Influenza

What is Influenza?

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- Influenza is an acute **viral infection of the respiratory tract** which is considered to be one of the life-threatening infectious diseases.
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- The virus can be transmitted by direct contact with infected individuals, via contaminated objects (also called fomites) and by inhalation of virus-laden aerosols.
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- An unexpected emergence of a new and highly virulent influenza virus strains can result in a world-wide pandemics with high morbidity and mortality – such as **the “avian flu” in 1997 and “swine flu” in 2009.**
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- Human influenza viruses are **single-stranded RNA viruses.** The main targets of the virus are the columnar epithelial cells of the respiratory tract, i.e. trachea, bronchi and bronchioles.
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- Infectivity of influenza virus particles depends on the pH, temperature and salinity of the water, as well as the UV irradiation.
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What are the types of Influenza?

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- Influenza is caused by three types of RNA viruses called influenza types A, B and C (considered different genera), which all belong to the family **Orthomyxoviridae.**
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- The disease, colloquially called "flu" in humans, is generally caused by the viruses A and B.
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- Subtypes of influenza A and B viruses can be further characterized into strains. There is a plethora of different strains of influenza B viruses and of

influenza A subtypes, and new strains of influenza viruses can appear and replace older strains.
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- Influenza type A viruses are known to infect people, birds, pigs, horses, whales, seals and other animals, but **wild birds represent the natural hosts** for these viruses.
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- Only a fraction influenza A subtypes (i.e. **H1N1, H1N2 and H3N2**) are currently in general circulation among people.
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- Influenza B viruses are responsible the same spectrum of disease as influenza A. And, **influenza B viruses do not cause pandemics.**
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- Influenza C viruses are different in comparison to influenza A and B. They cause a mild respiratory illness and are **not thought to cause epidemics.**
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Why have H1N1 cases shot up?

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- The spread of influenza virus declines when the temperature shoots up.
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- But this year, despite the summer temperature crossing 40 degrees Celsius in some parts of the country, the number of H1N1 cases and occasional deaths have not stopped.
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- According to the WHO, since December 2016, **H1N1, H3N2 and Influenza B have been circulating in India.**
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- During September 2016-February 2017, H3N2 has been predominant in most countries, with only “low levels” of the H1N1 viruses circulating in the northern hemisphere, says the WHO.
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- H1N1 had claimed 160 lives in the country between January 1 and March 26, 2017. The highest number of deaths was reported from Maharashtra.
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What are the steps to be taken?

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- With over 32,000 people infected and nearly 2,000 killed in 2015, H1N1 highlighted **how ill-prepared the country was** in preventing the spread of an infectious disease and managing it.
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- What India needs is a **national policy for influenza immunisation.**
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- In the absence of information on who is most susceptible to H1N1 infection and very likely to die, framing a national policy will be harder and take a long time.
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- But until a national policy for influenza immunisation is in place, individuals, particularly those who are highly vulnerable, should get vaccinated and practise safe health measures such as **correct cough etiquette** (not coughing into our fingers but at elbow), staying at home if infected, and not sharing towels with others.
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- Healthcare workers who handle high-risk patients should particularly get vaccinated.
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Is the circulating strain different?

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- **The Pune-based National Institute of Virology** has sequenced the whole genome of H1N1 and **has not found any critical mutation** responsible for the spread or increased mortality.
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- While the California strain had been circulating across the world since the 2009 pandemic.
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- During 2016 **California strain and Michigan strain** were circulating in India.
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- However, this year, the H1N1 surveillance revealed that the Michigan strain was circulating, with no sign of the California strain.
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Can vaccination prevent infection?

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- On March 2, the WHO flu vaccine advisory group recommended the composition of influenza virus vaccines for use in the 2017-18 northern hemisphere influenza season.
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- It announced that the Michigan strain replaced the California strain in the northern hemisphere.
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- Based on its recommendation, **the Pune-based Serum Institute of India** has started making influenza vaccine using the Michigan strain, but the vaccine is yet to reach the market.
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Source: The Hindu

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