Module 2
Coughs, Colds and Influenza
Introduction

Colds and flu are both classified as viral infections.

The definition of a virus

A virus is a small infectious organism – much smaller than a fungus or bacterium – that must invade a living cell in order to reproduce (replicate).

The lifecycle of a virus

The organism or virus secures itself to a cell and then enters it, turning the cell into its host. Here it releases its genetic material, DNA or RNA, and starts to manipulate the cell, forcing it to duplicate the virus. After this replication process the infected cell may die, since it cannot return to its natural function. When the cell dies, it releases newly cloned viruses, which can in turn infect other cells. And so the virus spreads.

The Common Cold

What we refer to as the common cold is a viral infection of the membranes of the nose, sinuses, throat and large airways. It usually leaves the patient with unpleasant symptoms (acute), but is not usually accompanied by a fever (afebrile) and the condition is one that resolves itself when its course is run (self-limited).

- Viruses usually have a preferred host cell.
- Each type of virus tends to affect only one type of cell.
- The rhinovirus is most commonly associated with the common cold. It specifically infects the cells of the upper respiratory tract, which leads to a runny nose (rhinorrhoea), cough and sore throat.

There are more than 100 different strains, or serotypes, of rhinovirus!
Facts about the Common Cold

Swollen tissues cause your blocked nose
It is not mucus, but inflammation7 that makes your nose feel stuffy. The blood vessels in your nose swell up because of the increase in white blood cells. As they swell they narrow the passages in your nose and restrict airflow5.

Women are more susceptible to colds
Women get colds more often than men6. Overall women interact with children more often, and children get around 3 or 4 times as many colds as adults do in a year5. This means childminders and teachers are exposed to more cold viruses.

There is no cure for the common cold
Because both colds and influenza are viral infections, they cannot be treated with antibiotics – these are only effective against diseases caused by bacteria6.

Thick mucus is caused by white blood cells
As a cold progresses, mucus changes from thin and clear to thick and white or yellow6. It is not bacteria that cause this change in colour, but rather countless white blood cells6 that have travelled to the nose, to defend you from the virus, and are now being expelled with the mucus.

You can’t catch a cold from being cold
The cold was given its name because the symptoms of the disease are so similar to those found in a person that has been exposed to low temperatures7. But it is not true that you can catch a cold from being cold or wet6.

The frequency of contracting colds decrease as you age
On average children get 7 to 10 colds a year, compared to adults who only get 2 or 35.

Sufficient sleep keeps colds away
Individuals who sleep less than six hours may be more than four times as likely to catch a cold as those who get over seven hours of sleep a night6.

Infants and the aged are at greater risk
Babies and the elderly can develop chest infections such as bronchiolitis caused by the cold virus which can, in some cases, be fatal10.

Key symptoms of a cold2,3,11
• Cough – generally mild and can last up to 2 weeks
• Runny or congested nose
• Discharge from the nose may become thick and yellow or green as the cold progresses
• Itchy or sore throat
• Low-grade fever – occasionally
• Mild fatigue
• Watery eyes
• Slight body aches or a mild headache
• Sneezing

Did you know
You can catch a cold through your eyes6
The cold virus is spread through droplets from sneezes and coughs. If such a droplet lands on your hand you can transfer the virus to your eye by casually touching your face. Once in your eye the virus easily travels through a duct to the nasal cavity. It’s a good habit to learn not to touch your face throughout the day.

TIPS: Home care for the patient2,13,14
• Stay warm and comfortable
• Avoid stressful situations that can further tire out your immune system
• Rest at home if you have a fever or more severe symptoms
• Drink fluids2 with extra electrolytes
• Inhale steam from a vaporiser to loosen secretions so they can be expelled
• Ease high temperatures with ibuprofen and paracetamol

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How to spot a cold2,11
• The symptoms of a cold usually appear about 1 to 3 days after the subject has been exposed to the virus.
• A cold is at its most contagious during the first 1 or 2 days after symptoms have developed.
• This is why it is important to take precautions, such as washing your hands, after being in contact with a person with a runny nose or mild cough.

Wet vs. Dry Coughs5
A wet or productive cough produces phlegm or mucus. This is the body’s natural way of clearing mucus and sputum from the lungs.
A dry or non-productive cough produces no phlegm or mucus. These types of coughs develop toward the end of a cold, or are caused by allergies or exposure to an irritant.
Influenza

Flu is a viral infection of the lungs and airways by an influenza virus. There are 3 types of influenza virus:

- Type A
- Type B
- Type C

Pandemics

An influenza pandemic occurs when there is a global spread of a new virus. A new virus means that the body has no natural immunity against it. This can cause serious symptoms in even the healthiest of patients. Past influenza pandemics, like the H1N1 (2009) virus, otherwise known as Swine Flu, have typically originated from animal influenza viruses.

History

Pandemics are much less common than epidemics. In the last two centuries there have been 6 major influenza pandemics, typically named after the location of their origin.

Fast fact

When it comes to the flu, the time from infection to illness, generally known as the incubation period, is about 2 days.

About The Flu Vaccine

Influenza vaccines have been available and in use for over 60 years. The vaccine usually protects against three different strains of the virus. The makeup of the vaccine evolves each year as the virus adapts. Medical staff – led by the World Health Organisation (WHO) – base their current vaccine on the strains that seem most likely to spread in the influenza season that lies ahead.

Symptoms

How to spot the flu

Symptoms tend to be more severe than those of a cold. They usually appear about 1 to 4 days after the patient has been exposed to the virus.

Flu becomes contagious 1 day before symptoms develop and 5 to 7 days after the person becomes sick.

Key symptoms of influenza

- Chills or chilly sensations (usually the first symptom)
- Fever (up to 39° C)
- Fatigue and weakness
- Warm, flushed skin
- Respiratory symptoms include:
  - Scratchy sore throat
  - Dry cough, which may develop into a wet cough
  - Runny nose and watering eyes
  - Burning sensation in the chest

Pneumonia is the most common complication of flu. This can present as a viral or bacterial infection. Key symptoms are a worsened cough, difficulty breathing, persistent fever, and blood in the sputum.

Bacterial infections

- Bacteria are single-celled micro-organisms that can exist independently or as parasites. Some bacteria can cause disease. The Streptococcus bacterium, for instance, causes strep throat.
- These infections develop when congestion, caused by colds, block the normal drainage in the nose, and allows bacteria to grow in the resulting collection of secretions.

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**Fast fact**

When it comes to the flu, the time from infection to illness, generally known as the incubation period, is about 2 days.
Diagnosis

The difference between colds and flu\textsuperscript{13,14}

It can prove difficult to assist customers who aren’t feeling well and are not quite sure about all the facts regarding their condition. It is especially tricky since colds and flu share many of the same common symptoms. The table below will help you to ask your customers exactly the right questions, so you can quickly distinguish between the two ailments\textsuperscript{11,12,14}, and offer an effective solution.

### Tip for pharmacy staff

When it comes to assisting customers, front shop assistants and pharmacist assistants are tasked with referring any customer asking for a product recommendation to the pharmacist on duty. Pharmacists should, in turn, refer customers who have severe symptoms to a general practitioner (GP) immediately.

### Urgent assistance

Refer adults to a doctor when they have the following symptoms\textsuperscript{21}:

- Shortness of breath, or difficulty breathing
- Pain or pressure in the chest or abdomen
- Sudden dizziness
- Confusion
- Severe or ongoing vomiting
- An improvement in symptoms, followed by a return of the fever and a worse cough

Refer children to a doctor when they exhibit the following symptoms\textsuperscript{21}:

- Rapid breathing or difficulty breathing
- A bluish or grey skin colour
- Not drinking enough fluids
- Severe or ongoing vomiting
- Not waking up, or not interacting
- Irritability, especially if child does not want to be held
- An improvement in symptoms, followed by a return of the fever and a worse cough

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>COLD</th>
<th>FLU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sore throat</td>
<td>✔️ (often scratchy)</td>
<td>✔️</td>
</tr>
<tr>
<td>Cough\textsuperscript{11,12,14}</td>
<td>✔️ (mild and short duration)</td>
<td>✔️ (can last for weeks)</td>
</tr>
<tr>
<td>Headache</td>
<td>✔️ (usually mild)</td>
<td>✔️ (usually more severe)</td>
</tr>
<tr>
<td>Discomfort in the eyes</td>
<td>✔️ (watering eyes)</td>
<td>✔️ (often light sensitivity and painful eyes)</td>
</tr>
<tr>
<td>General malaise or tiredness</td>
<td>✔️ (usually mild)</td>
<td>✔️ (often accompanied by weakness)</td>
</tr>
<tr>
<td>Sneezing/runny nose/block nose</td>
<td>✔️ (often one of the first symptoms to appear)</td>
<td>✔️</td>
</tr>
<tr>
<td>General aches and pains in the body</td>
<td>✗ (mild or not at all)</td>
<td>✔️</td>
</tr>
<tr>
<td>Fever</td>
<td>✗ (usually not)</td>
<td>✔️</td>
</tr>
</tbody>
</table>

\textsuperscript{1}Urgent assistance
**Treatment**

The majority of people recover from fever and other symptoms in about 7 days without needing medical attention16, though coughing, wheezing, weakness, sweating and fatigue may continue for days or weeks15. At the pharmacy, treatment is aimed at relieving symptoms and OTC remedies overlap with those used to treat symptoms of the common cold15.

**Bonus Section: Home care Tips for the Patient**13,15

1. **Wash your hands frequently.** It is recommended to wash your hands for 20 seconds at a time, to make sure you get rid of any unwanted micro-organisms.

2. **Avoid people who are coughing or sneezing.** The flu virus can be transmitted through air or by touch.

3. **Eat plenty of fruits and vegetables.** A balanced diet with lots of vitamins and minerals will boost the body’s immune system, making it easier to fight off viruses. Make sure you eat a good mixture of green, red and yellow vegetables and a variety of fruit to get the maximum benefit.

4. **Do aerobic exercises.** Any activity that gets your heart pumping helps increase the natural virus-killing cells in your body.

5. **Drink plenty of warm drinks in the winter months.** This helps you stay hydrated, it soothes the throat and also washes it clear of potentially harmful intruders.

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**Did You Know**

Germs can survive for several hours on tissues. Dispose of your used tissues as soon as possible11.

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**Did you know**

Influenza viruses can be spread by airborne droplets, person-to-person contact, or contact with contaminated items22. This is why sanitary habits are essential to help prevent flu. In fact, good hygiene is the best way to prevent infections22.

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**How to avoid the flu**15,22,23,24

It typically takes 2 weeks for the influenza vaccine to become effective, so it is essential for the patient to be extra vigilant and boost their immune system during this time. Here are some of the things that can be done to avoid getting sick:

- **Get plenty of rest**
- **Drink lots of fluids**
- **Avoid exertion**
- **Wash your hands frequently**
- **Avoid people who are coughing or sneezing**
- **Eat plenty of fruits and vegetables**
- **Do aerobic exercises**
- **Drink plenty of warm drinks in the winter months**
Over the counter (OTC) treatment

Colds cannot be cured once they have started, which is why over-the-counter (OTC) treatments relieve symptoms. A variety of OTC remedies - often sold as combinations - can assist patients while they wait for their body to fight off the virus or for the symptoms to abate. When a cold or flu comes with a cough, Benylin® is there to help you get better and get back out there as fast as possible.

The Benylin® range of products treat the symptoms of coughs, colds and flu quickly and effectively. These OTC treatments work to relieve fever, aches, pains, coughs and nasal congestion - only to be recommended by pharmacists.

When your cold or flu comes with a cough, Benylin® can help provide relief so you can get back out there. The Benylin® range helps to provide relief for a number of coughs, and includes expectorants that help thin mucus when you have a productive cough, as well as suppressants to control the cough reflex in the case of dry, hacking coughs.

<table>
<thead>
<tr>
<th>OTC REMEDY</th>
<th>EFFECT</th>
<th>BENYLIN® PRODUCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonsteroidal anti-inflammatory drugs (NSAIDs)/analgesics/antipyretics, such as aspirin, paracetamol, ibuprofen</td>
<td>Relieve aches and pains and reduce fever</td>
<td>Benylin® Daytime Flu Tablets and Benylin® 4 Flu</td>
</tr>
<tr>
<td>Cough suppressants, such as dextromethorphan, diphenhydramine and codeine</td>
<td>May help relieve cough</td>
<td>Benylin® Original, Benylin® with Codeine and Benylin® Dry Cough</td>
</tr>
<tr>
<td>Decongestants, such as pseudoephedrine, xylometazoline and oxymetazoline</td>
<td>Help to clear nasal passages and/or dry runny nose</td>
<td>Benylin® Daytime Flu Tablets and Benylin® 4 Flu</td>
</tr>
<tr>
<td>Expectorants, such as guaifenesin</td>
<td>May help loosen mucus</td>
<td>Benylin® Wet Cough, Benylin® Wet Cough Menthol, Benylin® Children’s Wet Cough and Benylin® Bronchospect</td>
</tr>
</tbody>
</table>
## BENYLIN® WET COUGH MENTHOL

### What is it for?
Alleviation of wet cough. Helps thin and loosen chest mucus.

### What's inside?
- Active ingredient:
  - **Guaifenesin** (starts to work in 30 min and lasts up to 6 hours) – used to reduce chest congestion. Contains sugar.

### Dosage
- Adults: 10 - 20 ml every 4 hours.
- Children under 12 years old: Not recommended for children under 12 years old.

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### What's inside?
- Active ingredient:
  - **Guaifenesin** (starts to work in 30 min and lasts up to 6 hours) – used to reduce chest congestion. Sugar, alcohol and colourant free.

### Dosage
- Adults: 10 - 20 ml every 4 hours.
- Children 6 – 12 years: 5 – 10 ml every 4 hours.
- Children 2 – 5 years: 2.5 – 5 ml every 4 hours.
- Not recommended for children under 2 years old.

## BENYLIN® CHILDREN'S WET COUGH

### What is it for?
To alleviate coughing in children. Helps thin and loosen chest mucus.

### What's inside?
- Active ingredient:
  - **Guaifenesin** (starts to work in 30 min and lasts up to 6 hours) – used to reduce chest congestion. Sugar, alcohol and Colourant free.

### Dosage
- Children 6 – 12 years: 10 – 20 ml every 4 hours.
- Children 2 – 5 years: 5 – 10 ml every 4 hours.
- Not recommended for children under 2 years old.
Benylin® has a range of products especially designed to quickly and effectively treat the symptoms of coughs, colds, flu and congestion for the whole family, helping them to get better and get back out there.

What is it for?
For relief of symptoms associated with cold and flu, including: fever, blocked nose and cough.

What’s inside?
Active ingredients:
- Paracetamol – reduces pain and fever.
- Pseudoephedrine – for nasal congestion and runny nose.
- Diphenhydramine HCl (starts to work in 15 min and lasts up to 12 hours) – relieves cough.

Dosage
Tablets
- Adults: 2 tablets 4 times daily. Do not exceed 8 tablets within 24 hours.
- Children (6 – 12 years): 1 tablet 4 times daily. Do not exceed 4 tablets within 24 hours.
- Do not recommend for children under 6 years.

Liquid
- Adults, elderly and children over 12 years: 20 ml 4 times daily.

Quick Question
Explain the statement – There is no cure for the common cold.
References

36. BENYLIN® DRY COUGH. Each 5 ml contains: Dextromethorphan HBr 15 mg. Reg. No. 2/10/1.5.
40. BENYLIN® FOUR FLU LIQUID. Each 20 ml contains: Dihydropyrimidine HCl 25 mg, Paracetamol 1 000 mg, Pseudoephedrine HCl 45 mg. Reg. No. 33/5/8/0345.
41. BENYLIN® FOUR FLU TABLETS. Each tablet contains: Dihydropyrimidine HCl 12.5 mg, Paracetamol 500 mg and Pseudoephedrine HCl 22.5 mg. Reg. No. 33/5/8/0509.
42. BENYLIN® DAYTIME FLU TABLETS. Each tablet contains: Pseudoephedrine HCl 30 mg and Ibuprofen 200 mg. Reg. No. 36/5/8/0204.
43. BENYLIN® BRONCHIOSPECT. Each 5 ml contains: Guaifenesin 66.5 mg. Terbutaline Sulphate 1.5 mg. Reg. No. 31/10/1.0487.