The Coalition for Epidemic Preparedness and Innovations:

Driving progress towards epidemic preparedness and response

Dimitrios Gouglas, Portfolio Manager, CEPI
Global Health & Innovation Conference, 13 April 2019
Yale University, New Haven, USA
Overview

Global health challenges CEPI was established to address

CEPI achievements to date

Priorities for funding and coordination in the coming years
Global impact of epidemics:
Ebola, West Africa 2014-16

11,000+
Deaths

$53 bn

The world has been shaken by the emergence and spread of new viral diseases
A paradigm shift, challenges notwithstanding

- R&D coordination lags behind epidemic curves
- R&D priorities driven by national security concerns
- R&D of biomedical countermeasures unappealing for manufacturers who see little commercial potential
- Yet, Ebola shows a pathway for better preparedness against future epidemics
The formation of CEPI

<table>
<thead>
<tr>
<th>2015</th>
<th>Jan 2016</th>
<th>May/June 2016</th>
<th>Sep 2016</th>
<th>Jan 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inception phase</strong></td>
<td><strong>Startup phase</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Leaders explore new ways to drive product innovation for EIDs**

- Inspired by a call for a new vaccine fund, global thought leaders from governments, industry, and civil society meet at the 2016 World Economic Forum in Davos, and agree to explore new ways to drive product innovation for high-priority epidemic threats.

- Three task teams convene to define solutions for EID vaccines.

**Institutions take action**

- The World Bank establishes the Pandemic Emergency Finance Facility (PEF) to quickly release funds to affected countries for epidemic responses.

- The WHO publishes a R&D Blueprint for EID preparedness & response, identifying 11 pathogens with potential to cause severe outbreaks in the near term.

**Experts recommend a sustainable financing & coordination mechanism**

- Task teams conclude recommendations on pathogen prioritisation, clinical development, manufacturing capacity, regulatory pathways, product development partnership model, and funding strategies.

- Task team recommendations lead to the formation of CEPI and launch of first Business Plan.

**CEPI is formally launched**

- CEPI formally launched at the 2017 World Economic Forum in Davos, with close to US$500 million initial funding from the Governments of Norway, Japan, and Germany, the Bill & Melinda Gates Foundation, and the Wellcome Trust.

- A coalition by design, CEPI reflects an awareness that no organisation can drive EID vaccine development alone.
Our strategic objectives

**Preparedness**
Advance access to safe and effective vaccines against emerging infectious diseases

**Response**
Accelerate the research, development and use of vaccines during outbreaks

**Sustainability**
Create durable and equitable solutions for outbreak response capacity
A sustainable partnership

CEPI's role as a facilitator

CEPI's role as a funder

1. DISCOVERY
2. DEVELOPMENT / LICENSURE
3. MANUFACTURE
4. DELIVERY / STOCKPILING
5. LAST MILE
CEPI’s initial priority pathogens

- MERS
- Lassa
- Nipah
- Chikungunya
- Rift Valley fever
- Disease X
Funding for EID vaccines and rapid response technology platforms

As of March 2019, over $750 million secured to support CEPI’s mission

- **Canada**: CA$ 14 m
- **Australia**: AU$ 6.5 m
- **Belgium**: €0.5 m
- **UK**: £10 m
- **Wellcome Trust**: US$ 100 m
- **Gates Foundation**: US$ 100 m
- **Germany**: €90 m
- **Norway**: NOK 1.6 b
- **Japan**: US$ 125 m

**Calls for proposals**

**CfP1**
- Just in case vaccines: MERS, Lassa, Nipah
- >30 proposals from academics, industry, PDPs across North America, Europe, Africa, Middle East, South East Asia and Australia

**CfP2**
- Just in time vaccines: rapid response platforms
- Diverse range of >30 platform proposals to improve epidemic outbreak response through rapid vaccine development should unexpected pathogen emerge

**CfP3**
- Just in case vaccines: Chikungunya and Rift Valley fever
- 15 proposals including vaccine candidates already in clinical phases of development

• Assays and standards for improved epidemic response
CEPI is building a portfolio of vaccine candidates and platform technologies for multiple pathogens.

### Platforms:
- Preclinical - Phase I
  - Imperial C. RNA
  - CureVac mRNA
  - Queensland U. Molecular Clamp
- Just-in-case vaccines: late preclinical to Phase II and stockpile
  - IAVI rVSVΔG Measles Vector
  - Emergent rVSVNC4ΔG Measles Vector
  - Themis Measles Vector
  - Themis Measles Vector
  - UOXF/J ChAdOx1
  - UOXF/J ChAdOx1
  - Inovio DNA
  - IDT MVA
  - Profectus Subunit
  - Tokyo Uni. Measles Vector

### Sustainability
- Risk sharing agreements

### Coalition Approach
- Coalition approach to vaccine development fostered through the Joint Coordination Group, by:
  - Optimising allocation of resources across disease areas and vaccine development
  - Minimising funding overlap with partners
  - Improving response times to unexpected epidemic threats

### Funding
- $350 million already committed
Future challenges

**Vaccine Development**
- Lengthy
- Risky
- Costly

**Portfolio Management**
- Successful Progression
- Pathogen & Product Diversification

**Effective Coordination**
- Between industry, global health and civil society institutions to determine public health needs & sustainable manufacturing solutions for key diseases

Guidance from regulators to iron out technical and regulatory pathways for feasible development
Conclusions

• 4 years after the 2014–15 Ebola outbreak in west Africa, EIDs remain a major threat to global health security

• Thanks to partnership efforts 12 vaccine candidates are under development, some of which may meet requirements for stockpiling and outbreak response use

• Development of 3 rapid response platform technologies for other threatening EIDs has been initiated

• Portfolio diversification anticipated in 2019/20 through new funding opportunities on just-in-case vaccines and on rapid response technology platforms

• Ultimately, CEPI’s success depends on strength of coalition’s collaborative efforts to develop effective EID vaccines and to ensure equitable access to these in health emergencies
Acknowledgments

• Our **founding partners**: Governments of Norway and India; the Wellcome Trust; the Bill & Melinda Gates Foundation; World Economic Forum

• The **over 200 experts and institutional champions** that helped form CEPI (https://www.nejm.org/doi/full/10.1056/NEJMp1613577)

• Our **funders**: European Commission; Governments of Norway, Japan, Germany, UK, Canada, Australia, and Belgium; Bill & Melinda Gates Foundation; Wellcome Trust

• Our key **partners in the Joint Coordination Group**: WHO; GAVI; EMA; FDA; MSF; UNICEF; IFRC; AVAREF; NIBSC; Wellcome Trust

• Our **Board** (https://cepi.net/news_cepi/cepi-announces-new-permanent-board/)

• Our **Scientific Advisory Committee** (https://cepi.net/about/whoweare/)

• Our **executive leadership and colleagues** at the CEPI Secretariat