-Win Solutions for Better Health from Better Food Systems</p> <p>PS4.5 : Bringing Solutions into Focus: Harnessing the Power of an Economic Lens</p>
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Friday 2 February 2018

08:30-09:30	Plenary Session 3 : Managing Emerging Infectious Disease and AMR Risk across the Livestock Revolution
09:30-10:00	Break
10:00-12:00	<p>PS2.1 : Beyond MERS and Zika: Are we Prepared for the Next Big Epidemic?</p> <p>PS2.2 : AMR: Addressing Excessive and Inappropriate Use of Antibiotics</p> <p>PS2.3 : Dealing with an Inter-Connected World: Partnerships for Preparedness, Detection and Response during High Visibility Events</p> <p>PS2.4 : Changing Dynamics: Emerging Infectious Diseases and Antimicrobial Resistance in an Era of Expanding Global Human Population Growth and Movement</p> <p>PS2.5 : Reducing the Gap: Addressing Neglected Disease; Neglected Populations</p>
12:00-13:00	Lunch
13:00-15:00	<p>PS3.1 : Global Partnerships for Country Outcomes</p> <p>PS3.2 : Lessons Learned from a One Health Approach to AMR</p> <p>PS3.3 : Climate Change and Emerging Diseases: The Importance of Resilient Societies</p> <p>PS3.4 : Shifting Landscapes - Real and Figurative: Understanding How Altered Land Use is Driving Disease Emergence</p> <p>PS3.5 : Policy Coherence: Effective Partnerships for Global Health</p>
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15:30-17:30	<p>PS4.1 : Moving Forward and Outward: Progress in Implementation of Global Frameworks and Initiatives</p> <p>PS4.2 : Multi-sectoral Partnerships for Action on AMR</p> <p>PS4.3 : Community Systems: the Bedrock of Responses to EID and AMR</p> <p>PS4.4 : Finding the Win-Win Solutions for Better Health from Better Food Systems</p> <p>PS4.5 : Bringing Solutions into Focus: Harnessing the Power of an Economic Lens</p>
18:00-20:30	<p>Welcome Dinner</p> <ul style="list-style-type: none"> ◦ Welcome Speech by <ul style="list-style-type: none"> - Minister, Ministry of Public Health, Thailand - President, Mahidol University, Thailand ◦ Dinner Speech (TBC)



Saturday 3 February 2018

09.00-09.30	Closing Session <ul style="list-style-type: none">◦ Welcome Speech by Speech by Margaret Chan, Former Director General, World Health Organization, Switzerland (TBC)
09.30-10.30	Synthesis: Summary, Conclusion & Recommendations
10.30-11.00	Statement
11.00-12.00	Closing Performance
12.00-13.30	Lunch
14:00-16:30	International Organizing Committee (IOC) Meeting for PMAC 2018/2019



PMAC | PRINCE MAHIDOL AWARD CONFERENCE 2018



OPENING SESSION & KEYNOTE ADDRESS

**OPENING SESSION BY HER ROYAL HIGHNESS PRINCESS MAHA CHAKRI SIRINDHORN

 KEYNOTE SPEECHES**



Opening Session by Her Royal Highness Princess Maha Chakri Sirindhorn
Keynote Address

| KEYNOTE SPEAKER

- **Mercedes Tatay**, International Medical Secretary, Medecins Sans Frontieres, France
- **Eric Green**, Director, NIH/NHGRI, United States of America
- **Peter Sands**, Incoming Executive Director, The Global Fund for AIDS, Tuberculosis and Malaria, Switzerland
- **Tedros Adhanom Ghebreyesus**, Director-General, World Health Organization, Switzerland





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PLENARY SESSION 0

VISION 2100: RE-IMAGINING THE END GAME FOR THE END OF THE PANDEMIC ERA



| BACKGROUND

Plenary Scope: Examine how even in the face of increasing threats posed EIDs and AMR innovative approaches that harness transformative thinking allow us for the first time to imagine the end of the “pandemic era”.

Plenary Background: We live in an era when the emergence of novel infectious disease agents is posing an increasing threat to global health and security. The threat from novel infectious diseases is accelerating at a pace and with an intensity unprecedented in human history, driven by increasing human populations, climate change and surging global travel. The possibility that a single lethal microbe could suddenly emerge and sweep through every household, through every community without regard to national borders or social and economic standing is a shared fear across the globe. Just the fear can cost billions, as illustrated by recent Ebola and Zika virus panics in little-affected countries. But the reality of the threat is all too clear, proven by the decades of response to the HIV-AIDS pandemic.

Zoonotic and AMR related diseases account for more than 95% of all emerging infectious diseases reported during the second half of the 20th century.

In this century the emergence of SARS, pandemic influenza, MERS, and the spread of Ebola and Zika reflect the world’s increasing vulnerability to novel zoonotic threats. The simultaneous emergence of pathogens resistant to antibiotic therapies raises the prospect of a “post antibiotic” world. While the drivers underlying the emergence of zoonotic and antibiotic resistant diseases are complex, human behaviours and their impact on animal populations and the environment are understood to be central to the emergence of both disease threats. The role of increasing animal-human contact in the emergence of zoonotic diseases has been well documented and been increasingly the focus of One Health initiatives across the globe. The contribution made by the inappropriate use of antibiotics in animal husbandry to AMR is less well documented but in recent years has been increasingly understood to be a core driver behind the emergence and global spread of antibiotic resistant organisms, along with inappropriate “prescriber-user” practices associated with antibiotic use in clinical care. Changing environmental and climatic conditions have also been closely linked to the emergence of novel infectious diseases. That infectious disease emergence is closely associated with practices and behaviours at the animal-human-environment interface speak to the importance of an expanded multi-sectoral alliance across the animal, human and environmental sectors to address the threats posed by both zoonosis and AMR.

As we look forward towards the end of this century, the predictable escalation in the interactions between humans and animals speaks to a world of increasing global risk. The consequences of these trends, however, are avoidable. Success in “making the world safe from the threats of emerging infectious diseases” requires we think and act differently; to not continue with the half-measures that have made the world ill prepared to address these threats.

Rapid advances in science and a corresponding revolution in technologies allow us, for the first time, to imagine a world where these “threats” can be minimized. What is required is bold action; that embraces an aggressive time horizon; and, that is global in scope. Such action can build systems and capacities able to mitigate the emergence of future threats and to control them when they do. With this knowledge comes the power to end panic and move to prevention.

This Plenary will present and discuss examples of new, innovative and bold global ventures which are now laying the groundwork for the “beginning of the end of the Pandemic Era”.

¹ K. E. Jones *et al.*, Global trends in emerging infectious diseases. *Nature* **451**, 990-993 (2008).





| OBJECTIVES

- Explore novel and transformative approaches that address the underlying drivers of zoonotic disease and AMR
- Harness methodologies, technologies, and thinking across a range of disciplines to promote a vision for a proactive approach to emerging zoonoses and AMR
- Enable a conversation that transcends current impediments and envisions possible pathways and enabling factors to realize the end of the “pandemic era”

| MODERATOR

- **Dennis Carroll**, Pandemic Influenza and Other Emerging Threats Unit Director, United States Agency for International Development, United States of America

| KEYNOTE SPEAKER

- **Harvey Fineberg**, President, The Gordon and Betty Moore Foundation, United States of America

| PANELIST

- **Larry Brilliant**, Chairman, Larry's Personal, United States of America
- **Margaret Hamburg**, President, American Association for the Advancement of Science, United States of America
- **Sally Davies**, Chief Medical Officer, Department of Health, United Kingdom
- **Eddy Rubin**, Chief Scientific Officer, Metabiota, United States of America
- **Peter Salama**, Deputy Director General for Emergency Preparedness and Response, World Health Organization, Switzerland





PMAC | PRINCE MAHIDOL
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PLENARY SESSION 1

**LEADERSHIP NEEDED FOR MANAGING EMERGING INFECTIOUS DISEASES OF THE 21ST
CENTURY**



| BACKGROUND

We now live in a world where any local infectious disease outbreak event has the potential to become an epidemic or pandemic. While preparedness of local agencies is key to quickly identify and contain outbreaks, global partnerships and international collaboration across all sectors must be effective to support and manage events. These partnerships have the potential to proactively alter the global architecture in order to quickly detect, prevent and respond to infectious disease threats as they emerge.

The plenary session will address the *Leadership Needed for Managing Emerging Infectious Diseases of the 21st Century*. It will set the scene of the global health architecture and how the international community is organizing to address effectively EIDs. It will also address leadership needed at country level for managing emerging infectious diseases.

The session will feature speakers from organizations with recent experience of preparing for, and responding to global health crises in the 21st century and consider how, as risks, environment and global architecture change, funding varies, how organizations change and adapt to tackle the contemporary challenges, and how are the lessons learned from recent challenges being incorporated into plans for future events. Speakers from countries and civil societies will bring a national and community level perspective on how to respond to global health crises.

| OBJECTIVES

The objective is to identify what kind of leadership, at all levels, is needed to address the increased risk and the complexity of EID and AMR and bring together different partners and groups acknowledging the various organizational and sectoral cultures.






| MODERATOR

- **Sylvie Briand**, Director, Infectious Hazard Management, World Health Organization, Switzerland
- **Peter Salama**, Deputy Director General for Emergency Preparedness and Response, World Health Organization, Switzerland

| PANELIST

- **Barre-Sinoussi Françoise**, Director, Institut Pasteur, France
 - **Takao Toda**, Vice President for Human Security and Global Health, Japan International Cooperation Agency, Japan
 - **David Nabarro**, Adviser for Sustainability, 4SD - Skills, Systems & Synergies for Sustainable Development, Switzerland
 - **Mercedes Tatay**, International Medical Secretary, Medecins Sans Frontieres, France
 - **Oyewale Tomori**, Immediate Past President, Nigerian Academy of Science, Nigeria
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PARALLEL SESSION 1.1

LESSONS LEARNED IN MANAGING EMERGING INFECTIOUS DISEASES (EID)



| BACKGROUND

Several outbreaks since 2000 have shaped the way in which we prepare for and respond to infectious diseases outbreaks. The emergence of SARS CoV in the first years of this century was a wakeup call to the global health community followed by H5N1 avian influenza outbreaks and the first influenza pandemic in the 21st century. The renewed IHR (2005) marked a major change in the approach to global health security, going beyond specific diseases to apply to all health risks, irrespective of their origin or source.

| OBJECTIVES

To present and discuss the management of a selection of recent crisis in different settings and draw lessons for the future. The session will tackle what works, what doesn't work from the political, public health, social and economic perspectives.

The following events will be discussed:

- **Ebola** : management of local and extended outbreaks: comparison of local outbreaks (DRC Uganda) and the epidemic in West Africa (2014-2015) with a particular emphasis on :
 - Community engagement and the socio-cultural aspects of outbreak response;
 - Cross-border collaboration between neighboring countries (surveillance, contact tracing, case management);
 - The role of international assistance;
 - Clinical management and vaccine.
- **MERS**: limiting spread example of Kingdom of Saudi Arabia, Republic of Korea and Thailand, managing the regional and global aspects of MERS-CoV, with a particular emphasis on:
 - Monitoring the health of international travelers and migrant workers;
 - Hospital preparedness
- **Zika and yellow fever** : managing vector borne outbreaks and emerging infectious diseases in Brazil / Angola (Yellow fever) and mitigating the risk of international spread (example of Portugal), with a particular emphasis on:
 - Controlling vectors and other environmental factors;
 - Vaccination and other preventive measures;
 - Effective communication to address public fear and potential panic.
- Also **potentially discussed** : From SARS to influenza A(H7N9); lessons learned in China, with a particular emphasis on:
 - Addressing the human-animal interface and cross-sectoral collaboration;
 - Resolving conflicting interests between the commercial and public health sectors
 - Strengthening preparedness based on experience of past outbreaks

Keywords: Ebola, Zika, MERS, Influenza, contact tracing, clinical management, migrations.





| MODERATOR

- **David Harper**, Senior Consulting Fellow, Centre on Global Health Security, Chatham House, United Kingdom

| PANELIST

- **Daniel R. Lucey**, Adjunct professor of medicine and infectious diseases, Georgetown University, United States of America
- **Giuseppe Ippolito**, Scientific Director, National Institute for Infectious Diseases, Italy
- **Wilson Savino**, Coordination of Strategies for National Integration of Fiocruz, Fundação Oswaldo Cruz, Brazil
- **Cristina Santos**, Head of the Public Health Emergencies Operations Centre, Directorate-General of Health, Portugal
- **Tanarak Plipat**, Deputy Director General, Department of Disease Control, Ministry of Public Health, Thailand





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PARALLEL SESSION 1.2

**STRATEGIC INFORMATION AND THE EVOLUTION OF EMERGING INFECTIOUS DISEASES:
LESSONS FROM THE PAST AND NEW OPPORTUNITIES**



| BACKGROUND

The last century has witnessed an increase in the frequency of emerging infectious diseases (EID) and antimicrobial resistance (AMR). Climate change, environmental pressure, population movement, population growth and increasing overlaps between human and animal livelihoods have contributed to an acceleration of novel infectious diseases. In addition, the increasing pace of human and animal pathogens resistant to antibiotic therapies raises serious concerns about treatable infections becoming life threatening, raising the death toll and the economic cost to potentially unsustainable level within decades.

In this context, early warning systems and strategic information play a key role in preventing, detecting and responding adequately to emerging zoonosis and antimicrobial resistance. More surveillance systems are needed. New technologies, electronic health records, internet and social media have the potential to provide timely information on emerging infectious diseases and antimicrobial resistance that can supplement traditional surveillance systems. With these new tools, individuals and their communities can play a new role in participatory syndromic surveillance. Nevertheless, there are important caveats that need to be addressed, such as ensuring data privacy, underrepresentation of some categories such as infants, the elderly, or people lacking access to these new technologies.

| OBJECTIVES

This session will look at the recent changes in strategic information and how can they contribute to current surveillance systems in order to identify appropriate actions and interventions for preparedness and response to emerging infectious diseases and antimicrobial resistance.





| MODERATOR

- **Thierry Roels**, Director, Division of Global HIV/AIDS and TB, Thailand MOPH – U.S. CDC Collaboration, Thailand

| PANELIST

- **Osama Ahmed Hassan**, Centre for Global Health, Department of Community Medicine and Global Health, Faculty of Medicine, University of Oslo, Norway
- **Kesete Admasu**, CEO, RBM Partnership to End Malaria, Switzerland
- **Mark Smolinski**, President, Ending Pandemics, United States of America
- **Lertrak Srikitjakarn**, Professor, Chiang Mai University, Thailand
- **Rico Gustav**, Senior Policy Advisor - Sustainability, International Civil Society Support (ICSS), Netherlands
- **Catherine Machalaba**, Policy Advisor, EcoHealth Alliance, United States of America





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PARALLEL SESSION 1.3

SAFEGUARDING MEDICINES IN THE ERA OF AMR: WHAT DO WE KNOW? WHAT WORKS?



| BACKGROUND

The prevention, detection and mitigation of emerging and re-emerging infectious diseases involve both applying preventive controls in animal production as well as ensuring the safety, efficacy, quality, and appropriate use of vaccines, diagnostics and medicines through secure supply chains and health delivery systems.

Complex and fragmented supply chains, especially in countries and regions with limited regulatory and quality oversight, increase the likelihood of substandard, fraudulent or adulterated medicines entering the market. Poor quality medicines ensure microbial replication in the presence of drug pressure. Substandard and falsified medicines also contribute to lack of efficacy and adverse events, undermining trust in the health system. Inappropriate use of anti-microbials is another driver of AMR. Both poor quality medicines and inappropriate use are preventable and can be addressed through the development of robust regulatory and quality assurance systems, treatment guidelines and enforcement.

While there are major limitations in evidence and best practice in the human health sector, even less is known in the veterinary sector, both with respect to use and quality of antibiotics in animals, and effective controls. Further, environmental factors are beginning to come to light.

| OBJECTIVES

- Review evidence of what is known about the links between medicines quality and AMR.
- Highlight successful efforts in, and benefits from, strengthening systems that monitor and strive to improve medicines quality.
- Address environmental impacts of antibiotic manufacturing on AMR.
- Relate frameworks for addressing medicines quality and appropriate use in the human sector to the animal sector and discern what lessons and approaches from other initiatives could be mobilized to address these drivers of infectious disease risk and AMR.






| MODERATOR

- **Katherine bond**, Vice President, International Regulatory Affairs, U.S. Pharmacopeia, United States of America

| PANELIST

- **Margaret Hamburg**, President, American Association for the Advancement of Science, United States of America
 - **Michael Deats**, Group Lead, Substandard and Falsified Medical Products, World Health Organization, Switzerland
 - **Margareth Ndomondo-Sigonda**, Head of Health Programs, New Partnership for Africa's Development, South Africa
 - **Sasi Jaroenpoj**, Head of Veterinary Medicinal Product and AMR containment Section, Department of Livestock Development, Ministry of Agriculture, Thailand
 - **Timothy Wells**, Chief Scientific Officer, Medicines for Malaria Venture, Switzerland
 - **Damiano de Felice**, Director of Strategy, Access to Medicine Foundation, Netherlands
 - **Sanne Fournier-Wendes**, Senior Advisor to the Executive Director of Unitaid, Unitaid, Geneva, Switzerland
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PARALLEL SESSION 1.4

FINANCING PANDEMIC PREPAREDNESS: WHERE IS THE MONEY?



| BACKGROUND

Recent experiences with the Ebola, Zika, and SARS outbreaks, among others, have underscored the need for countries to invest in pandemic preparedness, and to do so not only from a health perspective but also from an economic perspective: the socio-economic cost of outbreaks is often proportionally much larger than the corresponding impact on mortality and morbidity.


The International Working Group on Financing Preparedness (IWG) has recently made several recommendations to integrate pandemic preparedness into international macro-economic and market assessments that determine the availability of concessionary and other international financing eligible lower and middle income countries.

To date, however, what has largely been missing in global and country-level discussions is a systematic understanding about adequacy and modality of current financing arrangements for health security. Part of pandemic preparedness is embedded in health financing and service delivery. Part also deals with animal health which is the responsibility of livestock/agriculture sector. In addition to its multisectoral nature, there are contingency financing arrangements for pandemic preparedness that may or may not be linked to how countries manage other natural or man-made disasters. There is also risk that health security and pandemic preparedness may get lost in health financing transition that focuses more on financial protection and access to individual services than public goods.

Given the complexity of pandemic preparedness, better understanding of the current financing landscape would enable an informed dialogue on financing gaps and how best they could be filled given domestic and international fiscal constraints. The nature of health security implies that some of the objectives and functions that may be applicable to a generic health financing system would need to be amended to consider some of the unique characteristics of the specific sub-set of activities that constitute health security.

| OBJECTIVES

The objective of this session is to discuss issues on financing health security within the broader context of trends in health and public financing more generally. Specifically, the session will:

- Provide an overview of how to conceptualize and estimate financing for health security, including preparedness, response and recovery;
 - Present and discuss some preliminary findings on health security financing analysis from select countries, including a 10-year evaluation of OIE PVS Pathway and gap analysis to strengthen/finance veterinary services;
 - Examine key domestic policies and interventions to ensure sustainable financing for pandemic preparedness and opportunities for mobilizing domestic and international financing for rapid response.
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| MODERATOR

- **Timothy Grant Evans**, Senior Director, Health, Nutrition and Population Global Practice, The World Bank, United States of America

| PANELIST

- **Ronello Abila**, OIE Subregional Office Representative, World Organisation for Animal Health, Thailand
- **Netsanet Workie**, Senior Health Economist, The World Bank, United States of America
- **Tran Dac Phu**, General Director, General Department of Preventive Medicine, Ministry of Health, Viet Nam
- **Julian Naidoo**, Chief of Party, Wits Health Consortium, South Africa
- **Benjamin Rolfe**, CEO, Asia Pacific Leaders Malaria Alliance, Singapore
- **Eduardo Banzon**, Principal Health Specialist, Asian Development Bank, Philippines
- **Naoko Yamamoto**, Assistant Director-General for Universal Health Coverage and Health Systems Cluster, World Health Organization, Switzerland
- **Stephanie Williams**, Principal Health Specialist, Department of Foreign Affairs and Trade, Australia





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PARALLEL SESSION 1.5

ONE HEALTH ON THE MOVE: NOMADIC COMMUNITIES



| BACKGROUND

Fully dependent on their animals for their livelihood and income, pastoralists employ mobility as a key strategy to ensure the availability of pasture and water for their herds, thus increasing their resilience. While their movement allows them to overcome the vagaries of nature prevalent in the harsh environments they inhabit, their remoteness and often trans-boundary livelihoods have made it challenging to access services and engage in decision-making. Pastoralists are at the forefront of the human, livestock and wildlife interface. They are especially vulnerable to zoonotic diseases, because they live in close contact with their animals and often consume raw milk and meat. Furthermore, changing environmental conditions also affect the availability of pasture for their animals, and in-turn affect their nutrition status.

The animal-human-environment sectors are interconnected and associated with the emergence of infectious diseases such as Middle East Respiratory Syndrome (MERS). Multisectoral approaches such as One Health can help address the challenges at this interface by providing adapted vaccination campaigns and veterinary services to pastoralists.

| OBJECTIVES

- To foster a deeper understanding of the health risks faced by mobile pastoral communities, and the challenges they encounter in accessing animal and human healthcare
- To share examples of interventions and policies that tackle pastoralists' health issues at the animal-human-environment interface
- To promote the participation of pastoral communities in health policy decisions and sanitation campaigns





| MODERATOR

- **Gregorio Velasco**, Coordinator of the Pastoralist Knowledge Hub, Food and Agriculture Organization of the United Nations, Italy

| PANELIST

- **Benon Asimwe**, Associate Professor, Makerere University, Uganda
- **María Teresa Alvarez**, Pastoral representative, Redes Chaco y Pastorámericas, Argentina
- **Taghi Farvar**, Chair, Shahsevan indigenous tribal confederacy, Iran
- **Baldomero Molina Flores**, Specialist in Diagnosis, Surveillance and Control of Zoonotic Diseases, Pan American Health Organization, Brazil
- **Quentin Moreau**, Country Representative, Agronomes et Vétérinaires sans frontières (AVSF), Mongolia
- **A. Lotfi Allal**, Team Leader, Emergency Centre for Transboundary Animal Disease, Food and Agriculture Organization of the United Nations, Egypt





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PLENARY SESSION 2

FUTURES OF PARTNERSHIPS FOR A SAFER WORLD



| BACKGROUND

This plenary is an interactive session that will introduce four core questions, based on the Futures approach, to shape the discourse of partnerships for greater biosecurity in the world. It will begin with an introduction of Futures thinking by Dr. Sohail Inayatullah, UNESCO Chair of Futures Studies and Professor at Tamkang University, Taiwan. Then, the plenary will involve a short discussion on the current state of partnerships or lack of in certain thematic areas, and challenges in forging effective partnerships. It will delve into exploring various futures for partnerships and what effective and inclusive partnerships can achieve to make the world a safer place for all. Attempting to jointly uncover the “unknown unknowns” within a Futures methodology will lead to an innovative approach in organizing an interactive plenary that would hopefully lead to new directions and interesting discussions within the parallel sessions.

| OBJECTIVES

- To jointly envision possible scenarios for the future of partnerships in EID and AMR.
- To generate excitement in creating effective partnerships for a safer world by imagining alternate futures based on Futures techniques. It is envisioned that the novelty of the technique will add to the richness of PMAC and to bring in cross-disciplinary approaches into a Public Health conference.
- To get participants to think creatively in an out-of-the-box manner on working collaboratively together to build greater biosecurity for all.





| MODERATOR

- **Sohail Inayatullah**, Professor, UNESCO CHAIR, TAMKANG, USIM, UNIVERSITY OF MELBOURNE, THE UNIVERSITY OF THE SUNSHINE COAST, Australia

| PANELIST

- **Sania Nishtar**, Co-Chair/President, WHO NCD Global Commission/Heartfile, Pakistan
- **Osman Dar**, Project Director, One Health Project, Centre on Global Health Security, London, United Kingdom
- **Marie-Paule Kieny**, Director of Research, National Institute of Health and Medical Research (Inserm), France
- **Mark Smolinski**, President, Ending Pandemics, United States of America





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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.

¹ 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

- **Dennis Carroll**, Pandemic Influenza and Other Emerging Threats Unit Director, United States Agency for International Development, United States of America
- **Mandeep Dhaliwal**, Director of HIV, Health and Development Team, United Nations Development Programme, United States of America

| PANELIST

- **Ugo Pica-Ciamarra**, Global Coordinator, Africa Sustainable Livestock 2050, Food and Agriculture Organization of the United Nations, Italy
- **Daniel Schar**, Senior Regional Emerging Infectious Diseases Advisor, USAID Regional Office, Thailand
- **Hung Nguyen-Viet**, Regional Representative for East and Southeast Asia & Senior Scientist Ecohealth and Food Safety, International Livestock Research Institute, Viet Nam
- **George Tice**, Senior Director Market Access - EMEA and APAC, Elanco Animal Health, Ireland





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PARALLEL SESSION 2.1

BEYOND MERS AND ZIKA: ARE WE PREPARED FOR THE NEXT BIG EPIDEMIC?



| MODERATOR

- **John Nkengasong**, Director, Africa CDC, United States of America

| PANELIST

- **Ronello Abila**, OIE Subregional Office Representative, World Organisation for Animal Health, Thailand
- **Tran Dac Phu**, General Director, General Department of Preventive Medicine, Ministry of Health, Viet Nam
- **Isabella Ayagah**, IHR Focal Point, Ministry of Health, Kenya
- **Casey Barton Behravesh**, Director, One Health Office, US Centers for Disease Control and Prevention, United States of America
- **Hamid Jafari**, Principal Deputy Director, Center for Global Health, United States Centers for Disease Control (CDC), United States of America
- **Cassandra Kelly-Cirino**, Director of Emerging Threats, FIND, Switzerland
- **Itai Mupanduki**, Public Health Consultant, Independent Consultant, United States of America





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PARALLEL SESSION 2.2

AMR: ADDRESSING EXCESSIVE AND INAPPROPRIATE USE OF ANTIBIOTICS



| BACKGROUND

The tripartite, Food and Agricultural Organization, World Health Organization and World Organization for Animal Health and other relevant organizations had declared Antimicrobial resistance (AMR) a serious and growing global public health threat. The loss of effective antibiotics is reducing an ability to protect people from infectious diseases, with profound impacts on healthcare systems, global trade, agriculture, environment and health sectors. Based on World Bank Group projections of the world economy in 2017-2050, if AMR problems continue at the current pace, the annual global GDP would fall by 1.1-3.8% by 2050 and the global healthcare cost would range from US\$ 300 billion to more than US\$ 1 trillion.

Though AMR is a natural mechanism of pathogen survival; the excessive and inappropriate use of antibiotics are key drivers of the emergence of antimicrobial resistance. Decision to prescribe antibiotics by health professionals still occurs in the absence of adequate information about the nature of the infection or before the results of diagnostic and sensitivity tests become available. Moreover, the regulation of antimicrobial use is poorly enforced in some areas, such as over-the-counter, unregulated use of antibiotic in agriculture, substandard medicines for both human and animal antibiotics.

Several attempts to optimize use of antibiotics in human and animal sectors have shown in the last decade at global, regional and national levels. To fulfill key action proposed by the Global Action Plan, countries need to strengthen the evidence base through surveillances of AMR and the consumption of antimicrobials, and strengthen regulation of the distribution and use of antibiotics in human and animals. The information on AMR and antibiotic consumption will guide the treatment of patients and inform local and national actions. Thus, antibiotic, as a global public good requires regulation on distribution and use.

It is imperative that PMAC audiences recognize the drivers contributing to excessive and inappropriate use of antibiotics; but more importantly, learn and share practical and successful solutions.





| OBJECTIVES

The panelists in this session will address the following questions

On problem streams

1. Why there are excessive and inappropriate use of antibiotics in humans, animals and crops (i.e. in citrus for treatment of greening disease), such as self-medication of antibiotic from over-the-counter purchases, inefficiently regulated the use of antibiotic. Stakeholder analysis are helpful to unpack the complexity. Key actors involved in the use of antibiotics:
 - a) Demand for antibiotics: patients and farmers,
 - b) Supply of antibiotics: pharmaceutical industry, professionals: veterinarians, physicians and pharmacists,

On solution streams

2. What are the good practices and lessons for countries or regional organization such as ECDC and networks such as ESAC and ESVAC, to develop and maintain an effective system for surveillance of AMR, antimicrobial consumption and Point prevalence survey in human, and animal?
3. How evidences of surveillance of antimicrobial consumption are used:
 - a) To guide antibiotic prescribing decisions of health professionals
 - b) To formulate, support and monitor policies which curb down antimicrobial consumption and promote rational use of antibiotics
4. What are the challenges of use of antibiotics in crops? Is there any monitoring system on impacts of antibiotic use in crops, such as antibiotic resistance in food crops and environment, and antibiotic residue in environment and food crops?
5. How does the regulatory system support the control of antibiotic use?


On recommendations

6. What are the policy interventions on “demand” and “supply” sides, which address the excessive and inappropriate use of antibiotics in developing countries?

| MODERATOR

- **Klara Tisocki**, Regional Advisor, World Health Organization, regional Office for South East Asia, Hungary

| PANELIST

- **Otto Cars**, Senior Professor, Founder and senior adviser, ReAct-Action on Antibiotic Resistance, Uppsala University, Sweden
 - **Jonathan Rushton**, Professor, University of Liverpool, United Kingdom
 - **Lilit Ghazaryan**, Deputy director, Scientific Center of Drug and Medical Technology Expertise of Ministry of Health, Armenia
 - **Angkana Sommanustweechai**, Research Fellow, International Health Policy program, Thailand
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PARALLEL SESSION 2.3

**DEALING WITH AN INTER-CONNECTED WORLD: PARTNERSHIPS FOR PREPAREDNESS,
DETECTION AND RESPONSE DURING HIGH VISIBILITY EVENTS**



| BACKGROUND

Mass gatherings are recognised to have the potential to enhance spread of infectious diseases as well as being potential targets for deliberate events. Although both these risks are unlikely, the rise of Zika infection in the run up to the Rio 2016 Olympic and Paralympic Games and Middle East Respiratory Syndrome (MERS) in Saudi Arabia highlighted how these events can create a perceived, if not actual, global health threat and a political as well as health challenge.

The inspiration of this session derives from the next three Olympiads (Winter 2018, Summer 2020 and Winter 2022) being in the western pacific region (S Korea, Japan and China respectively). This session will be based on previous sporting mass gatherings such as the Rio Olympics, the London Olympics, and the World Cup, religious gatherings such as the Hajj, and large state events such as the King's funeral in Thailand. The session aims to share learning and best practices from a biosecurity and terrorism perspective and to explore how such mass gathering events can best be planned to minimise any health risks. Many mass gatherings, especially international sporting events, are organised by what are effectively private sector companies and the relationship between the private and public sector partners is vitally important.

| OBJECTIVES

- To share learning and experience from previous events
- To explore effective risk mitigation strategies
- To examine the health and political interface of mass gatherings, including private sector partners
- To explore how mass gatherings can be used to improve global health security capacity





| MODERATOR

- **Brian McCloskey**, Senior Consulting Fellow, Chatham House, United Kingdom

| PANELIST

- **Tina Endericks**, Director, WHO Collaborating Centre on Mass Gatherings and Global health Security, Public Health England, London, United Kingdom
- **Lucille Blumberg**, Microbiologist, National Institute for Communicable Diseases, South Africa
- **Koji Wada**, Medical Officer, Bureau of International Health Cooperation, National Center for Global Health and Medicine, Japan
- **Nakorn Prensri**, Director of Bureau of Epidemiology, Department of Disease Control, Ministry of Public Health, Thailand
- **Paul Arbon**, Director of the Torrens Resilience Institute, Flinders University, Australia





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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





| MODERATOR

- **Jonna Mazet**, Professor Medicine & Epidemiology, University of California at Davis, United States of America

| PANELIST

- **Saber Yezli**, The Global Centre for Mass Gatherings Medicine, Public Health Directorate, Ministry of Health, Saudi Arabia
- **Thuy Bich Hoang**, Country Program Director, Wildlife Conservation Society, Viet Nam
- **Christine Johnson**, Professor and Researcher, UC Davis, United States of America
- **Evelyn Wesangula**, Coordinator, Global Antibiotic Resistance Partnership, Kenya
- **Katrin Kohl**, Deputy Director Division of Global Migration and Quarantine, Centers for Disease Control and Prevention, United States of America





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PARALLEL SESSION 2.5

REDUCING THE GAP: ADDRESSING NEGLECTED DISEASE; NEGLECTED POPULATIONS



| BACKGROUND


Preventable, endemic diseases are rarely prioritized for surveillance as they do not pose a risk of epidemic or pandemic outbreak. This is a failing on two levels: (1) the presence of preventable diseases acts an indicator of the overall state of the health system; and (2) the knowledge of 'usual' allows for detection of the unusual. Strengthening surveillance and other systems for endemic diseases, infectious or otherwise, provides necessary infrastructure to combat the existing and target the emerging. In addition, most of these subsisting populations live in close proximity with their animals and experience a double burden, disease in their animals and disease in their families and communities. A pro-poor initiative on a massive scale, control of NTDs has much to offer in terms of what can be adapted, innovated and built in low-resource settings most burdened by NTDs in an agenda that makes poverty alleviation its overarching objective and aims to leave no one behind.

The success celebrated for some of the NTDs shows that it is possible to build private-public partnerships that lead to concrete results, such as the Global Partners' Meeting on NTDs based on the theme "Collaborate. Accelerate. Eliminate". This encapsulates an exemplary informal collaboration that marks a 'turning point' in global efforts to control and eliminate poverty-related diseases.

The discussion will center on forging cross-sectoral partnerships to tackle NTDs and "diseases of poverty", and will include a range of elements crucial to an effective collaboration across sectors such as financing, research and development, production and delivery of vaccinations and treatment, disease surveillance, role of local communities and other actors on the field. It will elucidate the incentives of building effective cross-sectoral and public-private partnerships by using the case of NTDs. Lessons may be derived from the NTD experience to other areas requiring cross-sectoral partnerships in health where a population-based intervention is appropriate.

| OBJECTIVES

Marginalized and neglected populations bear the epidemic risk of infectious diseases especially neglected tropical diseases. They are more exposed to disease vectors as well as have less access to effective and timely health care. Without addressing prevention, detection and response among this segment of the population, the world cannot be safe from infectious disease. This session aims to discuss successful examples of cross-sectoral partnerships across human and animal health sectors to tackle "diseases of poverty" including financing, vaccine development, and distribution as well as delivery. It will also address how to target this neglected segment of the population against the threat of infectious diseases. Intervention based approaches through specific diseases can be discussed as well as tackling access and inclusion into the health system through a social determinants approach. Tackling NTDs is addressing the causes of poverty and the pathways to reach the poorest and most vulnerable in society those that will have slower access to universal health coverage and would be a pathway to strengthen health systems, human, animal and environmental.






| MODERATOR

- **Bernadette Abela-Ridder**, Team Leader, Neglected Zoonotic Diseases, World Health Organization, Switzerland
- **Natalie Phaholyothin**, Associate Director, The Rockefeller Foundation, Thailand

| PANELIST

- **Ulrich-Dietmar Madeja**, Executive Director, Global Healthcare Programs, Bayer Pharmaceuticals, Germany
 - **Uzoma Nwankwo**, Senior Medical Officer & Health Economist, Ministry of Health Nigeria, Nigeria
 - **Amila Gunsekera**, Medical Officer in charge of Rabies Treatment, National Hospital of Sri Lanka, Sri Lanka
 - **Harentsoaniaina Rasamoelina Andriamanivo**, Veterinary Epidemiologist, Indian Ocean Commission, Mauritius
 - **Samson Akichem Lokele**, NTD implementer, Lodwar Turkana county, Kenya
 - **Meritxell Donadeu**, International Development Professional and Visiting Research Fellow, University of Melbourne, Australia
 - **Frank Feldhues**, Leading through Vision and Values, IDT Biologika, Germany
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PARALLEL SESSION 3.1
GLOBAL PARTNERSHIPS FOR COUNTRY OUTCOMES



| BACKGROUND

Despite significant scientific and technological advances, as well as ongoing collaborative efforts to prevent, detect, and respond to high-impact diseases associated with emerging infectious or antimicrobial-resistant pathogens, these diseases continue to emerge and pose threats to human and economic security. The underlying causes of their emergence include growing human populations, increasing socioeconomic development, and associated industrialized food production, urbanization, and globalization. Each of these factors in turn results in ever-increasing personal interaction, animal-human interface, and interdependence within and among communities at the local, regional, and global levels. In the context of such an inter-connected world -- with disease drivers ready to multiply and amplify the adverse impacts of emerging infectious or antimicrobial-resistant pathogens -- cross-sectoral collaboration is needed more than ever to facilitate and enhance prevention, detection, and response.

Although the first line of defense in disease prevention and control rests at the country level, pandemics respect no borders. Thus, regional and global cooperation and coordination, with increasing involvement of the private sector and communities, are essential to tackle problems from various angles. Although many multi-sectoral partnerships have to date been initiated with different mechanisms and structures, some partnerships and networks have been used in coordinated manners to manage globally concerning health crises such as the 2014 Ebola epidemic in Africa. It will be valuable to learn from such examples and understand how partners from different sectors were engaged to serve public needs. It will also be beneficial to identify obstacles to and gaps in coordinated action during joint crisis-management efforts and to explore options for improved preparedness and response in the future.

| OBJECTIVES

The objectives of this session are therefore to:

- Discuss the models and platforms that currently exist globally and regionally
- Share findings on the effectiveness of these models and platforms in guiding practice and partnerships
- Identify common needs and bottlenecks that can be practically addressed to establish a more effective and inclusive partnership for management of EIDs and pandemics, as well as AMR





| MODERATOR

- **Katherine bond**, Vice President, International Regulatory Affairs, U.S. Pharmacopeia, United States of America

| PANELIST

- **Tanarak Plipat**, Deputy Director General, Department of Disease Control, Ministry of Public Health, Thailand
- **Emelinda Lopez**, Veterinarian IV, Animal Health and Welfare Division, Bureau of Animal Industry, Philippines
- **Teresa Zakaria**, Health Emergency Officer, World Health Organization, Switzerland
- **Tsunenori Aoki**, Advisor, Japan International Cooperation Agency (JICA), Japan

| SPEAKER

- **Yap Him Hoo**, Director-General & Deputy CEO (Regulatory Programmes & Operations), Agri-Food & Veterinary Authority of Singapore, Singapore
- **John Mackenzie**, Emeritus Professor, Curtin University and One Health Platform, Australia





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PARALLEL SESSION 3.2

LESSONS LEARNED FROM A ONE HEALTH APPROACH TO AMR



| BACKGROUND

Antimicrobial resistance (AMR) is a major threat to global health, the world economy, food safety and food security, and therefore poses a unique challenge to humanity. All countries – regardless of their economic situation, the strength of their health systems or their level of antibiotic consumption – will face disastrous consequences if the spread of AMR is not contained. Global and community solutions are needed to prevent overuse of antibiotics, including development of new vaccines, improved diagnostic tests and, above all, universal access to antibiotics which are affordable and effective against drug-resistant diseases. Antimicrobials also play a significant role in both plant and animal health, and therefore, in global food production. While the important goal of reducing antibiotic usage for growth promotion in animals is increasingly implemented, antibiotics will be needed in maintaining the health of food-producing animals, and the safety of their products.

AMR occurs when disease-causing pathogens (including bacteria, fungi, parasites, or viruses) develop defense mechanisms against the drugs designed to treat them, making these resistant pathogens difficult or even impossible to treat. This resistance is the inevitable result of antimicrobial use and an example of natural selection in practice. The more antimicrobials are used, the less effective they become. Rising levels of AMR are a sign that natural selection is taking place more rapidly than innovation in developing new antimicrobials. If this process is to be reversed, the world must innovate more, but also slow natural selection – by eliminating excess use of all antimicrobials; only using second- and third-level treatments when absolutely necessary; and ensuring appropriate access to treatments.

The importance for countries to develop and implement one health focused national action plans

In line with the Global Action Plan on Antimicrobial Resistance, developed by WHO with participation and endorsement by the OIE and FAO, the development of countries' own National Action Plans (NAPs) on AMR is an essential first step towards establishment of an effective response to combat AMR. At the Sixty-eighth WHA in 2015, Member States committed to have NAPs in place by May 2017. Also in 2015, the OIE World Assembly of Delegates adopted Resolution No 26, committing to development of NAPs in the spirit of "One Health", taking into account the use of antimicrobial in animals and ensuring collaboration with public health officials. In February 2016, WHO, in collaboration with FAO and OIE, developed a manual for developing NAPs on AMR and a set of accompanying tools. The three organizations have been working closely with stakeholders to provide technical support to countries for the effective development of their NAPs.

Sharing Expertise for a Coordinated AMR Response

Ensuring political commitment, engagement and support has been a challenge as understanding of AMR, multisectoral collaboration and the importance of developing and implementing NAPs is still somewhat limited. The identification of best practices in human, animal and plant health continues to play an important role as the world is still learning what works best in particular contexts. WHO is sharing expertise regarding human health and developing communities of practice to support countries with ongoing efforts. Inter-sectoral action, and the complexity of coordination within and across sectors, continues to be a challenge, particularly as countries shift towards NAP implementation.

Global Action Plan for Antimicrobial Resistance

At the Sixty-Eighth World Health Assembly in May 2015, WHO Member States endorsed a global action plan through resolution WHA68.7 to tackle antimicrobial resistance, including antibiotic resistance, the most urgent drug resistance trend.

The AMR global action plan contains five major strategic objectives:

1. to improve awareness and understanding of antimicrobial resistance;
2. to strengthen knowledge through surveillance and research;
3. to reduce the incidence of infection;
4. to optimize the use of antimicrobial agents; and
5. to develop the economic case for sustainable investment that takes account of the needs of all countries, and increase investment in new medicines, diagnostic tools, vaccines and other interventions.

The global action plan, which takes into account the commitment, perspectives and roles of all relevant stakeholders is a plan in which everyone has clear and shared ownership and responsibilities. The endorsement of the plan reflects a global consensus that AMR poses a profound threat to human health.

One Health Approach

Addressing the rising threat of AMR requires a holistic and multisectoral (“One Health”) approach because antimicrobials used to treat various infectious diseases in animals may be the same as or similar to those used in humans. Resistant bacteria arising in humans, animals, plants or the environment may spread from one to the other, and from one country to another. One Health recognizes that the health of humans, animals and ecosystems are interconnected. It involves applying a coordinated, collaborative, multidisciplinary and cross-sectoral approach.

The WHO, FAO and OIE speak with one voice and take collective action to minimize the emergence and spread of AMR. The aim is to:

- Ensure that antimicrobial agents continue to be effective and useful to cure diseases in humans and animals;
- Promote prudent and responsible use of antimicrobial agents;
- Ensure global access to medicines of good quality.

| OBJECTIVES

- To gain a better understanding of how the world can learn from the past 2.5 years of AMR response since the Global Action Plan as we shift from development of AMR strategies towards implementation
- To identify main challenges and successes in implementing national action plans and determine ways to productively move forward





| MODERATOR

- **Martha Gyansa-Lutterodt**, Chief Pharmacist, IACG, Ghana

| PANELIST

- **Juan Lubroth**, Chief Veterinary Officer, Food and Agriculture Organization of the United Nations, Italy
- **Matthew Stone**, Deputy Director General, World Organisation for Animal Health, France
- **Judith Shamian**, Former President, International Council of Nurses, Canada
- **Marc Sprenger**, Director of the AMR Secretariat, World Health Organization, Switzerland





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PARALLEL SESSION 3.3

CLIMATE CHANGE AND EMERGING DISEASES: THE IMPORTANCE OF RESILIENT SOCIETIES



| BACKGROUND


During the long processes of human cultural evolution, population dispersal, and subsequent inter-population contact and conflict, several distinct transitions in human ecology and inter-population interactions have changed profoundly the patterns of infectious disease in human populations. As we move further into the 21st century, the spread and increased lability of infectious diseases, new and old, reflects the impacts of demographic, environmental, technological and other rapid changes in human ecology. Climate change, one of the global environmental changes under way, is anticipated to have a wide range of increased impacts upon the occurrence of infectious diseases affecting human, animal, and plant populations.

Climate and weather patterns affect the distribution and risk of many infectious diseases, including vector-borne diseases such as malaria, Rift Valley fever, plague, encephalitis and dengue fever. Weather patterns also affect the distribution of food- and water-borne diseases and emerging infectious diseases such as West Nile virus, Hantavirus, and Ebola hemorrhagic fever and the sporulation of diseases such as anthrax and other clostridia.

The effect of climate variability on infectious diseases is determined largely by the unique transmission cycle of each pathogen. Transmission cycles that require a vector or non-human host are more susceptible to external environmental influences than those diseases which include only the pathogen and human. Important environmental factors include temperature, altitude, precipitation and humidity. Several possible transmission components include pathogen nature (viral, bacterial, etc.), vector (mosquito, snail, etc.), abiotic physical vehicle (water, soil, etc.), non-human reservoir (mice, deer, etc.), and human host.

Humans are more than passive recipients of climate change-induced health effects. We can play a significant and active role through proactive adaptation and mitigation measures in order to control and alleviate the negative health impacts of climate change. The magnitude of changes in climate variables varies across the globe, posing more challenges and stresses for some groups, societies and populations than others. Given the same magnitude of climate change, some population groups and areas are more vulnerable to the elevated risks due to their lack of the ability and resources to effectively respond to the stresses and challenges, including nutrition, immune status, and access to goods, services, and clean water. Inadequate public policies may be perpetuating the marginalization that increases vulnerability to adverse events or change processes. Given that infectious diseases do not confine themselves within a vulnerable population group, these diseases pose a shared global risk and require a coordinated global effort to reduce their vulnerability to climate change-induced health risks. Importantly, human vulnerability to the changing risks for infectious diseases driven by climate change may be altered through proper adaptation measures. Examples include the continuous evolution of public health programmes, the cyclical re-allocation of financial and health care resources and the pre-emptive alteration of policies following scientific projection of spatial-temporal changes in health risk for human infectious diseases. Early warning systems based on such projections have been proven effective in helping societies take proactive measures to prevent or alleviate the possible health impacts.

| OBJECTIVES

- Explore projected trends in climate change over the 21st century, and their expected impact on infectious disease emergence/re-emergence and AMR
 - Highlight practical, evidence-driven policy and approaches to defining and mitigating human-driven emerging disease risk
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| MODERATOR

- **Douglas Webb**, Team Leader Health and Innovative Financing, United Nation Development Programme, United States of America

| PANELIST

- **Sander Koenraadt**, Assistant Professor Biology and Control of Disease Vectors, Laboratory of Entomology, Wageningen University, Netherlands
 - **Meghnath Dhimal**, Chief/Senior Research Officer, Nepal Health Research Council (NHRC), Government of Nepal, Nepal
 - **Md Iqbal Kabir**, Coordinator, Climate Change & Health Promotion Unit, Ministry of Health & Family Welfare, Bangladesh
 - **Montira Pongsiri**, Senior Research Associate, Planetary Health Science Policy, Cornell University, United States of America
 - **Kristie Ebi**, Professor, Department of Global Health, University of Washington, United States of America
 - **Nicole De Paula**, Executive Director, GLOBAL HEALTH ASIA INSTITUTE, Thailand
 - **Mariana Simoes**, Technical Specialist, Climate Change Adaptation, United Nations Development Programme, Thailand
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PARALLEL SESSION 3.4

**SHIFTING LANDSCAPES - REAL AND FIGURATIVE: UNDERSTANDING HOW ALTERED
LAND USE IS DRIVING DISEASE EMERGENCE**



| BACKGROUND

From urban growth to natural resource extraction and agricultural intensification, anthropogenic land use change is leaving an indelible mark on the planet. Globally, from 2000 – 2012, net forest cover loss totaled 1.5 million square kilometers, 32% of which occurred in tropical rainforest ecosystems. This radical alteration in our natural environment is contributing to an acceleration in the pace and diversity of vector-borne and zoonotic disease emergence, as humans, their livestock, and wildlife are placed into increasingly greater contact. This session will provide a forum for exploration of the mechanics of land use change-associated zoonotic disease emergence and novel, practical solutions to address this challenge.

| OBJECTIVES

- Understanding the various pathways that are transforming landscapes—from agricultural intensification to extractive industries and infrastructure development—as economically driven
- Enhanced understanding of the mechanisms through which land use change enables infectious disease emergence and/or re-emergence, including inter-related factors of biodiversity and human population change dynamics
- Reviewing the data on how various land use scenarios—including fragmentation of wildlife habitats—are linked to both vector-borne and non-vector-borne zoonotic disease transmission dynamics
- Highlighting proven models for addressing land use-associated disease emergence





| MODERATOR

- **Jonathan Epstein**, Vice President, EcoHealth Alliance, United States of America

| SPEAKER

- **Ohnmar Aung**, Project Coordinator, Smithsonian Institution, Myanmar
- **Xianyan Tang**, Asso. Prof., School of Public Health, Guangxi Medical University, China
- **Serge Morand**, Faculty Veterinary Technology, Kasetsart University, Thailand
- **Chadia Wannous**, Coordinator and Senior Advisor, Towards a Safer World Network for Pandemic Preparedness (TASW), Sweden
- **Lilis Heri Mis Cich**, Senior Researcher, Lecturer, University of Indonesia, Indonesia





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PARALLEL SESSION 3.5

POLICY COHERENCE: EFFECTIVE PARTNERSHIPS FOR GLOBAL HEALTH



| BACKGROUND

The 2030 Agenda for Sustainable Development set ambitious health-related targets to “ensure healthy lives and promote well-being for all at all ages” and “strengthen the means of implementation and revitalise the Global Partnerships for Sustainable Development”. To this end, for example, the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases, as well as effectively addressing the threat of emerging infectious zoonotic diseases will require substantial policy coherence and investments. These are critical for the needed health innovations, as well as the development of systems-wide capacities within countries for the necessary measures of “prevention, detection and response”.

While many global efforts have focused on increasing research and development for new health innovations, it is also now clear that there must be a corresponding emphasis on strengthening systems and capacities to deliver the range of needed health services and products. The Ebola outbreak in West Africa was an important reminder of the importance of effective, and continuing, core government functions, within and beyond the health sector. As the global community contemplates responses to address epidemics and infectious diseases, the imperatives for ensuring an integrated approach are clear: effective partnerships are required between the public, private and the community sectors.

This signals a clear need for increased policy coherence, which demands coordination between a broad range of actors; not just between government agencies, private sector and community actors at the national and local levels, but also between those working at the global level, including on innovation, R&D, financing, governance and management. Addressing interconnected elements, and encouraging effective synergies of efforts of stakeholders in the public, private and community sectors, will be critical, not only in effectively addressing infectious and new emerging diseases, but also in helping low- and middle-income countries (LMICs) achieve universal health coverage (UHC) and other health-related targets.





| OBJECTIVES

In this context, the session aims to stimulate a dialogue between key stakeholders with the aim of identifying how public-private-community partnerships (PPCs) can address the needs of LMICs for effective “prevention, detection and response” to the threat of infectious diseases. The aim is to generate recommendations and proposals that can promote effective policy coherence and public-private-community partnerships at all levels. It is proposed that the discussions focus on three key, inter-related elements, as follows:

Policy coherence

- How can cross sectoral, multidisciplinary approaches at the national, regional and global levels be effected and prioritised?
- Which are key factors in facilitating policy, operational delivery environment and effectiveness for such approaches?
- What are relevant experiences and lessons learnt from existing projects and initiatives?
- What are the means to promote adoption of evidenced-based best practices and transferable lessons learned for policy coherence, including South-South approaches and strategies?

Effective partnerships

- What can we learn from existing PPC partnerships in terms of their contribution to the prevention, detection and response to infectious diseases?
- Are there experiences outside the health arena that are transferable?
- How can such partnerships be further strengthened?
- What are the right incentives for collaboration at different levels?
- What are the key considerations for ensuring the sustainability of PPC partnerships?

Evaluation and measuring success

- How can evaluation of PPC partnerships be undertaken?
- How do we measure success; e.g., what should be the matrix of success and effectiveness?
- Can there be evidence-based assessments of investments in innovation and R&D? And their eventual delivery in countries, including best practice, data and knowledge sharing?





| MODERATOR

- **Nadia Rasheed**, Team Leader, HIV, Health & Development, Asia-Pacific, United Nations Development Programme, Thailand

| PANELIST

- **Yodi Mahendradhata**, Vice Dean for Research and Development, Faculty of Medicine, Universitas Gadjah Mada, Indonesia
- **Richard Kock**, Professor of Wildlife Health and Emerging Diseases at the Royal Veterinary College, University of London, United Kingdom
- **Osman Dar**, Project Director, One Health Project, Centre on Global Health Security, London, United Kingdom
- **Chutima Akaleephan**, International Health Policy Program, Ministry of Public Health, Thailand

| SPEAKER

- **Mandeep Dhaliwal**, Director of HIV, Health and Development Team, United Nations Development Programme, United States of America
- **Hayato Urabe**, Director of Investment Strategy, Planning & Management, Global Health Innovative Technology Fund, Japan
- **Chalerm Sak Kittittrakul**, Program Manager, AIDS Access Foundation, Thailand





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PARALLEL SESSION 4.1

**MOVING FORWARD AND OUTWARD: PROGRESS IN IMPLEMENTATION OF GLOBAL
FRAMEWORKS AND INITIATIVES**



| BACKGROUND

Historically, international organizations, academia and others have provided regulations, standards or guidance to the global community (e.g., International Health Regulations, OIE Terrestrial Animal Health Code, and Codex Alimentarius). However, the challenge at all levels (i.e., globally, regionally, nationally and locally) has been in the actual implementation of these regulations, standards or guidance with the available resources and existing infrastructures. In response to requests from national authorities and as a result of breakdowns or delays in global, regional, national and local responses to emergent diseases, the global community has moved forward to develop frameworks and advance initiatives that further support national and local authorities in their efforts to prevent, detect and respond to human, animal and environmental health concerns. Critical to the utility and effectiveness of these frameworks and initiatives is the ability to build synergy among multiple stakeholder efforts and to address the needs of individual countries and communities.

| OBJECTIVES

- To present a selection of global frameworks and initiatives, discuss the challenges and successes in their implementation and draw lessons to build sustainable, inclusive and effective preparedness and response systems.
- To discuss how these different global frameworks may (or may not) build upon each other or provide opportunities for synergies in supporting national and local capacity building efforts.





| MODERATOR

- **Ronello Abila**, OIE Subregional Office Representative, World Organisation for Animal Health, Thailand
- **Julie R. Sinclair**, CDC One Health Liaison to the OIE, World Organisation for Animal Health (OIE), France

| PANELIST

- **John Stratton**, Deputy Head of Regional Activities Department, World Organisation for Animal Health, France
- **Bernadette Abela-Ridder**, Team Leader, Neglected Zoonotic Diseases, World Health Organization, Switzerland
- **Lucille Blumberg**, Microbiologist, National Institute for Communicable Diseases, South Africa
- **Stella Chungong**, Medical Officer, Department of Communicable Disease, Surveillance and Response, World Health Organization, Switzerland





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PARALLEL SESSION 4.2
MULTI-SECTORAL PARTNERSHIPS FOR ACTION ON AMR



| BACKGROUND


Antimicrobial Resistance (AMR) respects no borders and has become an increasing threat to all countries - developed and developing alike. Common infections become untreatable, devastating infectious diseases become much more difficult to contain and standard medical procedures become a challenge. Thus, AMR has a major negative impact on growth and global economic stability. Given the breadth of impact from AMR, the only effective means to address AMR sustainably is through multisectoral action and partnership; however, challenges have been identified as to how stakeholders from different sectors can meaningfully come together to produce action and change. Innovative new approaches are needed to truly harness the potential of all people and perspectives, particularly those most vulnerable.

The UN Sustainable Development Goals (SDGs) recognize the importance of AMR (paragraph 26 of the Declaration). The attainment of many of them will depend on the availability of and access to affordable and effective antimicrobial medicines and other technologies such as diagnostic tests. AMR seriously threatens the health and lives of vulnerable populations, such as newborns, children, and women, as well as sustainable food and agriculture production and a healthy environment. AMR is reducing our ability to protect the health of animals and therefore is threatening safe and sustainable food and agriculture.

In a tripartite approach, WHO, the Food and Agriculture Organization (FAO) and the World Organization for Animal Health (OIE) recognize that addressing health risks at the human-animal-plant-ecosystems interfaces requires strong partnerships among entities that may have different perspectives and much work is currently ongoing.

On 21 September 2016, the President of the UN General Assembly convened a one-day high-level meeting at the UN Headquarters on AMR with the participation of Member States, non-governmental organizations, representatives of civil society, the private sector and academic institutions. The primary objective of the meeting was to summon and maintain strong national, regional and international political commitment in addressing AMR and the meeting emphasized the important role and responsibilities of governments, as well as the roles of non-State actors, the private sector and relevant inter-governmental organizations, particularly the WHO, FAO and OIE in establishing, implementing and sustaining a cooperative global, multi-sectoral and cross-sectoral approach.

| OBJECTIVES

- How can the world come together to meaningfully and effectively address AMR in a sustainable way and in particular, engage non-traditional partners?
 - Multisectoral partnerships have been identified as essential for addressing AMR – how can the world now move from planning to action at both the international and local levels?
 - How does addressing AMR contribute to the attainment of the SDG's? How to effectively engage all relevant sectors: environment, food, employment, poverty reduction, agriculture, development partners, academia, private sector, etc.?
 - How can the voice of all people be heard, particularly those marginalized and most vulnerable?
 - What are the issues and opportunities around ensuring linkage between global and community/country-level partnerships? How can partnerships focus on possibilities for meaningful collaboration, action on the ground and specific problems affecting communities rather than focusing only on the broader policy levels?
 - What are some good practices and lessons learned from past multisectoral collaborations that could be applied to collaborations on AMR?
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| MODERATOR

- **Matthew Stone**, Deputy Director General, World Organisation for Animal Health, France

| PANELIST

- **Maria Lettini**, Director, FAIRR Initiative, United Kingdom
- **Anna Marie Celina Garfin**, National TB Program Manager, Department of Health, Philippines
- **Jaana Husu-Kallio**, Permanent Secretary, Ministry of Agriculture and Forestry, Finland
- **Marc Sprenger**, Director of the AMR Secretariat, World Health Organization, Switzerland
- **Stefano Nobile**, Advocacy Officer and Focal Point for Health and HIV, Caritas Internationalis, Switzerland





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PARALLEL SESSION 4.3

COMMUNITY SYSTEMS: THE BEDROCK OF RESPONSES TO EID AND AMR



| BACKGROUND

Community preparedness and response to emerging infectious diseases (EID) and antimicrobial Resistance (AMR) is critical to the health outcomes of individuals. In HIV, people both living with and affected by HIV have been at the forefront of providing treatment preparedness to promote health-seeking behavior, improve adherence and other health outcomes, whilst advocating for increased availability, accessibility and uptake of key viral load diagnostics as well as 2nd and 3rd line antiretroviral therapy. In Malaria, civil societies work with other stakeholders to address artemisinin resistance in Southeast Asia via educating communities about the hazards of substandard drugs and organizing public awareness campaigns to complete a 3-day treatment course and on measures to prevent further spread of resistant pathogen strains. Similarly in tuberculosis, community-based outpatient treatment of MDR-TB in resource poor settings yield higher cure rates and facilitated better referrals to other health services required by TB affected communities. Furthermore, lessons learned from the early response to Ebola in West Africa have recognised the problem of sidelining community engagement as a key factor contributing to failure of the early emergency health programs to meet the needs and realities confronting affected populations in the region.

Today, prevention, detection and response to EID relies significantly on an effective surveillance system which starts at the community level with effective mechanisms in place to ensure linkage into national level health systems reporting. The Ebola crisis highlights the importance of integrated community case management (iCCM) and the roles of the network of community health workers and community leaders in early and better case reporting, contact tracing and bringing people into care, whilst reducing stigma and discrimination associated with the virus. Community-based control and preventive behaviours for vector control is recognized as a key pillar in disease response and preparedness for Zika and other mosquito-borne diseases. The use of innovative technologies in the response to EID by communities and community health workers contributed to the prompt control of the outbreak by providing a valuable platform for early warning and guiding early actions.

| OBJECTIVES

The session aims to explore community roles in preparedness and response to EID and AMR, concentrating on lessons and approaches deployed in disease-specific programs, such as HIV, TB, Malaria, Ebola and Zika, whilst underscoring the importance of focusing on people, i.e. ensuring that systems for health involve the affected community and promotes community action as part of the overall health system critical for identifying, reporting and responding to emergency health threats.

The session is designed to generate discussions on commonalities and contexts of community action, and to reflect on emerging challenges that still persist in response to EID and AMR from the community perspectives, as well as to identify practical solutions drawing the lessons learned from community responses to the epidemics of HIV, TB, Malaria and to the most recent outbreaks of Ebola and Zika across the globe.





| MODERATOR

- **Rodelyn Marte**, Executive Director, APCASO, Thailand
- **Viorel Soltan**, Team Leader, Country and Community Support for Impact, Stop TB Partnership, Switzerland

| PANELIST

- **Linna Khorn**, Senior Behavior Change Communication Advisor, University Research Co., LLC (URC), Cambodia
 - **Alessandra Nilo**, Executive Director, GESTOS, Brazil
 - **Abdulai Abubakarr Sesay**, National Executive Director, Civil Society Movement Against Tuberculosis Sierra Leone (CISMAT-SL), Sierra Leone
 - **Kannikar Kijtiwatchakul**, Committee member, National Health Security Office, Thailand
 - **Kamalini Lokuge**, Humanitarian Research Program Leader, Australian National University, Australia
 - **Timur Abdullaev**, Board Member, TBpeople, Uzbekistan
 - **Rico Gustav**, Senior Policy Advisor - Sustainability, International Civil Society Support (ICSS), Netherlands
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PARALLEL SESSION 4.4

FINDING THE WIN-WIN SOLUTIONS FOR BETTER HEALTH FROM BETTER FOOD SYSTEMS



| BACKGROUND

The surging global demand for animal source foods and rapid growth rates in livestock and aquaculture production are being met with a range of approaches including both aggressive consolidations of production and marketing chains into intensive, large-scale commercial operations, as well as expansion of extensive, small- and medium-scale production systems. Most current approaches contain inherent vulnerabilities. How can the present food systems be reconfigured to feed the growing human population without leading to unintended health consequences for people, animals and the ecosystem? All the stakeholders in these food systems from production, marketing and consumption need to be actively involved in developing coherent and comprehensive approaches where almost everyone can benefit—i.e. collaborative win-win solutions.

| OBJECTIVES

- Build upon the existing evidence base for the broad collateral benefits realized when longer term investments in shifting production toward reduced impact practices is achieved
- Review cases from the field of how these production shifts were achieved, the methodologies used in measuring the impact realized, and how the impacts were translated into advocacy efforts influencing policy and decision making
- Identify strategies for scaling up these approaches involving the critical stakeholders in a broad range of food systems based on animal production contexts





| MODERATOR

- **Peter Black**, Deputy Regional Manager for the Emergency Center for Transboundary Animal Diseases, Food and Agricultural Organization of the United Nations, Thailand

| SPEAKER

- **Randal Giroux**, Vice-president of food safety, quality and regulatory, Cargill, United States of America
- **Niyada Kiatying-Anngsulee**, Manager, Drug System Monitoring & Development Center, Faculty of Pharmaceutical Sciences, Chulalongkorn University, Thailand
- **Robyn Alders**, Principal Research Fellow, Faculty of Science & Charles Perkins Centre, University of Sydney, Australia
- **Andrey Susanto**, Owner of layer poultry farm, Renaa Farm, Indonesia
- **Lina S. Policarpio**, Head of Technical Services, ASEAN & Asian Growth Markets, Elanco, Philippines





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PARALLEL SESSION 4.5

BRINGING SOLUTIONS INTO FOCUS: HARNESSING THE POWER OF AN ECONOMIC LENS




| BACKGROUND

Beyond the tragic loss of human life, the economic impact attributable to epidemics and pandemics can be catastrophic. SARS, \$30 billion; Pandemic H1N1: \$40 billion; Ebola: \$2.8 billion in the three West African economies alone. Recent estimates place the inclusive costs from a moderately severe influenza pandemic at \$570 billion annually, within the range projected for the annual cost associated with global climate change. And, without intervention, the cumulative economic impact from anti-microbial resistance (AMR) through 2050 is projected to exceed \$100 trillion (two-thirds of which is in low- and middle-income countries), substantially more than current annual global economic output.

Despite a repeated pattern of costly response, the economic case for investing in proactive, preventive measures targeting a reduction in the pressures that facilitate disease emergence has not been widely adopted. A yearly investment of \$1.9-3.4 billion to strengthen animal and human public health systems would yield a global public benefit estimated at over \$30 billion annually through avoided economic damages associated with pandemics. High return on investment is expected even if only a portion of pandemics are prevented, and strengthened One Health capacity in countries may confer additional benefits via improved prevention and control of endemic disease and AMR. However, challenges in mobilizing capital; an anemic evidence base and difficulty in translating evidence into policy advocacy with budget decision-makers; competing priorities for scarce health systems funding; and inequitable distribution of costs and benefits across sectors and stakeholders are all amongst the impediments to adopting the economic case for investing in preventive approaches.

Recent efforts designed to address these challenges have employed a range of approaches. Structures prioritizing risk avoidance and transference are being developed (e.g. multi-sectoral health security planning and capacity investments; epidemic/pandemic insurance structures). Also underway are new models capturing the economic impact of disease emergence as a function of land use, which will enable the disease regulatory role of ecosystems to be fairly valued and incorporated into payment for environmental services frameworks. And global financing structures promoting targeted, multi-sectoral systems strengthening and incentivizing investments in preparedness are being established.

| OBJECTIVES

- Highlight successful practices and approaches that have demonstrated promise in fostering decision making informed by economic analyses;
 - Profile structures with proven utility in transcending the identified challenges, including resource prioritization and inequitable sectoral cost and benefit distribution;
 - Discuss approaches that strengthen the economic evidence base for investments in proactive, preventive disease mitigation approaches; and
 - Review policy and regulatory options, such as tax and incentive structures, that can contribute to a favorable investment environment for more wide scale adoption of risk mitigation approaches
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