تجميعة أسئلة وفق الهيكل الوزاري المسار العام

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التواصل الاجتماعي بحسب الصف الثاني عشر

روابط مواد الصف الثاني عشر على تلغرام

التربية الاسلامية	اللغة العربية	اللغة الانجليزية	الرياضيات

المزيد من الملفات بحسب الصف الثاني عشر والمادة علوم صحية في الفصل الأول

Exam coverage 12 GENERAL Health Sciences T1

Academic Year العام الدراسي	2023/2024
Term الفصل	1
Subject المادة	Health Sciences
Grade الصف	12
Stream المسار	General العام
Number of Questions	25
Style of questions	Multiple choice multi-select matching
Marks per Question درجة الأسئلة الموضوعية	4
Maximum Overall Grade الدرجة القصوى الممكنة	100
Exam Duration - مدة الامتحان	120 minutes
Mode of Implementation - طريقة التطبيق	SwiftAssess

The meaning of medical terms

Root words, prefixes and suffixes all have different meanings in medical terminology. When they are put together, they describe the medical condition.

Let's look at the example word hyperglycaemia again.

hyperglycaemia		
hyper	**glyc**	**aemia**
hyper means too high	**glyc** means sugar	**aemia** means blood
So, hyperglycaemia means high levels of sugar in the blood.		

Putting the word parts together

How the parts of a word are put together matters. It can change the following:

- The meaning of the word
- The spelling
- How to say each part of the word

Further information

Some medical words look and sound similar but have very different meanings.

For example:

Dysphagia means difficulty swallowing.

Dysphasia means the loss of the power to speak or understand speech.

or

Humeral, relates to the humerus bone in the arm.

Humoral, refers to a body fluid such as a hormone.

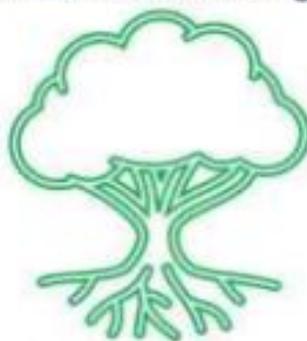# 1.2 Medical root words, prefixes, suffixes and combining vowels

Root words

A root word is the basic part of a word and it provides the meaning of the word. Medical terms always have at least one root word. By adding a prefix or a suffix to a root word, the meaning can be changed.

Below are some medical root words and their meanings. Try to become familiar with these words.

arthr	gastr	phleb
(joint)	(stomach)	(vein)
carcin	glyc	psych
(cancer)	(sugar)	(mind)
cardi	heam	pulmon
(heart)	(blood)	(lungs)
chem	lipid	thromb
(chemical)	(fat)	(clot)
derm	osteo	tox
(skin)	(bones)	(poison)

Why is the root word so important in medical terminology?

The root word is the base of the word from which other words grow.

HSC.3.5.01.002 Interpret simple medical root words, prefixes, suffixes and combining vowels.

Page 17 - Activity 12 - Understanding medical terms

14-18

Medical prefixes

Keyword

prefix

a letter or group of letters that is added at the beginning of a word to change its meaning

'Pre' means before. Prefixes come before a root word. They give you more information about the root word.

Think

Not every medical word has a prefix.

You should already know some common prefixes such as 'in', 'un', 'dis' and 'mis' because they are used often in the English language.

From the words shown in the picture above, you can see how adding or removing a prefix changes the meaning of the word

1.2 Medical root words, prefixes, suffixes and combining vowels

In the table below, there are some common medical prefixes. Try to become familiar with these.

Prefix	Prefix meaning	Prefix	Prefix meaning
a- or an-	without or lack of	hyper-	too high
ab-	away from or off	hypo-	too low
anti-	against	inter-	between
ante-	before	intra-	within
brady-	slow	myo-	muscle
epi-	above	tachy-	fast

Below are examples of how the prefixes are used in medical terminology.

Example	Word meaning
anaesthetic	without pain or sensation
abnormal	away from normal or not normal
antibacterial	to fight against bacteria
antenatal	before the birth of a baby
bradycardia	slow heartbeat
epidermis	upper layer of the skin
hypoglycaemia	too little sugar in the blood
hypotension	low blood pressure
intercellular	between the cells
intravenous	within the veins
tachycardia	fast heart rate

Medical suffixes

Keyword

suffix

a letter or a group of letters that is added to the end of a word to change its meaning

-able, -al, -dom,
-en, -ence, -er,
-ish, - ism, -its,
-less, -ness

A suffix can be added to the end of a root word. A suffix gives more information about a word.

When it is used in medical terminology, a suffix normally refers to one of the following:

- A condition
- A procedure
- A disease

The suffix in a medical term is the part that helps to identify what is wrong with a patient, and how it can be fixed.

Just like prefixes, not all medical terms contain a suffix.

The pronunciation of suffixes is very important. Some suffixes can sound similar but have different meanings.

Keyword

pronunciation

to say words in the correct and proper way

1.2 Medical root words, prefixes, suffixes and combining vowels

In the table below, there are some common medical suffixes. Try to become familiar with these.

Suffix	Suffix meaning
-aemia	blood condition
-genic	forming or causing
-ism	condition or disease
-itis	inflammation
-logy	study of
-sis	state of or condition
-pathy	disease or disease process

Below are examples of how the suffixes are used in medical terminology.

Example	Word meaning
leukaemia	cancer of the blood
carcinogenic	cancer forming
hyperthyroidism	a condition where the thyroid is overactive
arthritis	inflammation of the joints
biology	study of the body
osteoporosis	condition of the bones
neuropathy	a disease of the nervous system

Did you know?

If a word has a prefix and a suffix, you should identify what the suffix means first, then the prefix.

HSC.3.5.01.003 Identify medical terminology within medical record reports.

Page 24 - Activity 21 - Fill in a
medical record report

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1.3 Medical record reports

5. Test results and diagnosis

This part of the medical report will be used to record the results of the physical examination and the results of any other tests that the patient has had.

The doctor might complete different tests to confirm the presence of an illness or disease. These could include blood tests, X-rays, PCR tests or other diagnostic assessments.

Medical terminology will be used to describe the different tests that have been taken and their results. This is so that anybody treating the patient knows exactly what is wrong with them.

Example

Dr Al Qasimi is examining a 56-year-old patient. The patient says they have been feeling very tired recently and have had some chest pain. The patient is overweight and has an unhealthy diet. During the physical exam, the patient's blood pressure and heart rate measurements are both high.

Dr Al Qasimi recommends that the patient has a blood test and an X-ray to help diagnose the patient . The test results are recorded in the test results part of the medical record report. For example:

Test results	The physical examination results show that the patient is overweight. They have mild hypertension and mild tachycardia.
	The X-ray results show no abnormalities in the chest area.
	The blood test results show that the patient has hyperglycaemia.
	All other tests were normal.

Based on the test results, Dr Al Qasimi can diagnose what is wrong with the patient and make a treatment plan.

6. Treatment plan and progress report

After the disease or illness has been diagnosed, the healthcare professional will write a treatment plan on this part of the report. There may be a section to record the progress of the treatment.

HSC.3.5.01.004 Respond appropriately to instructions which contain medical terminology.

Pagee 28 - Activity 24 - Visiting the doctor quiz

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Common medical terms

Diagnosis	Treatment
This is when a medical professional identifies the disease or illness that a patient has.	Something that deals with a disease or injury to make someone feel better or become healthy again.
Prognosis	**Remission**
A doctor's opinion about how someone will recover from an illness or injury.	When the symptoms of the patient's disease get better (but are not cured).
Cure	**Terminal**
Something (such as a drug or medical treatment) that stops disease and makes someone healthy again.	Having an illness that cannot be cured.
Sign	**Symptoms**
Evidence of an illness that can be seen by others, such as a skin rash or a cough.	A feeling or physical change experienced by a patient, such as pain.
Acute	**Chronic**
An illness that lasts for a short time, less than three months.	A disease or illness that lasts three months or more.
Infectious	**Biopsy**
A disease that can be spread to other people by germs.	A small sample of tissue that's taken for testing.

HSC.5.3.01.001 Define a disease.

Page 44 - Discussion: Diseases

38-39

HSC.5.3.01.002 Differentiate between communicable and noncommunicable diseases.

Page 45 - Activity 1 - Communicable or non-communicable

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2.1 What are diseases

Diseases and disorders

A disease is a medical condition that stops the body from working normally.

Diseases can cause:

- pain in the body.
- parts of the body to stop working.
- in some cases, death.

Any part or of the body can be affected by diseases.

It is important to understand the signs and symptoms of diseases in different body systems so that you can recognise when you need to get medical help.

Keyword

sign

evidence of a disease that can be seen by others, such as a skin rash or a cough

Keyword

symptom

a feeling or physical change experienced by the patient, such as pain

Classifications of disease

Communicable and non-communicable

Diseases can be either communicable or non-communicable:

- Communicable diseases can be passed or spread from one person to another.
- Non-communicable diseases cannot be passed from one person to another.

Some examples are:

Communicable diseases	Non-communicable diseases
influenza (flu)	epilepsy
COVID-19	hypertension
gastroenteritis	diabetes
malaria	multiple sclerosis

Acute and chronic

Diseases can be either acute or chronic.

- Acute diseases last a short length of time, usually less than three months.
- Chronic diseases last a long time and sometimes they last for a person's whole life.

Some examples are:

Acute diseases	Chronic diseases
COVID-19	arthritis
common cold	diabetes
pneumonia	asthma
influenza (flu)	allergies

2.2 Diseases of the musculoskeletal system

The musculoskeletal system recap

The musculoskeletal system provides the body form, stability and support. It allows the body to move.

It is made up of:

- bones
- muscles
- joints
- cartilage
- ligaments
- tendons
- connective tissue

Research: Why do infancts have more bones?

An adult's human body has around 206 bones, whereas an infant's body has around 300 bones. Research the reasons behind this.

Conditions affecting the musculoskeletal system

There are many conditions that can affect the musculoskeletal system. Although they are more common in older people, musculoskeletal conditions can affect people of any age.

Conditions that affect the musculoskeletal system include:

- Arthritis
- Osteoporosis
- Osteopenia
- Rickets
- Sarcopenia
- Spine, back and neck pain
- Other pain disorders and inflammation-causing diseases

In this lesson you will learn about two common conditions that can affect the musculoskeletal system; arthritis and osteoporosis.

# 2.3 Diseases of the nervous system

Treatment for epilepsy

Epilepsy is usually managed by a treatment plan including:

- anti-epileptic medications that reduce or stop the seizures.
- a diet that contains high levels of healthy fats and low carbohydrates.
- brain surgery, which is sometimes used to remove or alter the area of the brain that causes the seizures.

Alzheimer's disease

What is it?

Alzheimer's is a disease that causes brain cells to waste away and die. A person with Alzheimer's will experience memory loss at the beginning. Over time, the symptoms gradually get worse, leading to confusion, behaviour changes and difficulties speaking, walking and eating. This disease is the most common type of dementia.
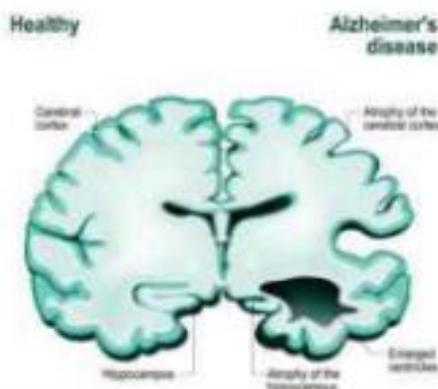
Keyword

dementia

a term used to describe a decline in memory, language and thinking

Further information

What is dementia?

Dementia is a general term used to describe the symptoms associated with a decline in mental ability. It is severe enough to reduce the quality of daily life. There are many causes of dementia but Alzheimer's is the most common. The damage to brain cells can impact someone's way of thinking, behaving and their feelings. It is not a normal part of aging.

Alzheimer's is a disease; dementia is not.

Who does Alzheimer's disease affect?

Alzheimer's usually affects peole aged 65 years old and older. After age 65, the risk of developing the disease doubles every five years. The risk of developing Alzheimer's is higher for people who have a family member with the disease. Women are more likely to develop it than men.

Signs and symptoms

The main symptom of Alzheimer's include:

- difficulty remembering newly learned information.
- forgetting people's names, or the names of everyday things.
- getting lost in familiar places.
- having trouble with vocabulary and following conversations.
- difficulty concentrating or thinking.
- behaviour changes such as mood swings or depression.

Treatment for Alzheimer's disease

There is no cure for Alzheimer's. Some medications are available that can help with memory problems or slow down the destruction of brain cells. There are also non-drug treatments. This includes group therapy sessions, where people with Alzheimer's take part in activities designed to improve memory. Therapists may speak about events from the past using photos or music. This helps to improve mood and memory.

2.4 Diseases of the respiratory system

Chronic obstructive pulmonary disease (COPD)

What is it?

Chronic obstructive pulmonary disease (COPD) is the name for a group of respiratory diseases that cause breathing difficulties. These breathing difficulties happen because of the narrowing of the airway.
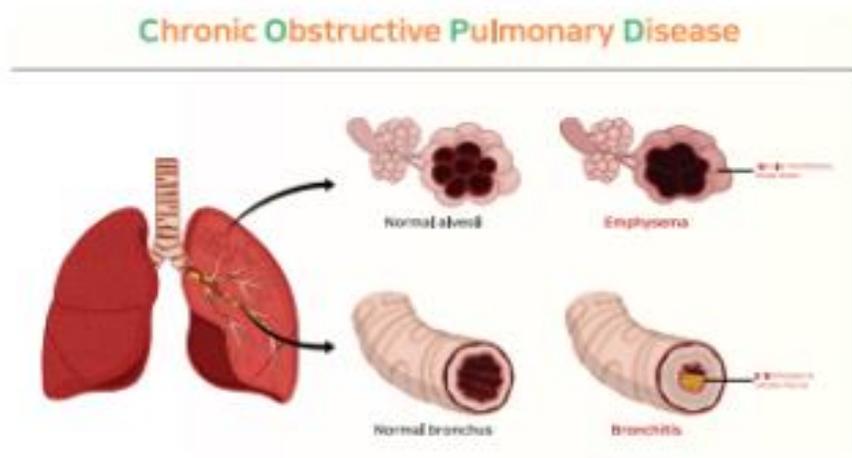
Keyword

narrow

smaller, limited or not as wide as usual

Forms of COPD include chronic bronchitis and emphysema.

Chronic Obstructive Pulmonary Disease

Who does COPD affect?

These diseases usually begin around the age of 30 to 35, however most people get diagnosed at an older age. People who smoke, have asthma, or are exposed to air pollution, chemicals or dust are at higher risk of developing COPD.

Research : COPD diagnosis

Research the reasons why most people who have COPD from the age of 30 to 35 usually get diagnosed at an older age.
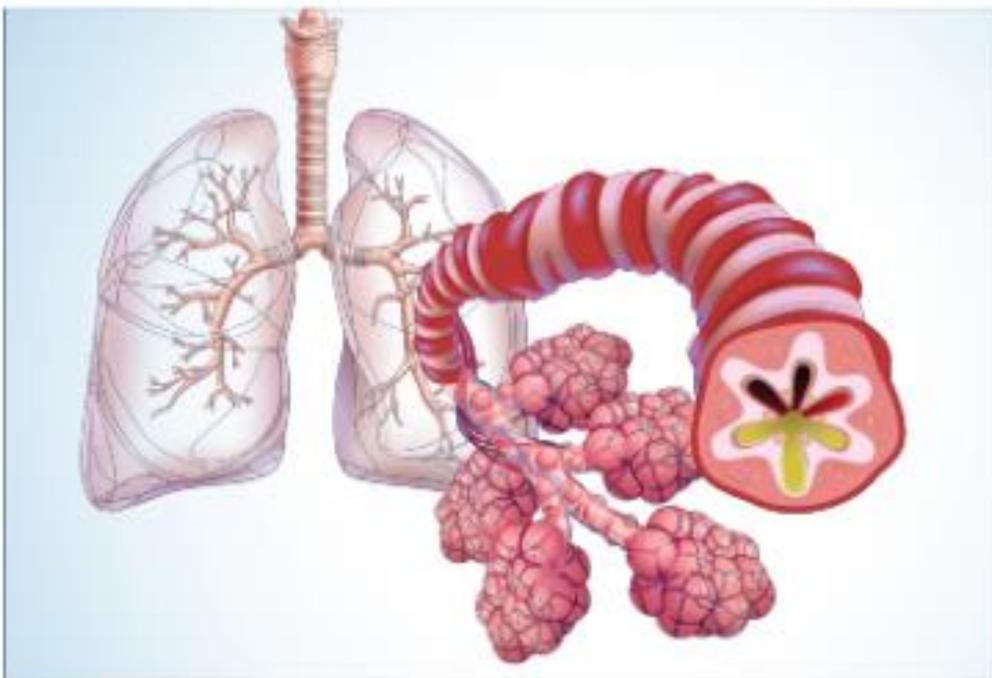
Signs and symptoms

- Shortness of breath
- Wheezing
- Chest tightness
- A chronic cough, usually with phlegm
- Frequent chest infections

Keyword

phlegm

mucus in the nose, mouth and throat

Treatment for COPD

There is no cure for COPD, however changes in lifestyle and medication can help manage and delay the disease from progressing. For example:

- not smoking is the best way to prevent COPD.
- medication to make it easier to breathe, such as an inhaler and anti-inflammatories to reduce the inflammation of the airway.
- pulmonary rehabilitation to increase your lung capacity.

Conditions affecting the digestive system

Many people suffer from digestive system problems. Some of the most common include:

- Gastroenteritis
- Stomach ulcers or gastritis (inflammation of the stomach).
- Inflammatory bowel disease
- Irritable bowel syndrome.
- Food intolerances
- Constipation

In this lesson you will learn about two common problems that affect the digestive system; Gastroenteritis and food intolerances.

Gastroenteritis

What is it?

Gastroenteritis (commonly known as a stomach flu or a stomach bug) happens when bacteria or viruses cause inflammation in the stomach and intestines. It can happen as a result of poor hygiene, after contact with animals or after eating contaminated food or drinks. The disease is acute, it usually lasts for up to one week but sometimes it can last a little longer.

Keyword

contaminated food

the presence of harmful substances in food which can cause illness

Who does gastroenteritis affect?

Gastroenteritis can affect any person of any age. It is more dangerous for very young children, older adults and people with underlaying health issues. Most cases of gastroenteritis are communicable, however, there are some non-communicable variations, for example food poisoning.

2.5 Diseases of the digestive system

Signs and symptoms

- Watery diarrhoea
- Cramps and pain in the stomach
- Nausea, vomiting or both
- Muscle aches
- Headache
- Fever

Treatment for gastroenteritis

The best way to prevent gastroenteritis is to practise good personal hygiene. This includes washing your hands after touching animals, raw food, unclean surfaces and after being in contact with other people.

There is no cure for gastroenteritis. However the followign steps can help to speed up recovery:

- Stop eating solid foods for at least a few hours.
- Get plenty of rest.
- Remain hydrated by drinking water.
- If the symptoms do not improve after a number of days, book an appointment to see a doctor.
- For infants and children, see a doctor straight away if there is a high fever of 38.9°C or more, or if the child is in pain or dehydrated.
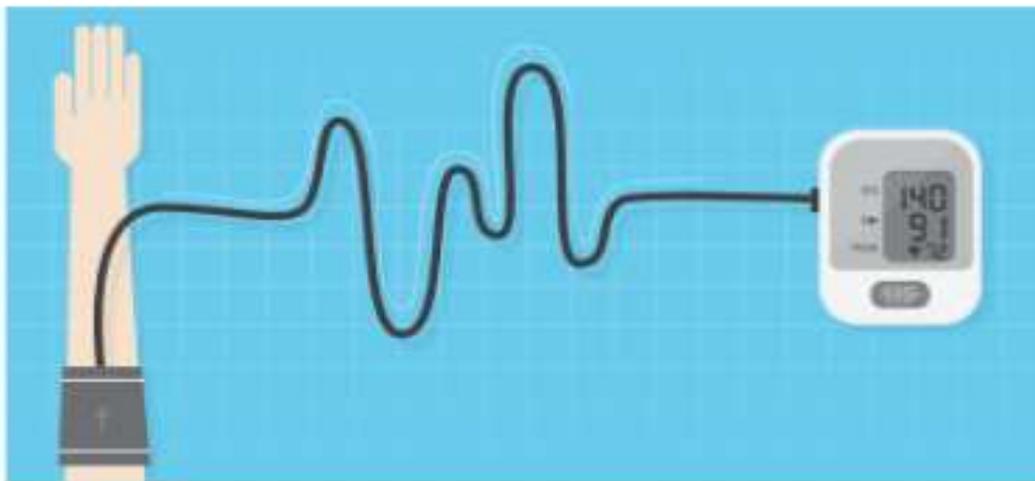
Hypertension

Discussion: Hypertension

Have you heard of the term hypertension? What do you think it means? Do you know any conditions that could be caused by it?

What is it?

Hypertension is a chronic condition, also known as high blood pressure. It means that the blood pressure in the arteries is higher than it should be. This makes the heart work harder than normal to circulate blood through the blood vessels.

Remember

A measurement for hypertension is considered to be 140/90mmHg or higher. Last year you learned that normal blood pressure is 120/80mmHg. A reading between these two numbers could mean the person is at risk of developing hypertension.

If hypertension is not controlled it can lead to other severe conditions including:

⊙ heart attack or stroke due to hardening of the arteries.

⊙ heart failure, because the heart is working too hard to pump blood.

2.6 Diseases of the circulatory system

Who does hypertension affect?

High blood pressure can affect anyone. The risk of developing it increases with age, family history of hypertension and having an unhealthy lifestyle. This includes being overweight, having too much salt in the diet, smoking, not doing exercise, and having high-stress levels.

Signs and symptoms

Most people with high blood pressure have no signs and symptoms, except when it is very high. Because of this, it is important that people regularly check their blood pressure. If it is very high, they could experience:

- severe headache.
- tiredness or confusion.
- vision problems.
- chest pain.
- irregular heartbeat.
- irregular breathing.

Treatment for hypertension

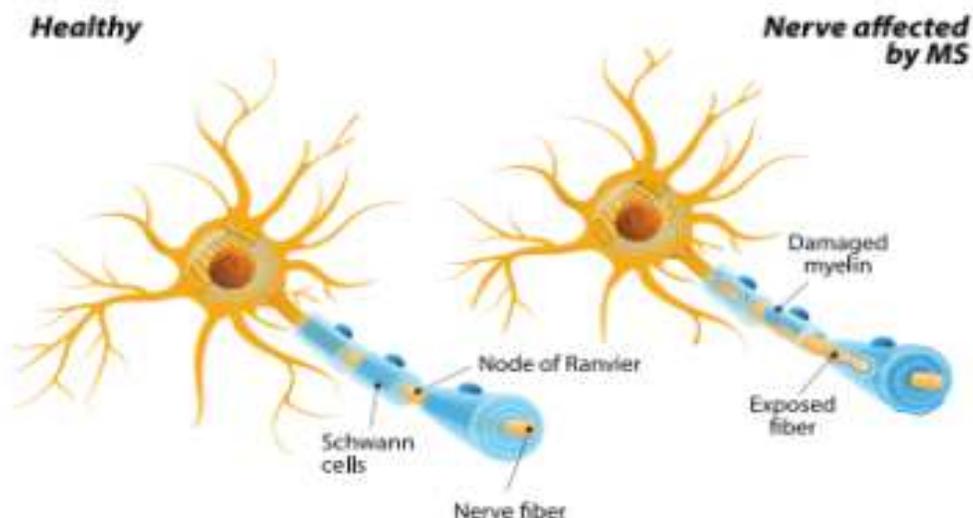The faster the hypertension is diagnosed, the less damage it will cause.

Having a healthy lifestyle can both reduce the risk of developing hypertension and help to manage the condition after it has been diagnosed. This means eating a diet low in salt, fat and caffeine, maintaining a healthy weight and exercising, and finally by avoiding smoking.

Medications are also available that lower blood pressure and relax the blood vessels

HSC.5.3.01.007 Describe diseases and disorders of the immune system.

Page 68 - Activity 31 - Multiple sclerosis

63-64

Multiple sclerosis

What is it?

Multiple sclerosis (MS) is an autoimmune disease of the brain and spinal cord. It happens because the immune system attacks the protective covering (the myelin) of the nerve cells. This causes damage to the nerves and disrupts the communication between the brain and the rest of the body. MS makes it difficult to do everyday tasks. It is a chronic disease.

Healthy

Nerve affected by MS

Damaged myelin

Node of Ranvier

Exposed fiber

Schwann cells

Nerve fiber

Who does multiple sclerosis affect?

MS usually develops between the ages of 16-55. Women are more likely than men to get the disease. The risk of developing MS is higher if a close family member has it.

Signs and symptoms

The symptoms of the disease in some people come and go. In others, they get worse over time. They include:

- tiredness and weakness.
- vision problems.
- movement problems.
- pain or numbness in the arms and legs.
- cognitive problems.

2.7 Diseases of the immune system

Treatment for multiple sclerosis

There is no cure for MS, but there are some ways to manage the condition:

- Medication is available to slow the progression of the disease and to manage attacks.
- Physiotherapy to stretch and strengthen muscles, and to help with walking and doing day-to-day activities.

Allergy

What is it?

Allergies happen when the immune system reacts to a substance such as dust, animal hair, or a type of food. The immune system produces antibodies which think that the substance is harmful. This can cause inflammation of the skin, eyes, and airway.

Keyword

antibodies

a substance produced by the body to fight disease

In some cases, allergies can cause a dangerous reaction called anaphylaxis. This is life-threatening.

HSC.5.4.01.002 Explain the functions of various smart medical devices and wearables.

Page 85 - Activity 5 - Matching

73-74

Examples of smart medical devices and wearables

Fitness trackers and smart watches

These are currently the most commonly used medical wearable. Fitness trackers are usually wristbands that have sensors to keep track of physical activity and heart rate. They can sync to mobile applications and provide fitness guidance for users.

Smart watches are constantly evolving. In recent times they have many advanced features including:

- tracking workouts in different exercise modes.
- stress monitoring.
- mental health tracking.
- movement reminders.
- sleep tracking.
- measuring step-count.
- measuring heart rate.
- measuring blood oxygen level.
- taking an electrocardiogram (ECG) anywhere at any time and notifying the user if something is wrong.

Smart watches can also perform tasks that people do on their phones such as read notifications, send simple messages, make phone calls and play music while offering the health-related benefits of fitness trackers.

3.2 Smart medical devices and wearables

Smart hearing aids

Hearing aids have developed a lot since they were invented. Smart hearing aids are fitted with sensor technology which uses AI and an algorithm to filter out background noise such as wind, and focus on specific sound sources such as speech.

Wearable ECG monitors

Electrocardiograms (ECG) track heart rhythm and rate. Wearable ECG monitors can help users to track their heart health, some can even measure other vital signs such as blood pressure. They can also detect and alert the user when their heartrate is abnormal.

One type of wearable ECG monitor gets users to place their fingers on top of two electrodes and attach the bottom electrode to their left ankle. Results are received within thirty seconds.
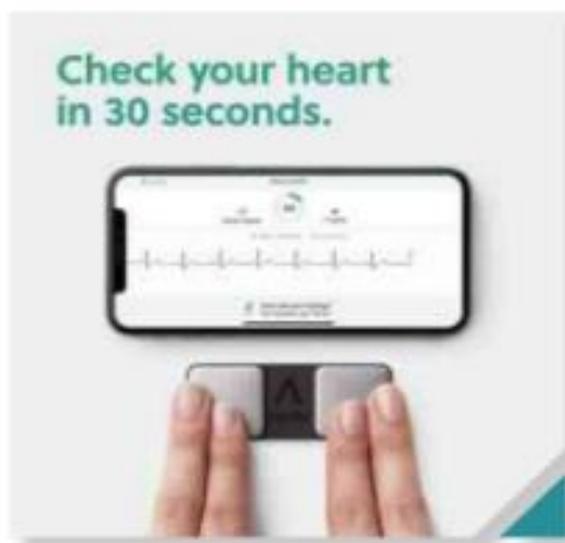
3.4 Augmented reality (AR) and virtual reality (VR)

What are augmented reality and virtual reality?

Discussion: Your use of AR and VR

Have you ever used AR or VR technology before? If so, what did you use it for? Discuss your experience with your class.

Augmented reality (AR)	Virtual reality (VR)
(AR) is the technology that allows laying some information, videos and graphics on smart devices over reality (what you can see without technology). Therefore, this technology augments (changes) the real world by adding additional data to it. AR is popularly used in gaming, for trying on clothes or make-up, for seeing constellations of stars in the sky, among many others.	(VR) is a simulated reality created by computer technology when a person completely enters into a digital environment and cannot see the real environment around them. There is a large selection of VR games available today, as well as car test driving experiences and roller-coaster experiences.

How are AR and VR used in healthcare?

AR and VR are quickly becoming popular in healthcare. They can provide high quality assistance to doctors and other healthcare professionals in patient treatment, and they can be used in health education for the public, to teach people how to care better for their health.

Here are some ways in which AR and VR are used in healthcare:

Medical training

Medical students, doctors or surgeons can learn how to treat patients better or perform difficult operations without the risk of making real-life surgery mistakes that could have life-threatening results.

Robotic surgery

When robotic devices perform high-precision operations, they are usually controlled by a human surgeon using VR technology. This reduces the time and risk of complications. The robotic device is accurate, meaning smaller incisions are made, the amount of blood lost is reduced and recovery is much quicker.

3.4 Augmented reality (AR) and virtual reality (VR)

Physiotherapy

VR helps patients to overcome high levels of pain and have faster recovery through active therapy.

Mental health treatment

Anxiety, stress, depression, phobias and post-traumatic stress disorder (PTSD) can be treated using AR and VR by placing the patient in a safe and calm environment where they can do meditations and other relaxation activities.

Research : VR for mental health

Virtual reality (VR) has proven to be an excellent tool to help people manage many mental health conditions, one of them being overcoming phobias. Research how VR is being used to treat phobias.

Emergency treatment

AR can be used on maps to help people to find healthcare facilities, medical equipment, such as public AEDs, and pharmacies at speed.

Personalised treatment

VR and AR can help doctors to explain medical treatments to their colleagues and patients in a clear and visual way. Doctors may demonstrate how operations will be performed and which steps a patient should take for more effective recovery.

3.4 Augmented reality (AR) and virtual reality (VR)

Scientists have developed AI by studying how the brain works in different situations, such as how humans think when trying to solve a problem, how they detect patterns or how they understand pictures.

How is AI used in healthcare?

Video: AI in healthcare

Watch the video explaining how AI is used in healthcare.

AI has a bright future in healthcare. AI makes the lives of patients, doctors and hospital administrators easier by doing tasks that are usually done by humans, but AI completes these tasks faster. The next few pages show some ways that AI is currently being used in healthcare.

Keeping well

AI can help people to stay healthy so that they do not need to visit a doctor as often as they do now. AI is used to develop apps that encourage healthy behaviours and help people to manage a healthy lifestyle. AI also allows healthcare professionals to understand the day-to-day patterns of the people they care for. This means healthcare professionals can give better guidance and support to patients.

Early detection of disease

AI is being used to detect diseases, such as cancer, more accurately and in the early stages. AI is used to review and read mammograms 30 times faster than humans, with 99% accuracy. This level of accuracy reduces the need for unnecessary follow-up examinations or second opinions.

The rise of medical wearables and other devices with AI technoloogy can be used to detect heart disease in the early stages. These devices help healthcare professionals to monitor and detect a potential heart attack at an earlier, more treatable stage.

Decision making

AI can recognise patterns which are consistent among patients with a certain disease. It can use this data to recognise the risk of other people developing a condition based on lifestyle, environmental, genetics or other factors. AI can predict what diseases a person is likely to develop based on these factors.

3.5 Artificial intelligence (AI)

Treatment

AI helps doctors to manage patients with chronic diseases based on their individual needs, as compared to all patients with the same disease. AI can help to create individual care plans and help patients with long-term treatment programmes.

AI robots have been used for more than 30 years in healthcare. They range from simple to highly complex surgical robots that can either help a human surgeon or complete operations alone. In addition to surgery, they are used in hospitals and labs for repetitive tasks, in rehabilitation, physiotherapy and in support of those with long-term conditions.


End of life care

People are living much longer than previous generations and are dying in a different and slower way. They have conditions like heart disease, Alzheimer's and osteoporosis. The later years of life can be quite a lonely time for people.

Robots can help people to be independent for longer, reducing the need for hospitalisation. AI combined with newer technology means robots can have conversations and carry out other social interactions with people to keep aging minds sharp and to reduce loneliness.

Medical training

AI allows those in training to experience realistic simulations in a way that simple computers cannot. An AI computer can instantly provide learners with a scenario from a large database. Robots can use natural speech to explain their problems as if they are a human. The learner's responses and decisions can be challenged by the robot.

Training can be done anywhere at any time. With the power of AI on a smartphone, training is possible if the healthcare professional wants to refresh their skills in case they are faced with a challenging scenario in a clinic.
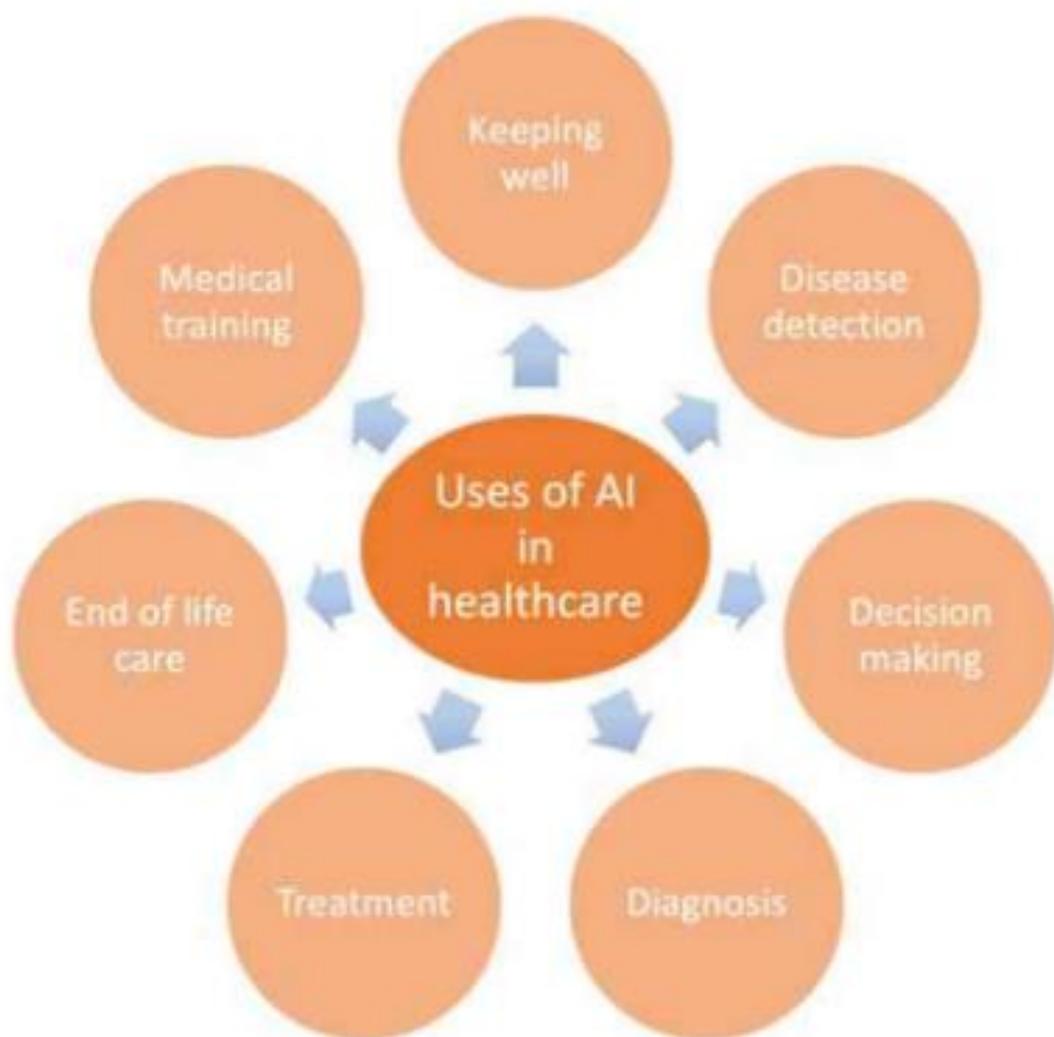
3.5 Artificial intelligence (AI)

What is telemedicine?

Discussion: Telemedicine

Have you heard of the term 'telemedicine' before? Explain what you think this word means.

Video: Telemedicine

Watch the video showing how telemedicine is used in the UAE.

Telemedicine is defined by the WHO as, "healing from a distance." It uses technology to improve patient health and improve the level of access that people have to a doctor and medical information.

Telemedicine allows doctors and other healthcare professionals to speak to, diagnose and treat patients from a distance, sometimes without an appointment. It uses technology such as computers, video calls, phone calls and messaging to communicate with patients.

Video: Abu Dhabi Telemedicine

Watch the video that shows some of the services that are available through Abu Dhabi Telemedicine.

Telemedicine services can be delivered in most non-emergency cases, doctors can treat the following conditions via telemedicine:

- Coughs and colds
- Asthma
- Allergies
- Headache and fever
- Muscle pain
- Joint and back pain
- Skin problems
- Minor burns
- Obesity
- Mental illness

The telemedicine services aim to provide people at home with the medical services that they require. However, in some cases, the patient needs to be physically assessed by a doctor. If this happens, they will be referred to a hospital.

Think

Do not use telemedicine services in an emergency, instead call 998.

3.6 Telemedicine

Reasons why telemedicine is used

As you know, telemedicine is useful for conditions that do not require laboratory tests or a physical exam.

Sometimes there are barriers to physical treatment, such as:

- the increased risk of spreading or contracting an infectious disease, such as COVID-19 .
- a patient lives far away from a medical facility, such as a hospital.
- a patient cannot get transport to a medical facility.

Benefits of telemedicine

There is a lot of evidence showing that telemedicine works well for both the patient and healthcare professionals. It works best when a patient provides clear details about their signs and symptoms. Other benefits include:

- Convenience – people who use telemedicine spend less time and money getting to and from hospital and waiting for their doctor.
- Improved access to care – it is easy for people who have disabilities, are very old, or not near to a healthcare facility to call a doctor and speak from their own home.
- Reduced risk of spreading infections – going to the hospital involves being around people who are sick. Some diseases can spread easily. Telemedicine reduces the chance of getting an infection at the hospital or clinic.

How 5G can improve technology in healthcare

Telemedicine

Good telemedicine needs a strong network, with high quality video. A 5G network can support video-based consultations and improve the quality of care given. Patients can get treated sooner and gain access to specialists who may not be available in their nearest hospital or clinic.

Monitoring patients

With the use of medical wearables, healthcare professionals can monitor patients outside of the hospital facility. This allows more personal care for each patient. Doctors also think that the use of wearables increase their patient's interest in their own health. Wearables decrease hospital costs as patients can measure and record some of their own health data and simply send the data to their doctor. Slow network speeds and poor connections mean that doctors usually do not receive this data in real-time. This can be a problem if they need to make a quick decision about a patient who is having a heart attack, for example.

With 5G technology, healthcare professionals can monitor patients closely and they can be confident that the data they receive is up to date. This means that care and advice can be provided quickly, if needed.

HSC.3.6.01.001 Explain how to provide emergency care for a head or spinal injury.

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Emergency care

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Signs and symptoms of a spinal injury

Signs and symptoms of a spinal cord injury after an incident may include:

- ⊙ extreme back pain or pressure in the neck, head or back.
- ⊙ weakness, lack of coordination or paralysis in any part of the body.
- ⊙ numbness, tingling or loss of sensation in the hands, fingers, feet, or toes.
- ⊙ difficulty with balance and walking.
- ⊙ difficulty breathing after injury.
- ⊙ an oddly positioned or twisted neck or back.

Emergency medical care for head and spinal injuries

Anyone who experiences an injury to the head or neck needs immediate medical attention. This is because they may have a spinal injury or brain damage. It is important to keep the person still, as moving them could cause further damage.

For spinal injuries, or moderate to severe head injuries, call an ambulance straight away. Get medical help straight away if the person:

- ⊙ becomes very sleepy.
- ⊙ behaves differently.
- ⊙ develops a severe headache or stiff neck.
- ⊙ has pupils (the dark central part of the eye) with unequal sizes.
- ⊙ is unable to move an arm or leg.
- ⊙ loses consciousness – even briefly.
- ⊙ vomits more than once.

You should stop any bleeding by pressing a clean dressing on the wound. Do not apply pressure to a head wound if there is a suspected skull fracture. Ice can be applied to the swollen area of the head.

If the person is vomiting roll the person's head, neck, and body, as one unit, onto their side to prevent choking. This protects the spine which you must always assume is injured in the case of a head injury.

4.2 Stroke

What is a stroke?

Discussion: Stroke

Have you heard the term stroke before? Discuss with your class what you already know about strokes.

A stroke is a condition that happens when the supply of oxygen to the brain is reduced or stops completely.

This is caused by a blood clot (blockage of blood flow) or a burst in an artery that carries blood to the brain. When a person has a stroke, the cells in the brain begin to die because they are not getting oxygen.

Treating a stroke early is very important, it can reduce the damage caused by the stroke, and it can improve their chances of recovery.

Further information

Strokes can happen to anyone, at any time. In the UAE, between 10,000-12,000 people suffer from strokes every year, which equals to one stroke every hour! Half of these people are younger than 45 years old.

The good news is that strokes are preventable. Smokers are four times more likely to have a stroke than non-smokers. Making other healthy choices, such as doing enough exercise, is another way to reduce the risk of having a stroke.

In a severe stroke, around 1.9 million brain cells die per minute. Therefore, the speed of treatment is very important as every minute counts. The quicker a stroke patient can get help, the more likely they are to survive with little or no disability.

Video: It could be a stroke

Watch the video showing how to tell if someone is having a stroke.

Signs and symptoms of a stroke

Use FAST to recognise the signs of a stroke.

- Face drooping: This is when one side of the face droops. Do they have numbness in their face?

- Arm weakness: Do they feel weakness in one or both arms?

- Speech difficulty: Are they finding it difficult to talk? Does their speech sound different?

- Time: If the answer is yes to any of the above, the person could be having a stroke. It is important to call the emergency services immediately. Let the operator know that you suspect the patient is having a stroke.

F A S T

| face drooping | arm weakness | speech difficulty | time to call emergency services |
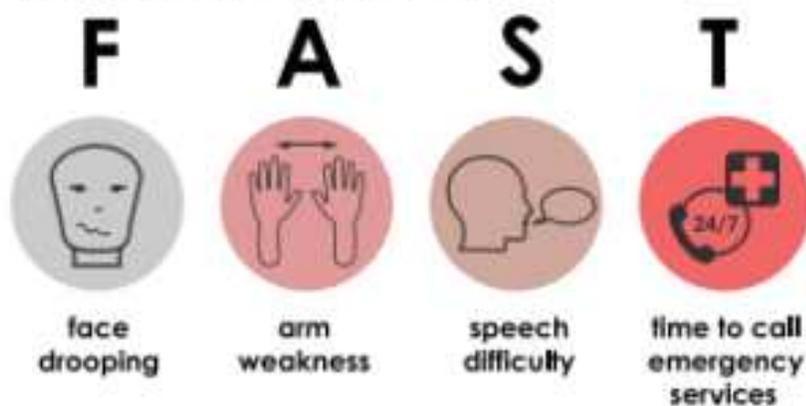
Emergency medical care for a stroke

If a person is experiencing any of the above signs and symptoms, you should call the emergency services immediately. Getting treated quickly is very important.

Follow these steps if you suspect someone is having a stroke:

- Call the emergency services or ask someone to call them. Be sure to follow up with them and ask them how long it will take the emergency services to arrive.

- Get the first aid kit and the AED.

- Take note of the time that the patient started to experience symptoms or the time you found them.

- Stay with the person until the emergency services arrive. Give the medical team any details you know about the patient.

- If the person becomes unresponsive and is not breathing properly, be prepared to give CPR.

HSC.3.6.01.003 Explain how to provide emergency care for a diabetic episode.

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4.3 Diabetic episode

Diabetes

Diabetes is a disease where the body is unable to properly produce or respond to a hormone called insulin. When the body does not respond to insulin, the level of blood glucose (sugar in the blood) becomes too high. This is a state known as hyperglycaemia. Blood glucose can also be too low, this is called hypoglycaemia. People who have diabetes often take medication which helps control their blood glucose levels.
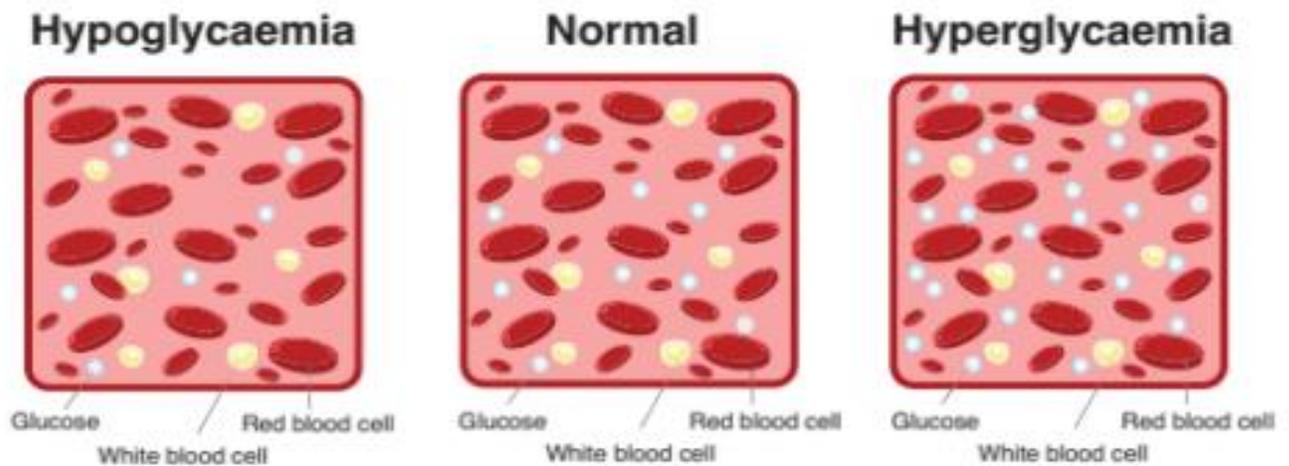
A diabetic episode happens when a person experiences extreme hypoglycaemia (very low blood glucose), or extreme hyperglycaemia (very high blood glucose).

Hypoglycaemia

The main reason that many diabetics experience hypoglycaemia is due to incorrect use of insulin medication. They may take too much at once, or they may take insulin at the wrong times. There are other reasons why hypoglycaemia can happen when a person has diabetes. It can happen when a person:

- ⊙ doesn't eat a meal.
- ⊙ has not eaten enough food.
- ⊙ does a lot of physical activity without fuelling their body correctly (eating enough).

If hypoglycaemia is not treated it can lead to life-threatening problems such as seizures.

Signs and symptoms of hypoglycaemia

Signs and symptoms of hypoglycaemia normally appear very suddenly and include the following:

- Dizziness
- Feeling hungry
- Irritated
- Pale skin
- Fast heartbeat
- Shaking
- Sweating
- Sleepiness

Emergency medical care for hypoglycaemia

The person should drink a sugary juice, or eat a sugary snack such as a sweet. After fifteen minutes they should test their blood glucose levels. If they have not returned to normal, they should eat some more.

If the person is conscious but is unable to eat, you should put some honey or a sweet syrup inside their cheek and monitor them.

If the person becomes unconscious, you should call 998 and ask for emergency medical help.

4.3 Diabetic episode

Hyperglycaemia

Hyperglycemia is when blood glucose levels are too high because insulin is not present or the body doesn't respond to the insulin that is present. Blood and urine tests will show high levels of sugar. One of the main causes of hyperglycaemia is when a person with diabetes does not receive insulin treatment or eats too many sugary foods.

Signs and symptoms of hyperglycaemia

Like with hypoglycaemia, the signs and symptoms of hyperglycaemia also appear quite suddenly. They include the following:

- Increased thirst
- Headaches
- Blurred vision
- Weakness
- The need to urinate frequently