

RSTV In Depth – Pandemic

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What's in News?

The World Health Organisation has declared COVID-19 outbreak to be a “Pandemic”.

Background:

- By the end of 2019, Chinese authorities sent out a public alert warning that Pneumonia of unknown cause had been identified in Wuhan, Central China.
- The disease has spread across the globe and has been declared a Pandemic by the World Health Organisation.

Glossary of terms for virus outbreak:

- **OUTBREAK:** A sudden rise in cases of a disease in a particular place.
- **EPIDEMIC:** A large outbreak, one that spreads among a population or region. The current outbreak of a flu-like illness caused by a new virus in China is considered an epidemic.
- **PANDEMIC:** Generally refers to an epidemic that has spread on a more global scale, affecting large numbers of people.
- **COVID-19:** Name given to the illness caused by the new coronavirus first identified in China in December 2019. CO and VI are for coronavirus, D is for disease, and 19 for 2019. The virus itself is called SARS-cov-2.

Pandemic v/s Epidemic:

- The word "pandemic" comes from the Greek "pan-", "all" + "demos," "people or population" = "pandemos" = "all the people." A pandemic affects all (nearly all) of the people.
- By contrast, "epi-" means "upon." An epidemic is visited upon the people.
- Epidemic is a term that is often broadly used to describe any problem that has grown out of control.

- A pandemic infects more people than an epidemic.

What does a pandemic mean, and who decides that this is the one?

- Declaring a pandemic has nothing to do with changes to the characteristics of a disease (potency/ deadliness), but is instead associated with concerns over its geographic spread.
- All pandemics start with an outbreak of a new disease in a specific geographic location.
- If that outbreak becomes larger, but still remains confined to a specific region, it becomes an epidemic.
- At that point, the WHO declares a public health emergency of international concern to raise awareness about it.
- Pandemic has self-sustaining lines of infection. It can spread in a healthy state, without assistance.
- There is no threshold, such as a certain number of deaths or infections, or number of countries affected, that needs to be met.
- Ultimately, the WHO gets the final say in declaring a Pandemic.

Details:

- An influenza pandemic occurs when a new influenza virus (or a strain of virus) spreads around the world and people have little or no immunity against pandemic.
- Viruses that caused pandemics in the past originated from animal influenza viruses.
- Some influenza pandemics appear similar to seasonal influenza.
- Influenza pandemics are rare, but do reoccur periodically.

Phases that a disease goes through to turn into a Pandemic:

- Based on the influenza outbreak in 1999, the World Health Organisation designed a pandemic preparedness plan. It also specifies infection prevention plans and certain precautions that must be followed.
- It presents an outline as to when the spread of disease is severe enough to take specific actions.

- How an epidemic spreads enough to be declared as a pandemic varies on the basis of the pathogenesis or pathway of a disease and other epidemiological factors.
- In 1999, the WHO released the first influenza pandemic preparedness plan in which it outlined the appropriate response based on 6 clearly outlined phases.
- Clearly, the aim of the plan is to co-ordinate the global response by providing countries a blue print from which to draw up their own national strategies based on the available resources.

Phases of a Pandemic:

- Phases 1, 2 and 3 are designed in order to help the public health officials to know that it is time to develop the action plans and tools to an impending threat; while phases 4 through 6 are when action plans are implemented in coordination with the WHO.
- WHO keeps track of all identified viruses (animal/ human) through a set of phases or stages.

Phase 1: Viruses circulating within the animals only. No human infection has resulted from animal virus.

Phase 2: An animal virus has caused an infection in a human being. There is a basic level of pandemic threat as the virus strain has mutated to make that transfer to a human.

Phase 3: Small clusters of human beings have contracted the virus in one community. There is a potential for spread of the virus. At this point, the illness maybe epidemic in that community, but is not a pandemic.

Phase 4: Human to human and animal to human virus transmissions is causing outbreaks in many communities.

Phase 5: Human to human transmission is taking place in atleast two countries in one WHO region. Most countries are not affected yet but a pandemic is considered imminent. This phase signals the health officials and the government to be ready to implement the pandemic mitigation plans.

Phase 6: Global pandemic is underway; illness widespread, officials actively working to curtail spread.

Post pandemic phase: After increase, disease-spreading activity begins to wane. Key is to be prepared to try to prevent a second wave.

History of Pandemics:

Pandemics became more common as humans became more civilized, began to build cities and forged trade routes.

1. The Great Plague of London:

- Bubonic Plague first appeared in the 14th Century and surfaced for a second time in London in 1665 and killed about 20% of its population. Cats and dogs, believed to be the cause of source were slaughtered.
- The outbreak tapered off in 1666.
- It still exists in rural areas of Western United States, parts of Africa and Asia.

2. The Spanish Flu:

- The influenza flu pandemic of 1918 – 1919 killed between 20 and 40 million people.
- It was caused by H1N1 virus with an avian origin.
- It is one of the most devastating pandemics in recorded world history.

3. The Asian Flu:

- The Asian Flu spread in East Asia in 1957.
- It was a H2N2 strain first detected in Singapore, it made its way to Hong Kong, U.S.

4. The Hong Kong Flu:

- The Flu Pandemic of 1968 originated in China in 1968.
- It was caused by influenza A virus H3N2.
- It was the third pandemic flu outbreak in the 20th century.

5. Severe Acute Respiratory Syndrome (SARS)

- In 2003, SARS epidemic took lives of nearly 800 people world-wide.

6. Swine Flu:

- Occurred in 2009 with novel influenza virus H1N1. The virus was previously not identified in Humans or Animals.
- It primarily affected children and middle aged adults.
- The Pandemic officially ended in August 2010. However, H1N1 continues to

circulate as a seasonal flu virus, every year.

7. Human Immunodeficiency Virus (HIV):

- First identified in Democratic Republic of Congo in 1976, HIV Acquired immunodeficiency syndrome (AIDS) has proven itself as a global pandemic, killing more than 36 million people since 1981.

Precautions to Stop Pandemic:

- Hand hygiene
- Using Personal Protective Equipment
- Following Respiratory Hygiene
- Employing Environmental Control
- Waste Management

Transmission of SARS virus within the health care facilities was often associated with a lack of compliance with these precautions.

Way forward:

- Preparation for a Pandemic threat calls for high health system capability for prevention, effective surveillance, early detection and containment of cases.
- It requires a large and well skilled health work force with public health expertise and well-resourced health care infrastructure apart from robust health information systems.
- It is essential for countries to work closely with state, local, territorial and tribal partners as well as public health partners in order to respond to this Pandemic.