

The Challenge of Epidemics

Epidemics of emerging infectious diseases are a significant and growing threat to life, health and prosperity. They can arise anywhere at any time, and in a world of denser cities, increased mobility and ecological change, their disruptive impact is increasing. They are among the most pressing health security issues that the world faces today.

Recent outbreaks, such as Ebola and SARS, have claimed thousands of lives and cost billions of dollars, both to countries that were directly affected and those that contributed to responding. Ongoing outbreaks of Zika will pose devastating health and economic impacts for years to come.

All these events have exposed serious flaws in the world's capacity to prepare for epidemics, and to react when they strike. The time is right for action.

The Role of Vaccines

A suite of public health capacities and global health reforms are needed to increase the world's resilience and capacity to prepare, detect and respond to epidemic threats. In addition, we need the tool set that better biomedical countermeasures can offer. Vaccines can play a critical role in containing epidemics to help avert humanitarian crises, but the safe and effective vaccines we need aren't being developed quickly enough. The risks and costs of development, always significant, are especially great for epidemic diseases. Outbreaks come and go, and hit poor people the hardest. Trials are particularly complex to conduct, and market potential is often limited. When a vaccine is developed, complex regulations and laws that vary from country to country can delay getting vaccines to people who desperately need them.

Ebola demonstrated that epidemic vaccines can be developed swiftly, even in extremely challenging conditions. Trials that normally take years were done within months. But this achievement was possible only because viable candidates were already in the pipeline, and the gravity of the crisis forged ad-hoc partnerships between the private, public and philanthropic sectors, who each took on unusual, unsustainable and unrepeatable risks. And even this unprecedented speed was too slow. Candidate vaccines had not been tested for safety in advance, delaying efficacy trials. By the time anybody in West Africa could be vaccinated, the epidemic was waning, and many people who might have been protected had died.

Even this limited success will be difficult to replicate. The vaccine pipeline is weak for most epidemic threats, and developers are unlikely to take on similar risks a second time around. We need a system that will advance vaccine candidates as far as possible before epidemics emerge, and then run efficacy trials immediately when they do.

CEPI – the Coalition for Epidemic Preparedness Innovations – will provide that new system. It will tackle the barriers to epidemic vaccine development, advancing safe, effective and affordable vaccines that can help to contain outbreaks at the earliest possible stage. It will give us the joint global insurance policy we need, helping the populations most at risk and making us all safer.

A Global Mandate

Ebola exposed the need for a global mechanism to coordinate research and development for health technologies (diagnostics, vaccines and medicines) against epidemic threats. Discussions began in March 2015 with an expert meeting in Berlin, convened by Chancellor Merkel as part of G7 discussions and chaired by Bill Gates. Four high level expert assessments of the Ebola response then reached a common conclusion that the current system is broken.¹

In response to this clear mandate, stakeholders from international organisations, governments, the pharmaceutical industry, public and philanthropic R&D funders, academia, NGOs and civil society groups agreed at the 2016 World Economic Forum Annual Meeting in Davos to explore new ways to drive vaccine innovation for priority public health threats, in alignment with the WHO R&D Blueprint for action to prevent epidemics. This initiative is CEPI – the Coalition for Epidemic Preparedness Innovations.

Vision

Vaccines contributing to preventing outbreaks of emerging infectious disease from becoming humanitarian crises.

Approach

CEPI will build a new system to advance the development of safe, effective and affordable vaccines, offering the world an insurance policy against the growing threat from emerging infectious diseases. CEPI will be a partnership of public, private, philanthropic and civil organisations to stimulate, finance and co-ordinate vaccine development against priority threats, particularly when development is unlikely to occur through market incentives alone.

CEPI will pursue a proactive (just-in-case) and accelerated (just-in-time) vaccine development strategy for epidemic threats by:

- Moving vaccine candidates through late preclinical studies to proof of concept and safety in humans before epidemics begin, so that larger effectiveness trials can begin swiftly in an outbreak and small stockpiles are ready for potential emergency use;
- Building technical platforms and institutional capacities that can be rapidly deployed against new and unknown pathogens.

¹ WHO Ebola Interim Assessment Panel, Harvard-LSHTM Independent Panel, US National Academy of Medicine and the UN Secretary General's High Level Panel

Governance

CEPI is in start-up phase until the end of 2017. During this period, an interim Secretariat provided by the Government of Norway is coordinating CEPI activity with close support from the Government of India, Wellcome Trust, the Bill & Melinda Gates Foundation, and the World Economic Forum.

John-Arne Røttingen, from the Norwegian Institute of Public Health, was appointed interim Chief Executive Officer of CEPI in June 2016. The Interim Board, with representatives from founding partners, industry, governments and non-governmental organisations, had its first meeting in London on 31 August, 2016. Its Chair is K. VijayRaghavan, Secretary of the Department of Biotechnology of India, and its Deputy Chair is Peter Piot, Director of the London School of Hygiene and Tropical Medicine.

Next Steps

- Formalize interim governance and plan for permanent arrangements
- Discuss business plan with potential CEPI partners
- Explore the CEPI concept with G7 and G20 countries and with UN member states
- Broaden advocacy and secure initial funding commitments for launch at the World Economic Forum Annual Meeting in Davos in January 2017
- Plan for first round of investments and request for proposals.

A Scientific Advisory Committee advises the board and the secretariat on pathogen priorities and selection of programmes and projects. A Joint Coordination Group will integrate vaccine development efforts with affiliated CEPI partners and stakeholders to ensure regulatory approval and access to populations in need.

CEPI is actively seeking partnerships with governments, potential funders, industry partners, regulators, and civil society organisations with an interest in building a proactive and accelerated approach to vaccine development and delivery. For further information, please contact the interim Secretariat via info@cepi.net.

Key Dates

- **10 September, 2016** - G7 Health Minister's Meeting Side Event (Kobe, Japan)
- **19 September, 2016** - UN General Assembly Side Event on Health Emergencies (New York City, USA)
- **10 October, 2016** - Panel discussion at the World Health Summit (Berlin, Germany)
- **21 October, 2016** - First Scientific Advisory Committee Meeting (New York, USA)
- **18 November, 2016** - First meeting of Joint Coordination Group (Geneva, Switzerland)
- **16 December, 2016** - Second Interim Board Meeting (Dehli, India)
- **17-20 January, 2017** - Partnership Launch at the World Economic Forum Annual Meeting (Davos, Switzerland)

Board Members

K. Vijay Raghavan (Chair)	Department of Biotechnology, India	Yah Zolia	Ministry of Health and Social Welfare, Liberia
Peter Piot (Vice Chair)	London School of Hygiene and Tropical Medicine	Kesetebirhan Admasu	Ministry of Health, Ethiopia
Jane Halton	Department of Finance, Australia	Victor Dzau	National Academy of Sciences
Christopher Whitty	Department of Health, UK	Nima Farzan	PaxVax Inc.
Ruxundra Draghia-Akli	European Commission	Adar Poonawalla	Serum Institute of India
Moncef Slaoui	GlaxoSmithKline	Trevor Mundel	Bill and Melinda Gates Foundation
Joanne Liu	Medecins sans Frontieres	Jeremy Farrar	Wellcome Trust
Julie Gerberding	Merck	Arnaud Bernaert	World Economic Forum
Tore Godal	Ministry of Foreign Affairs, Norway		

Observers

Mark Feinberg (Chair, Scientific Advisory Committee)	International AIDS Vaccine Initiative
Margaret Hamburg (Chair, Joint Coordination Group)	National Academy of Sciences
John-Arne Røttingen	Coalition for Epidemic Preparedness Innovations
Marie-Paule Kieny	World Health Organization
Nicole Lurie	Dept. of Health and Human Services, USA (serving in a liaison position)

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