WHO 2018 annual review of the Blueprint list of priority diseases

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For the purposes of the R&D Blueprint, WHO has developed a special tool for determining which diseases and pathogens to prioritize for research and development in public health emergency contexts. This tool seeks to identify those diseases that pose a public health risk because of their epidemic potential and for which there are no, or insufficient, countermeasures. The diseases identified through this process are the focus of the work of R&D Blueprint. This is not an exhaustive list, nor does it indicate the most likely causes of the next epidemic.

Using a prioritization methodology, the list was first reviewed in January 2017.

The second annual review occurred 6-7 February, 2018. Experts consider that given their potential to cause a public health emergency and the absence of efficacious drugs and/or vaccines, there is an urgent need for accelerated research and development for:

Crimean-Congo haemorrhagic fever (CCHF)
Ebola virus disease and Marburg virus disease
Lassa fever
Middle East respiratory syndrome coronavirus (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS)
Nipah and henipaviral diseases
Rift Valley fever (RVF)
Zika
Disease X

Disease X represents the knowledge that a serious international epidemic could be caused by a pathogen currently unknown to cause human disease, and so the R&D Blueprint explicitly seeks to enable cross-cutting R&D preparedness that is also relevant for an unknown “Disease X” as far as possible.

A number of additional diseases were discussed and considered for inclusion in the priority list, including: Arenaviral hemorrhagic fevers other than Lassa Fever; Chikungunya; highly pathogenic coronaviral diseases other than MERS and SARS; emergent non-polio enteroviruses (including EV71, D68); and Severe Fever with Thrombocytopenia Syndrome (SFTS).

The experts also noted that:

- For many of the diseases discussed, as well as many other diseases with the potential to cause a public health emergency, there is a need for better diagnostics.
- Existing drugs and vaccines need further improvement for several of the diseases considered but not included in the priority list.
- Any type of pathogen could be prioritised under the Blueprint, not only viruses.
- Necessary research includes basic/fundamental and characterization research as well as epidemiological, entomological or multidisciplinary.

1 The order of diseases on this list does not denote any ranking of priority.
studies, or further elucidation of transmission routes, as well as social
science research.

- There is a need to assess the value, where possible, of developing
countermeasures for multiple diseases or for families of pathogens.

Comment
The methodology used by the WHO to select the priority diseases listed can be found here:
(http://www.who.int/blueprint/priority-diseases/RDBlueprint-PrioritizationTool-
19Feb2017.pdf?ua=1).

It is important to understand that the prioritization process includes an assessment of investment
gaps. Therefore, it excludes diseases for which there already are major control initiatives, an extensive
R&D pipeline, existing funding streams, and/or established regulatory pathways for improved
interventions. Examples of such diseases identified during previous R&D Blueprint prioritization
exercises include HIV/AIDS, tuberculosis, malaria, zoonotic avian influenza, antimicrobial resistance
(as a generic category), yellow fever and dengue” (1). The prioritization tool was developed after the
Ebola outbreak, when WHO was criticized for the delayed recognition and the fragmented response
to the outbreak, leading to the emerging diseases R&D blueprint initiative. The R&D blueprint
focuses on what is considered an area of neglected diseases, and developed a list of priority diseases that
can cause major outbreaks with great societal impact but for which the world is ill-prepared due to the
lack of diagnostics, treatments, vaccines a.o, with emphasis on capacity building in the regions where
these outbreaks most likely occur (http://www.who.int/blueprint/about/en/). For the priority
diseases, the essential gaps are identified, and target product profiles are developed to guide
development of diagnostics, drugs and vaccines.

Arguably the most important disease on the list is “Disease X”. Disease X is meant to reflect the
challenges of prediction, acknowledging the need for “generic preparedness” for a serious
international epidemic caused by a currently unknown human pathogen. This emphasizes that
surveillance of infectious diseases must include laboratory analysis that pick up yet unknown diseases.
Many diseases grossly overlap in their clinical presentation and easy access to advanced diagnostics is
essential to identify “Disease X”.

Reference
1. WHO R&D Blueprint Annual Review of Priority Diseases. World Health Organization, Salle C,
Geneva, 6-7 February 2018

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