Preparing for the inevitable

ZIKA update

Bernadette Murgue and the R&D Blueprint, Zika team
Isolation from monkey and mosquito

1st confirmed human infections (Africa and Asia)

1st recorded urban outbreak (Yap)

1st report of GBS (French Polynesia)

1st report of Microcephaly (Brazil)
Time series and cartography of reported Zika virus and microcephaly cases in Brazil

2015

- April: Zika virus detected
- Aug – Sept: Increased awareness of neonates with microcephaly
- October: Beginning of investigation
- 11th Nov: Declaration of National PHE

2016

1st Feb 2016: PHEIC, WHO
Countries with Zika Virus (1947-2016)

Steady increase in 2015-2016
Preparing for the inevitable

A Blueprint for research & development

Action to prevent epidemics

David Wood on behalf of the WHO R&D Blueprint Team
An R&D Blueprint for action to prevent epidemics

In May 2015, the Sixty-Eighth World Health Assembly “...welcomed the development of a blueprint, in consultation with Member States and relevant stakeholders, for accelerating research and development in epidemics or health emergency situations where there are no, or insufficient, preventive, and curative solutions, taking into account other relevant work streams within WHO”.

At the request of its 194 Member States, WHO has convened a broad global coalition to develop the Blueprint as a sustainable platform for accelerated R&D.
Human Impact of Global Outbreaks

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<th># of people</th>
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<td>Ebola in West Africa</td>
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<td>SARS in East Asia</td>
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Reported Cases

Deaths

Estimated economic impact of global outbreaks

- SARS in East Asia: $30B
- Expected Annual Losses from the Global Economy: $54B
- Ebola in West Africa: $2.7B

*Figures are in USD*
Health research and development spending

Source: Burrill Report & Policy Cures 2013
WHO’s role in R&D during Ebola epidemic: the example of vaccines

Collaborative efforts, adaptation of the traditional R&D model, compressed timeframes and, unprecedented partnerships formed
The vision the Blueprint is a world in which our R&D response to PHEIC caused by emerging pathogens is faster and more effective than ever before and in which there is a continuous effort to accelerate the results of research adapted to the scientific, logistical and social challenges that are specific to epidemics.

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<td>1</td>
<td>An inclusive process with a clear mandate and milestones</td>
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<td>Building on the efforts of others</td>
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<td>3</td>
<td>A collaborative effort with the Member States in the affected countries at the core</td>
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<td>4</td>
<td>Driven by scientific knowledge</td>
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What would success look like?

The Blueprint aims to reduce the time between the declaration of an international public health emergency and the availability of effective tests, vaccines and medicines that can be used to save lives and avert crisis.

The R&D Blueprint seeks to create an enabling environment through which all actors, through increased funding, data sharing and partnerships, can drive change in the public health landscape to provide an elevated level of global impact.

This new environment will help reduce the time it takes for new medical technologies to reach developing countries in a public health crisis.
The R&D Blueprint is a global strategy and preparedness plan. The Blueprint is both a convening mechanism and an instrument to articulate technical guidance for R&D preparedness.

WHO aims to develop innovative ways of promoting R&D preparedness for priority pathogens, for low and middle income countries in particular.

WHO would facilitate the development of necessary mechanisms to improve coordination and increase funding for critical R&D activities for prioritised pathogens.

The global health community, pharmaceutical & biotechnical companies, product development partnerships, national governments, the populations in developing countries, must and can work together to increase investment in R&D for appropriate medical technologies, ensuring their affordability and availability to the populations in need by using innovative coordination and funding mechanisms.

These efforts would catalyze global changes, provoking greater coordination and increasing medical technologies available to treat infectious disease. The net impact would be faster and more effective responses to public health emergencies across the globe.
The R&D Blueprint represents WHO’s new start for a better R&D preparedness.

The current lack of R&D preparedness is a problem that can be solved.

Let’s solve it together.
From five initial work streams to three main approaches

Before May 2016

1. Prioritization of Pathogens
2. Identification of research priorities
3. Coordination of stakeholders & expansion of capacity
4. Assessment of preparedness & impact of interventions
5. Development of innovative funding options

After May 2016

A. Improving coordination & fostering an enabling environment
B. Accelerating Research & Development processes
C. Developing new norms and standards adapted to the epidemic context
These 3 approaches are aligned with:

- the lessons learned during the 2014–2016 Ebola epidemic and
- the recommendations of the various reviews on the Ebola epidemic conducted to date
Expert group’s demands to WHO for R&D preparedness for pandemic diseases

In the wake of the 2014-15 Ebola outbreak, various reports on how to avert similar crises in the future were published, addressing among other things the question of how to improve R&D preparedness and response. Excerpts of some of the proposed actions are presented below.

The **Ebola Interim Assessment Panel** recommends “WHO should play a central convening role in research and development efforts in future emergencies, including the acceleration of the development of appropriate diagnostics, vaccines, therapeutics and medical and information technology”.

The **High-level Panel on the Global Response to Health Crises** recommends that “…WHO oversees the establishment and management of an international fund” to support R&D efforts for prioritized pathogens.

The **Commission on a Global Health Risk Framework for the Future** sees WHO in a leading role in galvanizing R&D for pandemic preparedness through the creation of a Pandemic Product Development Committee.

The **Independent Panel on the Global Response to Ebola**, a group of 19 experts convened by the London School of Hygiene & Tropical Medicine (LSHTM) and the Harvard Global Health Institute, published a set of ten recommendations, calling among other things for WHO to assist in establishing “a global fund to finance, accelerate and prioritize R&D”.


Ebola: R&D response

1st Dx-PCR

Funds

Research Response in West Africa

1st Drug trial
1st CP use

1st Vx trial

P3 Ring Vx

Next time...
Main activities for the R&D Blueprint: Turning the lessons learned into actions to be better prepared
Approaches currently being used to improve preparedness under the R&D Blueprint.

**A  Improving coordination & fostering an enabling environment**
1. Building an effective governance & coordination framework
2. Outlining innovative transparent and aligned funding processes
3. Encouraging effective communication

**B  Accelerating Research & Development processes**
1. Assessing epidemic threat & defining priority pathogens
2. Developing R&D roadmaps to accelerate evaluation of diagnostics, therapeutics & vaccines
3. Outlining appropriate regulatory & ethical pathways

**C  Developing new norms and standards adapted to the epidemic context**
1. Supporting expansion of capacity to implement adequate study designs
2. Developing guidance & tools to frame collaborations and exchanges
3. Anticipating evidence needs to inform regulatory review and policy development
The initial list of disease priorities needing urgent R&D attention comprises: Crimean Congo haemorrhagic fever, Ebola virus disease and Marburg, Lassa fever, MERS and SARS coronavirus diseases, Nipah and Rift Valley fever. Chikungunya, severe fever with thrombocytopenia syndrome, and Zika designated as "serious". The list will be reviewed annually or when new diseases emerge.
Development of R&D Roadmaps for priority pathogens

Roadmaps as a Vehicle for Addressing Large-Scale Public Health Challenges
Thank you