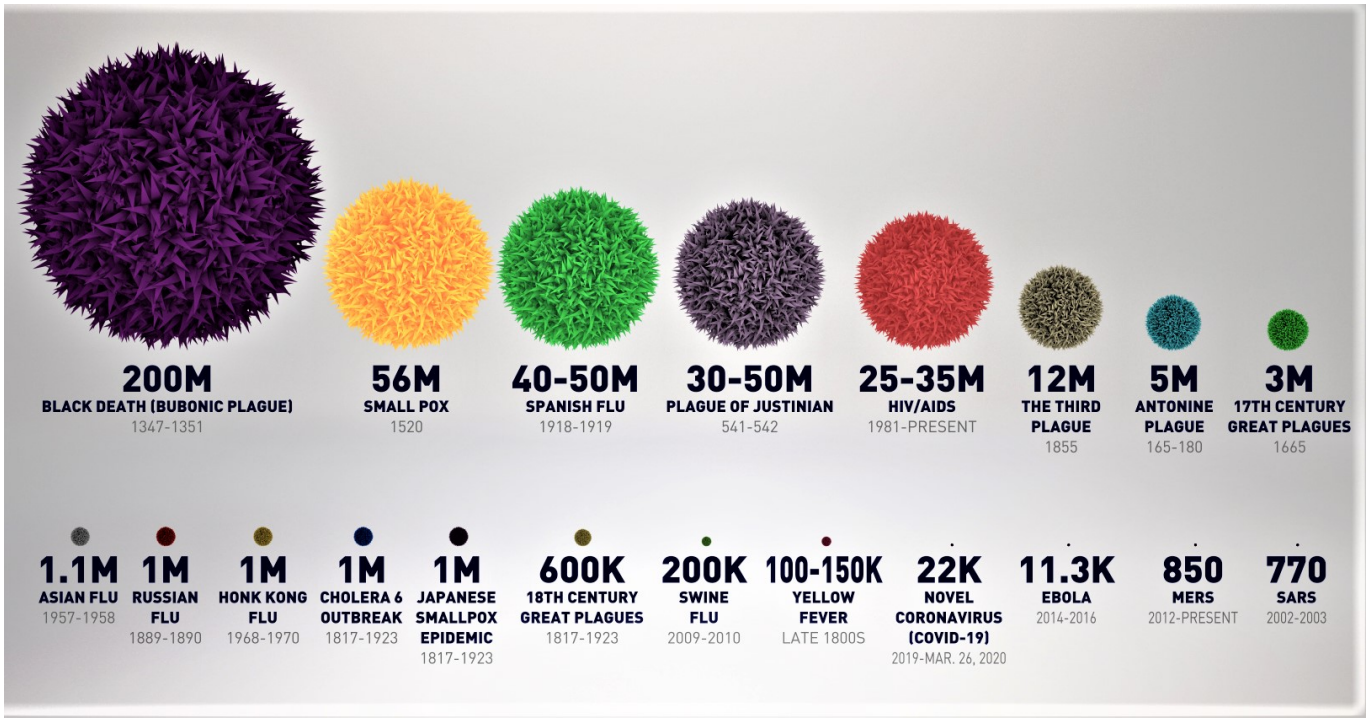
Disease X - Tracking the Next Pandemic

Why in news?

The World Health Organisation (WHO) has said that it is updating the list of priority pathogens that pose the greatest public health risk due to their epidemic potential.

What is Disease X?

- Disease X is not a new disease. It is a potential disease that is yet to be discovered and can cause the next pandemic.
- Disease X is a placeholder name adopted by the World Health Organization (WHO) in 2018.
- According to WHO, it represents the knowledge that a serious international epidemic could be caused by a pathogen currently unknown to cause human disease.
- It is part of **WHO's priority diseases list** prepared for R&D in a public health emergency context.



How is WHO tracking the next pandemic?

- **R&D Blueprint for Action to Prevent Epidemics** - In 2015, the WHO convened a network of experts to develop the R&D Blueprint for Action to Prevent Epidemics in order to stop outbreaks from turning into public health emergencies.
- The need to develop such a blueprint was sharply felt during the **2014 Ebola outbreak in West Africa**.
- **Objective** - The blueprint includes goals and research priority areas to accelerate the

development of testing, vaccines and therapeutics of diseases caused by the listed priority pathogens.

- **Procedure** - For each disease on the list of priority pathogens, an R&D roadmap and target product profiles (TPP) is created, to guide outbreak responses.
- When an outbreak is recorded, the blueprint moves from R&D preparedness to an emergency R&D response plan.
- The Blueprint also works with partners, including the Coalition for Epidemic Preparedness Innovations **(CEPI)** and the Global Research Collaboration for Infectious Disease Preparedness **(GloPID-R).**
- **Significance** - The R&D roadmap serve as important tool to identify effective health technologies and save lives by integrating research into response.
- The WHO uses this blueprint to guide responses to outbreaks and improve global response for future epidemics.
- The 2016 Zika outbreak emerged as a testing ground for the R&D Blueprint.

CEPI is an innovative global partnership between public, private, philanthropic, and civil society organisations working to accelerate the development of vaccines against epidemic and pandemic threats.

What about the list of priority diseases?

- It is a WHO tool that distinguishes the diseases posing the greatest public health risk due to their epidemic potential and/or whether there is no or insufficient countermeasures.
- This is not an exhaustive list, nor does it indicate the most likely causes of the next epidemic.
- Based on the priority diseases, WHO develops R&D roadmaps for each one.
- WHO conducted its last prioritisation exercise in 2018 and a new updated list is expected to be released in the first quarter of 2023.

WHO Blueprint priority disease	Fatality rate	Recent outbreaks
CCHF	10%–40%[38]	Pakistan, 2010.[39]
Filoviruses (Ebola and Marburg)	24%–90%	West Africa, 2013–2016 and DRC 2017 and 2018 (Ebola). Uganda and Kenya, 2017 (Marburg).
Lassa fever	1–15%[43]	Annual recurring outbreaks in West Africa.[44]
MERS-CoV	~35%	Saudi Arabia, 2013–2018. South Korea, 2015.
SARS	~10%[47]	Global, 2003.[47]
Nipah and henipaviral diseases	~30%	Bangladesh, 2004. India, 2018.[50]
Rift Valley fever	<1%[51]	Republic of Niger, 2016.[51]
Zika virus disease	Not fatal	South and North America, 2015–2016.
Disease X		

What is the new prioritisation exercise about?

- **Viral family approach** - A viral family approach will be adopted by identifying representative viruses (or prototypes) within a viral family as a pathfinder that may be applied to other viruses of threat in the same family.
- Experts will review the science related to around 25 viral family groups and shortlist viruses of concern.
- One bacterial group will also be added to ensure that risks of naturally occurring bacterial threats are accounted for.
- An independent Prioritisation Advisory Committee (PAC) will conduct the final prioritisation following a multi-criteria decision analysis (MCDA) approach.
- **Significance** - This approach allows for fast-track research on entire families of viruses instead of individual strains.
- It broadens the knowledge of experts and improves response to unforeseen strains, including those that may cause Disease X.

Related links – Lassa fever, Zika infection, Nipah infection, Rift Valley Fever, Marburg Virus, Types of Corona Viruses

References

1. The Hindu | Disease X: Tracking the next pandemic
2. WHO | Prioritizing diseases for research and development
3. Business Today | Disease X