

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

Exploring the Frontiers of Innovation to Tackle Microbial Threats
A Workshop

Agenda
DECEMBER 4-5, 2019

National Academies Keck Center
500 Fifth Street NW, Room 100
Washington, DC

Objectives:

This is a 1.5-day public workshop designed to examine the major advancements in scientific, technological, and social innovations that have been taking place to tackle microbial threats, including diagnostics, vaccine development and production, new antimicrobials as well as non-pharmaceutical interventions and surveillance. The workshop will offer particular considerations given to innovations that occur at the human-animal-plant-environment interface and those that are practical and can be implemented in different resource-level settings.

Specifically, this workshop will feature invited presentations and discussions including the following:

- Detection and diagnostic tools that empower end-users and patients to take appropriate action including obtaining early treatment;
- Cutting-edge methods and tools such as advances in predictive modeling, digital platforms, and precision public health, and how to best make use of them in practice;
- Novel innovations that take into account social and behavioral factors related to microbial threats;
- Communication and structural strategies that would help demystify the uptake and increase access of effective innovations to facilitate positive behavior change and strengthen preparedness and response capacities;
- Approaches to leverage data and modeling insights that would be useful for practitioners working on the ground in diverse settings, particularly at the community level;
- Models and indicators that help reveal the extent to which the innovations are “successful”; and
- Effective mechanisms for stimulating meaningful collaboration and communication among various stakeholders, including multilateral organizations, national governments, private sector, and civil society.

Workshop speakers and discussants will contribute perspectives from government, academia, private, and nonprofit sectors.

DAY 1 – WEDNESDAY, December 4, 2019

1:00pm ET

Welcome Remarks

PETER DASZAK, *Chair of the Forum on Microbial Threats*
President
EcoHealth Alliance

Workshop Overview and Goals

KENT KESTER, *Vice-Chair of the Forum on Microbial Threats and Workshop Co-Chair*
Vice President and Head, Translational Science and Biomarkers
Sanofi Pasteur

RAFAEL OBREGON, *Workshop Co-Chair*
Chief, Communication for Development
UNICEF

Keynote Addresses

Applying Lessons Learned from Innovation in Polio Eradication

ANANDA BANDYOPADHYAY
Senior Program Officer
Bill & Melinda Gates Foundation

Advancing Innovation on the Ground in the Fight Against Ebola

JONATHAN TOWNER
Team Lead, Disease Ecology Group
Viral Special Pathogens Branch
Centers for Disease Control and Prevention

Q&A

Session I: Harnessing Lessons from Emerging Scientific, Technological, and Social Innovations

2:00pm

Session I objectives:

- Present case studies on the lessons learned from approaches that have enabled successful innovations for predictive modeling, big data, mHealth, and diagnostic and detection tools

Moderator: Greg Armstrong, Centers for Disease Control and Prevention

The Role of Innovation in the Evolution of Global Vector Control Response

JAN KOLACZINSKI
Coordinator, Entomology and Vector Control Unit
WHO Global Malaria Programme

Applying Modeling to Inform Infectious Disease Surveillance and Outbreak Response
CAROLINE BUCKEE

Associate Director and Associate Professor
Center for Communicable Disease Dynamics, Department of Epidemiology

Unbiased Metagenomics Sequencing to Counter Microbial Threats: Lessons from Bangladesh

SENJUTI SAHA
Scientist
Child Health Research Foundation

Will Process Innovations for HIV Self-testing Impact Health Outcomes at the Community Level?

NITIKA PANT PAI
Associate Professor in the Department of Medicine
McGill University

3:00pm **Q&A**

3:30pm **Break**

**Session II: Overcoming Barriers in the Field
to Bolster Access and Practical Use of Innovations**

- 3:45pm Session II Objectives:
- Elucidate the key barriers and facilitators to implementing innovative approaches that empower end-users and patients, facilitate positive behavior change, and ultimately reduce the health impact of infectious diseases at the community level

Moderator: Eva Harris, University of California, Berkeley

Empowering Health Workers to Improve Immunization Service Delivery through Digital Innovation

COLLINCE OSEWE
Founder and CEO
ChanjoPlus

Translating Data and Modeling Insights into Improved Capacity for Detection and Response
BRIAN BIRD

Research Virologist, One Health Institute
University of California, Davis

Fostering Collaboration and Practical Tools to Enhance Timely Sharing of Data
CAROLINA DOS S. RIBEIRO

Senior Policy Advisor
Centre for Infectious Disease Control, Netherlands

Applying Insights from Behavioral Sciences to Enhance Acceptability and Adoption of Innovations across Diverse Social and Cultural Contexts

FADI MAKKI

Founder

Nudge Lebanon and the Consumer Citizen Lab

4:45pm

Q&A

5:15pm

Observations from Day 1

KENT KESTER, *Vice-Chair of the Forum on Microbial Threats and Workshop Co-Chair*

Vice President and Head, Translational Science and Biomarkers

Sanofi Pasteur

5:30pm

Adjourn

DAY 2 – THURSDAY, December 5, 2019

8:15am

Welcome and Recap Day 1

RAFAEL OBREGON, *Workshop Co-Chair*

Chief, Communication for Development

UNICEF

**Session III: Taking a Systems Approach
to Spur Innovation in Tackling Antimicrobial Resistance**

8:25am

Session III Objectives:

- Explore the key elements of the policy, regulatory, market, and funding environments that can foster innovation in the field to address antimicrobial resistance
- Identify novel strategies to facilitate the mitigation of the burden of antimicrobial resistance through market, regulatory, monitoring, data sharing, and funding mechanisms
- Discuss promising avenues for coordination across systems to advance innovation in antimicrobial resistance

Moderator: Cristina Cassetti, U.S. National Institute of Allergy and Infectious Diseases

Lessons from One Health: Enhancing Animal and Human Surveillance Systems to Bolster Innovation in Antimicrobial Resistance

CHRISTINE KREUDER JOHNSON

Professor of Epidemiology and Ecosystem Health

University of California at Davis

Sparkling Antibiotic Discovery through Data Sharing and Scientific Collaboration

WES KIM

Senior Officer, Antibiotic Resistance Project

The Pew Charitable Trusts

Incentivizing Novel Diagnostic Tests to Counter Antibiotic Resistance

DANIEL BERMAN

Lead

Longitude Prize

Strengthening Health Systems to Overcome Market and Regulatory Barriers to Innovation on Antimicrobial Resistance

JYOTI JOSHI

Head of South Asia

Center for Disease Dynamics, Economics and Policy

9:20am **Q&A**

9:50am **Break**

Session IV: Translating Innovation into Convergent Action

- 10:05am Session IV - Part A: Overcoming Barriers and Forging Partnerships - Objectives:
- Discuss novel strategies to enhance existing or stimulate new cross-sectoral collaborations and public-private partnerships
 - Identify promising approaches to ensure the sustainability of innovative interventions

Moderator: Alan Tennenberg, Johnson & Johnson Global Public Health

Panel: Breaking Down the Barriers and Fostering New Forms of Partnership to Enable Innovation

MATTHEW HEPBURN

Joint Product Lead

U.S. Army

RAHIMA DOSANI

Global Health Market Access Advisor, Center for Innovation and Impact

USAID

RAJEEV VENKAYYA

President

Global Vaccine Unit, Takeda Pharmaceuticals

11:15am **Q&A**

12:00pm **Lunch**

WORKSHOP ON EXPLORING THE FRONTIERS OF INNOVATION TO TACKLE MICROBIAL THREATS

1:00pm

Session IV - Part B: Incubating Action through Novel Ecosystems - Objectives:

- Examine novel ecosystems and hubs that nurture companies to accelerate research and development against microbial threats
- Discuss the key environmental features of novel ecosystems that enable innovations to tackle microbial threats

Moderator: Rick Bright, Biomedical Advanced Research and Development Authority

Panel: Nurturing Innovations to Accelerate Research and Development through Novel Ecosystems

SABRINA WELSH

Director of Programs and Operations

Human Vaccines Project

MAURIZIO VECCHIONE

Executive Vice President of Global Good and Research

Intellectual Ventures

SALLY ALLAIN

Head

JLABS

RANGA SAMPATH

Chief Scientific Officer

Foundation for Innovative New Diagnostics (FINN)

2:00pm

Q&A

2:45pm

Break

3:00pm

Visionary Statements on Priorities for Innovation

Moderator: Marcos Espinal, Pan American Health Organization

JULIO CRODA

Chief, Department of Communicable Diseases

Secretary of Health Surveillance, Brazil

CARRIE TEICHER

Director of Programs

Doctors without Borders/Médecins Sans Frontières

LORI BURROWS

Associate Director

Michael De Groote Institute of Infectious Disease Research

PETER SANDS

Executive Director

WORKSHOP ON EXPLORING THE FRONTIERS OF INNOVATION TO TACKLE MICROBIAL THREATS

The Global Fund to Fight AIDS, Tuberculosis and Malaria

3:30pm **Final Synthesis and Discussion with Audience**

4:10pm **Closing Remarks**

KENT KESTER, *Vice-Chair of the Forum on Microbial Threats and Workshop Co-Chair*
Vice President and Head, Translational Science and Biomarkers
Sanofi Pasteur

PETER DASZAK, *Chair of the Forum on Microbial Threats*
President
EcoHealth Alliance

4:30pm **Adjourn**