What is influenza?
Influenza, or “flu”, is a highly contagious respiratory illness caused by the influenza virus and is responsible for up to 5 million cases of severe disease, many hospitalisations and as many as 650,000 deaths around the world every year. Widespread outbreaks of the disease in a community at a particular time, known as epidemics, generally occur during the respective winter seasons.

The flu virus is divided into four types: influenza A, B, C and D with the influenza A and B viruses being responsible for seasonal epidemics. New flu viruses can arise as a result of contact with the animal population or as mutations are introduced during viral replication.

Misinformation and inappropriate advice are common when it comes to dealing with the flu. Misconceptions exist regarding the severity of flu, with several studies revealing a lack of awareness even among healthcare workers of the risks posed by flu. The majority of patients who develop flu symptoms therefore do not seek prompt medical attention. Without timely, appropriate treatment, flu can lead to pneumonia, bronchitis, sinus infections, hospitalisation or even death. It can also worsen long-term health problems such as asthma and heart failure.

How is flu transmitted?
Flu viral particles are most easily transmitted from person to person through the air droplets and small particles excreted when someone with the disease coughs or sneezes. Some transmission can occur via direct contact with infected individuals or contaminated surfaces. People with flu are most contagious three to four days into the illness but some can be infectious before symptoms even begin at day one and up to seven days after becoming sick. Some children and those with weakened immune systems may be contagious for longer periods of time.
**Who is affected by flu?**

People of all ages can be affected by flu but some groups are at higher risk than others, including:

- Pregnant women
- Children, younger than 5 years
- Adults aged 65 years or older
- Individuals with chronic medical conditions such as long-term heart, respiratory (e.g. asthma), kidney or liver disease
- Individuals who have weakened immune systems due to disease or medication (such as those with HIV or AIDS or those being treated with steroids)
- Healthcare workers due to increased exposure to patients

**What are the signs and symptoms of flu?**

Flu infects the nose, throat, and sometimes the lungs. The most common symptoms are:

- Runny or stuffy nose
- Cough
- Sore throat
- Fever
- Fatigue
- Muscle aches
- Headaches

Some people may experience vomiting and diarrhoea, but this is more common in young children.

Flu symptoms generally appear quickly, usually within 24 hours of infection, and last between three and eight days. Infection can cause mild to severe illness, and can be fatal in some cases, with pneumonia being the leading cause of severe morbidity and mortality among those infected.

Complications from infection can involve a number of tissues and organs, including the brain, heart and muscles, but the respiratory system is most frequently affected.

**How is flu diagnosed?**

Flu can be difficult to differentiate from other respiratory illnesses based on signs and symptoms alone and currently available diagnostic tests can vary in accuracy. It is therefore important that anyone suspected of having flu seeks timely medical attention.

**How is flu treated?**

**Vaccines**

Seasonal flu vaccines are key for flu prevention, however they demonstrate variable rates of protection due to often low uptake and mismatches between the vaccine and circulating flu strains. For example, between 2005 and 2018, estimates for the overall effectiveness of seasonal flu vaccines ranged from 10% to 60%. Vaccination is recommended by major guidelines (CDC, ECDC, CCDC, WHO) for the prevention of flu, particularly for individuals at high risk of developing complications.

**Antivirals**

Two classes of antivirals are currently approved worldwide for the treatment and prophylaxis of flu: the adamantanes (or M2 inhibitors), which were originally approved in 1966, and the neuraminidase inhibitors (NAIs), first approved in 1999. Flu antivirals have been shown to shorten the duration of flu symptoms and reduce the risk of severe illness and death, with the greatest benefit noted when antiviral treatment is administered within 48 hours of illness onset. However, the need for new antiviral classes is highlighted by limitations of currently available antivirals, including inconvenient administration and observed resistance.

**Antiviral resistance**

As a flu virus replicates and spreads through the body, the genetic structure can change in such a way that renders antiviral drugs less effective or completely ineffective against the virus. This resistance can occur spontaneously, during or after antiviral treatment at which point treatment options become much more limited.
References
2. World Health Organization. Influenza (Seasonal) [Internet; cited 2018 July]. Available from: http://www.who.int/infuenza-(seasonal)