Response to the outbreak of Ebola:

Overview and Perspectives from WHO

IPFA/BCA Global Symposium on
"The Future for Blood and Plasma Donations"
29 September 2015, Fort Worth/Dallas, USA

World Health Organization

Initial challenges (Ebola R&D)

To compress the usual timeline for unproven interventions from years to months, by working in parallel on:

Development

Testing

Licensure

Use

From August 2014 onwards: Gathering and disseminating knowledge

- From August 2014, WHO held a series of consultations with key international experts and stakeholders to identify potential therapeutic or preventive solutions for Ebola
- Based on concerted expert advice, **WHO prioritized a number of products** for further investigation through human testing:

- two candidate vaccines
- a shortlist of antiviral drugs
- convalescent whole blood and plasma
- rapid point-of-care diagnostics

Three Funded CP Studies

Ebola_Tx

- Johan Van Griensven et al.
- ITM Antwerp + 15 others
- MSF Conakry Guinea



wellcome trust

EVD001

- David Hoover et al.
- ClinicalRM/Duke/UNC
- ELWA2 Monrovia Liberia

BILL & MELINDA GATES foundation

Ebola_CP

- Calum Semple et al.
- Liverpool & 15 others
- MoHS SL 34th Regiment Hospital Freetown
- Wellcome Trust and B&M Gates Foundation

wellcome trust

BILL & MELINDA GATES foundation

Ebola Tx

16 Partners



Views from meeting* of Directors of NBTS from affected countries

- Research studies of convalescent whole blood (CWB) and of convalescent plasma (CP) were running in all three affected countries
- The numbers of patients enrolled in the studies make these the largest studies ever done of CWB or CP for Ebola
- Being able to provide blood and plasma for the studies, and for patients in the countries, was a significant achievement and **provided hope for physicians and patients in the affected countries**

* WHO, 25-27 February 2015

- This achievement is especially notable given the pre-existing health systems weaknesses, and of the national blood transfusion services in particular, in each of the affected countries prior to the Ebola epidemic
- The Ebola epidemic made the challenges of obtaining blood and plasma even more daunting and difficult
- The aim now is to catalyse the short-term support for R&D efforts in the blood area into medium and longer-term sustainable support for development of the national blood systems

Overall Ebola R&D Achievements

1) Clinical trials underway by December 2014 in the affected countries, each of which were "clinical trial naïve" prior to the epidemic

2) Efficacy results available or expected during this epidemic on at least:

(a) 1 vaccine

(b) 6 diagnostics

(c) 5 therapeutics

Products with efficacy results

(available or expected during this epidemic)

- **Medicines**:
  - Two previously prioritized products (Brincidofovir and Tekmira siRNA) were proven ineffective
  - Two products are undergoing efficacy testing and results are expected during this epidemic: Zmapp and favipiravir
  - One product is used on a compassionate basis: MIL177
- **Blood products**: largest ever trial of convalescent serum; efficacy results expected in the coming months
- **Diagnostics**: 4 tests were "listed" by WHO, 2 more are close to end of assessment
- **Vaccines**: efficacy results obtained for one product.

Pending questions for EVD convalescent plasma studies

- Donors
  - future support of survivors; study and treatment of sequelae
- Future research studies
  - For example in non human primates
- Future use of donated plasma
  - Aim to bank frozen CP for any near future recrudescence
  - Use infrastructure to generate hyper immune globulin
- Blood service capacity strengthening
  - Included in 2/3 study plans
  - Ebola has illustrated need across West Africa





The broader R&D challenges

WHO Director General, Dr M Chan, 11 May 2015

"*The job now is to harness the lessons from Ebola to create a new R&D framework that can be used for any epidemic-prone disease, in any infectious disease emergency.*

What is needed is an R&D preparedness plan with clear rules, well-defined platforms for information sharing, and agreed procedures to expedite development and clinical trials".

Lessons learned

WHO Ebola R&D Summit (11-12 May)

- Need for new R&D funding models to support the development of products where the market is non-existent, unknown, or unreliable
- Future R&D must encompass far more than vaccines, diagnostics and drugs e.g personal protective equipment; social science research
- Collaborative fora or systems already in existence at the time of the 2014-2015 EVD crisis saved time
- Countries want their own health and academic personnel to work, and learn, in collaboration with experts who come to carry out research

Challenges during the EVD outbreak to utilize (experimental) vaccines, therapeutics and diagnostics

- The need for a more rapid response
- Overall coordination of the R&D response
- To focus R&D on scientifically credible interventions
- Community engagement for clinical research in emergencies
- Moving to scale with interventions
- Transition from R&D response to early-phase recovery response

Preparing for future health crises

- To be addressed though a "Blueprint" for R&D preparedness for outbreaks of infectious diseases of epidemic potential;
- the **WHO Ebola R&D Summit (11-12 May)** was the initial step forward;
- Next steps:
  - Preliminary outline, guided by Scientific Advisory Group, by mid-September 2015
  - Followed by broad consultative process
  - Submission to 2016 World Health Assembly

Five work-streams

designed to identify key actions required to accelerate access to products

1	2	3	4	5
Prioritisation of pathogens & operational plan	Identification of research priorities	Coordination of stakeholders & expansion of capacity	Assessment of preparedness and impact of intervention	Development of innovative funding options

Preparing for the inevitable



Work-steam 2
Identification of research priorities

Dr David Wood

Department of Essential Medicines and Health Products, WHO

World Health Organization

Work-stream 2
Deliverables

4 A summary of current status and gaps to be filled to ensure the timely initiation of human trials and introduction of health technologies

5. An R&D Roadmap for MERS CoV

6. Improved regulatory preparedness, globally.

7. A plan for a network of production platforms for priority health technologies

Spare slides

World Health Organization

Lessons learned (continued)

- Need to establish target product profiles (TPPs), and global R&D roadmaps, for priority novel interventions
- Arrangements for carrying out clinical trials should be agreed in advance e.g protocols, review mechanisms, reference preparations for assays, approved standards of care
- Data generated during public-health emergencies, including negative results, should be openly shared

World Health Organization