READINESS FOR EMERGING INFECTIOUS DISEASE OUTBREAKS

Public–private partnerships to advance rapid availability of medical countermeasures

As recent disease outbreaks have shown, our national health security is increasingly tied to global health security. Yet, it can be extremely challenging to establish strong, sustained public and private investment to develop medical countermeasures (MCMs) to prevent and mitigate health effects before an emerging infectious disease becomes a public health emergency in the United States and worldwide.

Participants at a workshop of the Institute of Medicine, a division of the National Academies of Sciences, Engineering, and Medicine, discussed the importance of public–private partnerships in funding rapid creation of MCMs. Their thoughts on the current challenges and potential opportunities for improvement are below.

WHAT ARE SOME CURRENT CHALLENGES IN RAPID DEVELOPMENT OF MCMs?

In recent years, FUNDING for MCM development in the public sector has continually decreased.

WHAT ARE SOME OPPORTUNITIES FOR IMPROVEMENT?

Improving business market opportunity, like long-term contracts for product development, manufacturing, and procurement.

- **Daniel Abdun-Nabi,** *Emergent BioSolutions*

Involving economists and global risk analysts to better understand and convey the impacts of inaction.

- **John Rex,** *AstraZeneca*

Providing multiyear federal appropriations to prevent delays in or termination of viable pharmaceutical development.

- **David Vaughn,** *GSK Vaccines*

Establishing clear development paths and funding for small companies to spread costs and risk.

- **Wouter Latour,** *Vaxart*

Many opportunities have been identified within MCM RESEARCH & DEVELOPMENT, but sufficient support of these initiatives could assist in more realized and sustainable progress.

WHAT ARE SOME OPPORTUNITIES FOR IMPROVEMENT?

Developing multi-target drug platforms that could be used for more than one infectious disease and use resources more efficiently.

- **Mark Feinberg,** *Merck & Co., Inc.*

Having an orphan drug–type[1] incentive to encourage development of MCM for uncommon infectious diseases.

- **Robert Garry,** *Tulane University*

Using animal and human data to identify an immune marker that can predict protection in vaccines can help accelerate regulatory approval.

- **Marion Gruber,** *FDA*

Having Phase III–ready[2] assets available, even without licensure, to cut the time needed to deploy approved vaccines.

- **Joseph Larsen,** *BARDA*

Augmenting investment in diagnostics can be key to global capacity building for emerging infectious disease response.

- **Andrew Weber,** *U.S. Department of State*

[1]An orphan drug is defined as a drug intended to treat a condition affecting fewer than 200,000 persons in the United States, or which will not be profitable within 7 years following approval by the FDA. For more, see http://www.fda.gov/downloads/Drugs/DevelopmentApprovalProcess/SmallBusinessAssistance/UCM311928.pdf

[2]According to the NIH, Phase III clinical trials are designed so the drug or treatment is given to large groups of people to confirm its effectiveness, monitor side effects, compare it to commonly used treatments, and collect information that will allow the drug or treatment to be used safely. For more, see https://www.nlm.nih.gov/services/ctphases.html

Prior to and during a public health emergency, lacking COMMUNICATION between the government and private partners can create gaps in information and challenges in presenting aligned needs and costs to the public.

WHAT ARE SOME OPPORTUNITIES FOR IMPROVEMENT?

Developing clearer language for communicating with the public about vaccines and treatments for emerging infectious diseases.

- **Jeremy Farrar,** *Wellcome Trust*

Ensuring that the public understands that there is currently not a sufficient pipeline for MCMs ready to respond quickly to an array of threats.

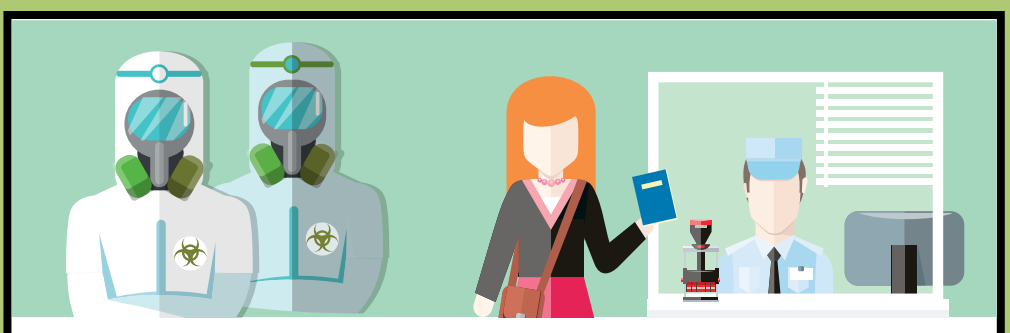
- **Monique Mansoura,** *Novartis Vaccines and Diagnostics Inc.*

Engaging the media to increase public understanding of the cost of inaction and the need for MCM vaccines to sustain the national funding base.

- **Peter Daszak,** *EcoHealth Alliance*

Increasing communication and coordination around sharing risk and cost between government and industry partners.

- **Rajeev Venkayya,** *Takeda Pharmaceuticals*



Often public health emergencies are not deemed issues of NATIONAL SECURITY; however, they can still have national security implications.

WHAT ARE SOME OPPORTUNITIES FOR IMPROVEMENT?

Promoting better public understanding of the social, economic, and behavioral risks of emerging infectious diseases can help make the connection to national security.

- **Michael Osterholm,** *CIDRAP, University of Minnesota*

Prioritizing top emerging infectious disease threats to ensure coordination amongst national resource and labor distribution would help to properly address identified threats.

- **Robin Robinson,** *BARDA*

Establishing a cabinet-level power for public health, such as a seat at the National Security Council, that can obtain resources from both governmental entities and private industries, could help create a higher profile for public health.

- **Tara O'Toole,** *In-Q-Tel*

Focusing more proactive efforts during inter-epidemic periods to build sustainable progress, instead of reacting to each individual emergency.

- **Gerald Parker,** *Texas A&M Health Science Center*

WHAT IS THE COST OF INACTION?

FINANCIAL COST OF SARS TO GLOBAL ECONOMY IN 2003: $40 BILLION

Sidorenko, A. A., and W. J. McKibbin. 2009. *What a flu pandemic could cost the world.* Washington, DC: The Brookings Institution.

FINANCIAL COST OF EBOLA TO WEST AFRICAN ECONOMIES IN 2014: $32 BILLION BY END OF 2015

World Bank. 2014. *Update on the economic impact of the 2014 Ebola epidemic on Liberia, Sierra Leone, and Guinea.* Washington, DC: World Bank Group.

PROJECTED COST OF A MODERATE FLU PANDEMIC: MORE THAN $1 TRILLION

Burns, A., D. van der Mensbrugghe, and H. Timmer. 2006. *Evaluating the economic consequences of avian influenza.* Washington, DC: World Bank.

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