

## Unit 2: Lesson 2 – Case Studies: Influenza and HIV

### GLOSSARY

#### **Acquired Immune Deficiency Syndrome (AIDS)**

A disease resulting from infection with HIV which has advanced to a severely weakened immune system. People at this stage of infection are at risk of opportunistic infections. Death from AIDS commonly results from these infections, not from the virus itself.

#### **Antigenic drift**

The accumulation of small genetic changes in a virus so that antibodies resulting from prior viral exposure may no longer be protective. Influenza viruses are particularly good at employing this as a means of maintaining a reservoir of susceptible people to infect.

#### **Antigenic shift**

A reassortment or recombination of viral genes resulting in dramatic changes in a virus. The result is that antibodies resulting from previous infections do not recognize the virus. This is the primary mechanism by which influenza pandemics arise.

#### **Budding**

A process by which new viral particles are released from infected cells. The viral envelope incorporates part of the cell membrane as it forms a new viral particle.

#### **Epidemic**

A high incidence of disease in a particular place and time.

#### **Genotypes**

Genetic differences among types of a pathogen that allow for a diversity of surface antigens. For example, there are more than 84 known types of *Streptococcus pneumoniae*, which causes bacterial pneumonia. This variation means that antibodies against one version may not protect against another version of the same pathogen.

#### **Hemagglutinin**

One of two surface proteins used to identify influenza viruses. Identified in the naming process using “H”.

#### **Human Immunodeficiency Virus (HIV)**

A retrovirus responsible for causing AIDS that infects the immune system’s helper T cells.

#### **Messenger RNA (mRNA)**

A type of RNA used to make viral proteins. All cells use this type of RNA to transcribe DNA into a form that can be used for protein synthesis.

**Neuraminidase**

One of two surface proteins used to identify influenza viruses. Identified in the naming process using “N”.

**Pandemic**

A worldwide epidemic that results when virtually an entire population is susceptible to an infection.

**Point mutation**

A change in a single base or nucleotide in RNA or DNA. These genetic changes can result in no change to a protein, a minor change, or dramatic change to the protein’s structure. The latter allows the protein to avoid recognition by the immune system.

**Reassortment**

The process of swapping genetic material between different viral genomes. The resulting virus has new characteristics that may allow it to infect previously immune individuals. Viruses, such as influenza, use this process to avoid recognition by the immune system. Scientists have used this process to develop some vaccines.

**Reverse transcription**

The process during which DNA is made from viral RNA.

**Transcription**

A step in the process of making proteins in which RNA is made from DNA.