The Endemic Stage of a Pandemic

Why in news?

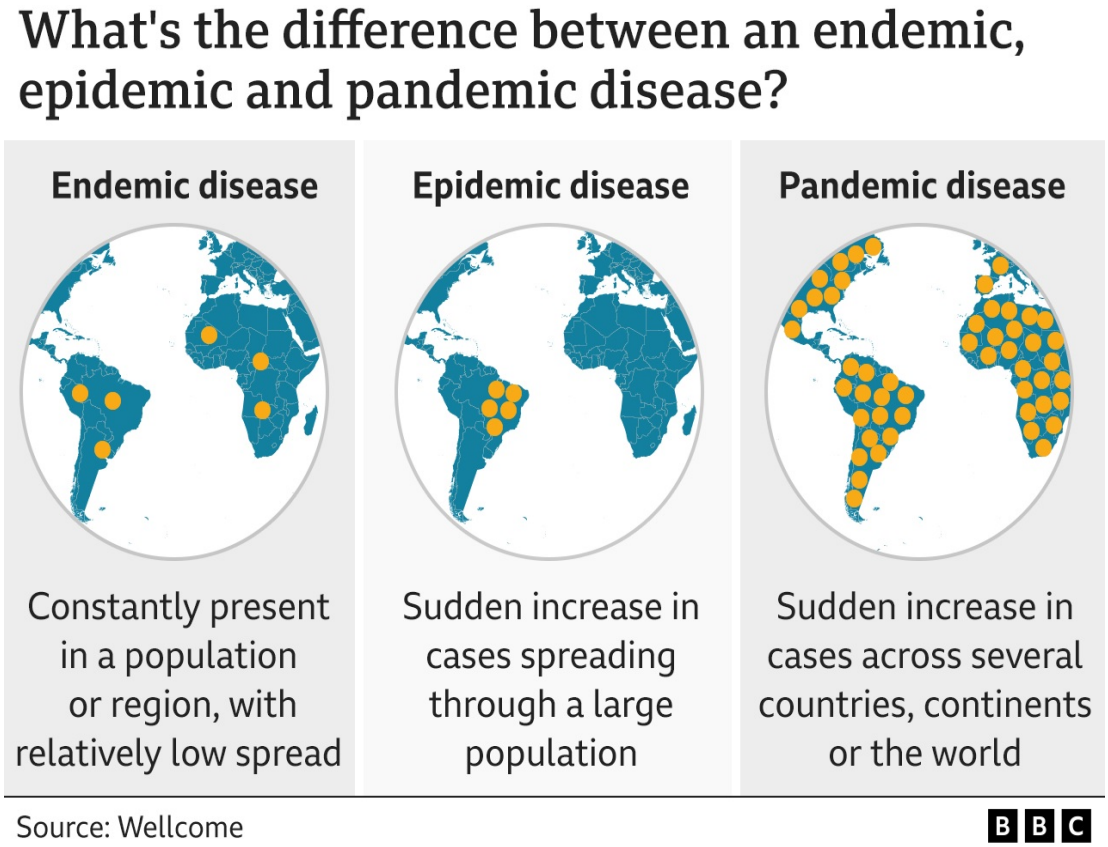
The UK has eased restrictions while new measures in California approach Covid-19 as being endemic.

What does endemic stage mean?

- Endemic means that the virus will continue circulating in the population and there will be periodic ups and downs when the conditions are favourable to the virus and less favourable to humans.
- An infection becomes endemic when the rates become static in a given geographical location.
- It means that the pathogen causing the disease is likely to remain in circulation without causing large outbreaks.
- It will depend on
    - the number of susceptible people in the population
    - vaccination rates
    - emergence of new variants that are able to evade the immune response
    - antibodies produced against SARS-CoV-2 (sero surveys)
- If a representative sero-survey shows over 90% positivity, we can assume that the disease is endemic.
- But, whether these antibodies can effectively protect against the current variants has to be seen for which a neutralisation study is used.

What is the difference between various stages?

- The WHO defines pandemics, epidemics, and endemics based on a disease's rate of spread.
- The difference between an epidemic and a pandemic isn't in the severity of the disease, but the degree to which it has spread.
- **Epidemic**-In an epidemic, a disease spreads rapidly and unexpectedly in a given location.
- **Pandemic** - It becomes a pandemic when it spreads globally, or over a very wide area. **Eg: H1N1 (2009), Spanish flu (1918)**
- **Endemic**- A disease that’s endemic is continuously present in a given population at a lower and more stable level, even if cases spike under certain conditions. **Eg: Influenza, Malaria, HIV**
- The WHO does not technically declare pandemics. Its highest alert level is a global health emergency, and Covid-19 has warranted that distinction since January 2020.



Does endemic mean we are safer?

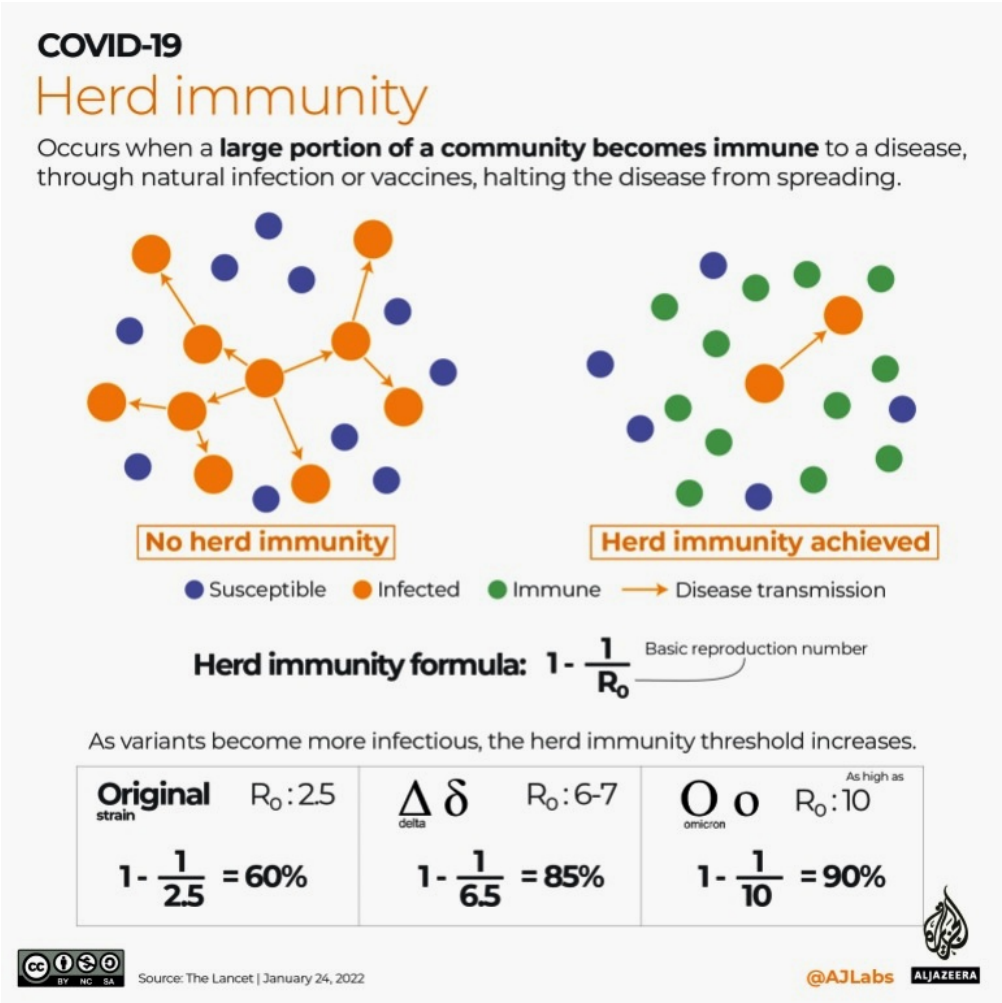
- Endemic does not mean that evolution has somehow controlled a pathogen so that life simply returns to normal.
- A disease can be endemic and both widespread and deadly.
    - For instance, Malaria killed more than 600,000 people in 2020 whereas 10 million fell ill with tuberculosis and 1.5 million died.
- Endemic does not guarantee stability, there can still be disruptive waves from endemic infections, as seen with the US measles outbreak in 2019.
- The high circulation of Delta variant, rise of Omicron, inequitable vaccine roll-outs to lower-income countries and minimal control measures in some wealthy countries offer fertile ground for SARS-CoV-2's evolutionary leaps.

The Alpha variant was first identified in the United Kingdom, Beta in South Africa, Gamma in Brazil, Delta in India and Omicron in southern Africa.

How will control measures change if the disease becomes endemic?

- Although easing of restrictions has been pushed, there is a need to maintain high levels of testing and good genomic surveillance.
- The best ways to find new variants are to
    - conduct a general survey
    - sequence cases immediately wherever there are more cases
    - keep a very close eye on hospitalised cases

- If the disease is declared endemic, then the 10% vaccination rate in some countries will remain 10% and nobody will take care of vaccinating.
- The more a virus replicates, the greater the chance that problematic variants will arise, most probably where spread is highest.
- Herd immunity occurs when a large proportion of a community becomes immune to a disease through infection or vaccines, halting the disease from spreading.
- As variants become more infectious, the herd immunity threshold increases.
- The threshold percentage has gradually been increasing from about 60-70% during the original strain to 85% with Delta and upwards of 90% with Omicron.
- The best way to prevent dangerous or more-transmissible variants from emerging is to stop unconstrained spread which requires integrated public-health interventions, including vaccine equity.



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