

What is Disease X And Why the World Should Prepare For It

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Introduction

- Disease X represents a hypothetical, yet highly probable, global health threat.
- Coined by the **World Health Organization (WHO)** in 2018, the term is a **placeholder for any unknown pathogen capable of causing a devastating epidemic or pandemic.**

- Recent outbreaks, such as the unclassified one in the Democratic Republic of Congo (DRC) that claimed over 400 lives, highlight the urgent need for preparedness against such threats.

Origin of the Concept

- The term **“Disease X”** emerged after the West African Ebola epidemic (2014–2016), which exposed gaps in global epidemic readiness.
- It embodies **“known unknowns”** (threats we are aware of but lack specifics) and **“unknown unknowns”** (threats beyond our awareness).
- The concept underscores the inevitability of new pathogens and emphasizes proactive preparation.

Epidemiological Patterns

- Since 1940, over 300 emerging infectious diseases have been identified, with 70% having zoonotic origins (transmitted from animals to humans).
- Human activities such as deforestation, urbanization, and climate change exacerbate these risks, bringing wildlife and humans into closer contact.
- Regions with high **biodiversity** and limited healthcare infrastructure, such as the Congo Basin, are particularly vulnerable.

Challenges in Prediction

- Predicting Disease X is challenging due to:
 - The vast number of undiscovered pathogens.
 - Increasing zoonotic spillovers driven by human encroachment.
 - Climate change altering disease dynamics and expanding vectors like malaria and dengue.
 - Risks from antimicrobial resistance, bioterrorism, and accidental lab leaks.
- Advancements in genomic sequencing and artificial intelligence offer hope but remain limited in their ability to predict the exact origin, timing, or behaviour of unknown pathogens.

Global Preparedness and WHO’s Priority List

- The WHO’s priority pathogen list includes diseases like **Ebola**, **Marburg**, **Nipah**, and **Disease X**.
- This list aims to direct global research, funding, and policy efforts toward combating high-risk diseases with limited medical countermeasures.
- **Measures for Preparedness:**
 - **Strengthening Surveillance:** Robust systems for early outbreak detection are critical. Technologies like genomic sequencing and real-time data sharing play pivotal roles.
 - **Healthcare Infrastructure:** Low- and middle-income countries require enhanced healthcare systems to mitigate the disproportionate impact of pandemics.
 - **Rapid Response Platforms:** Organizations like the **Coalition for Epidemic Preparedness Innovations** (CEPI) are developing “prototype pathogen” platforms to create vaccines within 100 days of identifying a new disease.

- CEPI is an innovative partnership between public, private, philanthropic, and civil organisations, launched at Davos in 2017, to develop vaccines against future epidemics.

Need for Global Collaboration

- Pandemics transcend borders, necessitating unified global efforts:
 - **WHO Initiatives:** Efforts like the Pandemic Treaty aim to standardize global responses.
 - **Equitable Access:** Frameworks like the Nagoya Protocol ensure fair distribution of resources and medical countermeasures.
 - **International Cooperation:** Governments must share data, pool resources, and collaborate on diagnostics, treatments, and vaccines.

Lessons from Recent Outbreak

- The outbreak in the DRC is a stark reminder of the ongoing threat posed by Disease X.
- Proactive investment in research, public health systems, and international solidarity can mitigate the devastating consequences of future pandemics.

Conclusion

- Disease X serves as a call to action for the global community.
 - Preparedness is not an option but a necessity to safeguard future generations.
 - By prioritizing collaboration, innovation, and robust health systems, humanity can confront and contain the unpredictable threats of emerging diseases.
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Q1. What is the Universal Immunisation Programme?

Universal Immunisation Programme is a vaccination programme launched by the Government of India in 1985. It became a part of Child Survival and Safe Motherhood Programme in 1992 and is currently one of the key areas under the National Health Mission since 2005.

Q2. What do you mean by Epidemic, Endemic and Pandemic?

Endemic: A disease is endemic when it's consistently present in a specific region, making its spread and rates predictable. For example, malaria is endemic in some countries.

Epidemic: An epidemic describes how far a disease outbreak has spread.

Pandemic: A pandemic is declared when a disease's growth rate skyrockets, and each day's cases are more than the previous day's. Pandemics cross international boundaries and can lead to large-scale social disruption, economic loss, and hardship. A once-declared epidemic can progress into a pandemic.

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