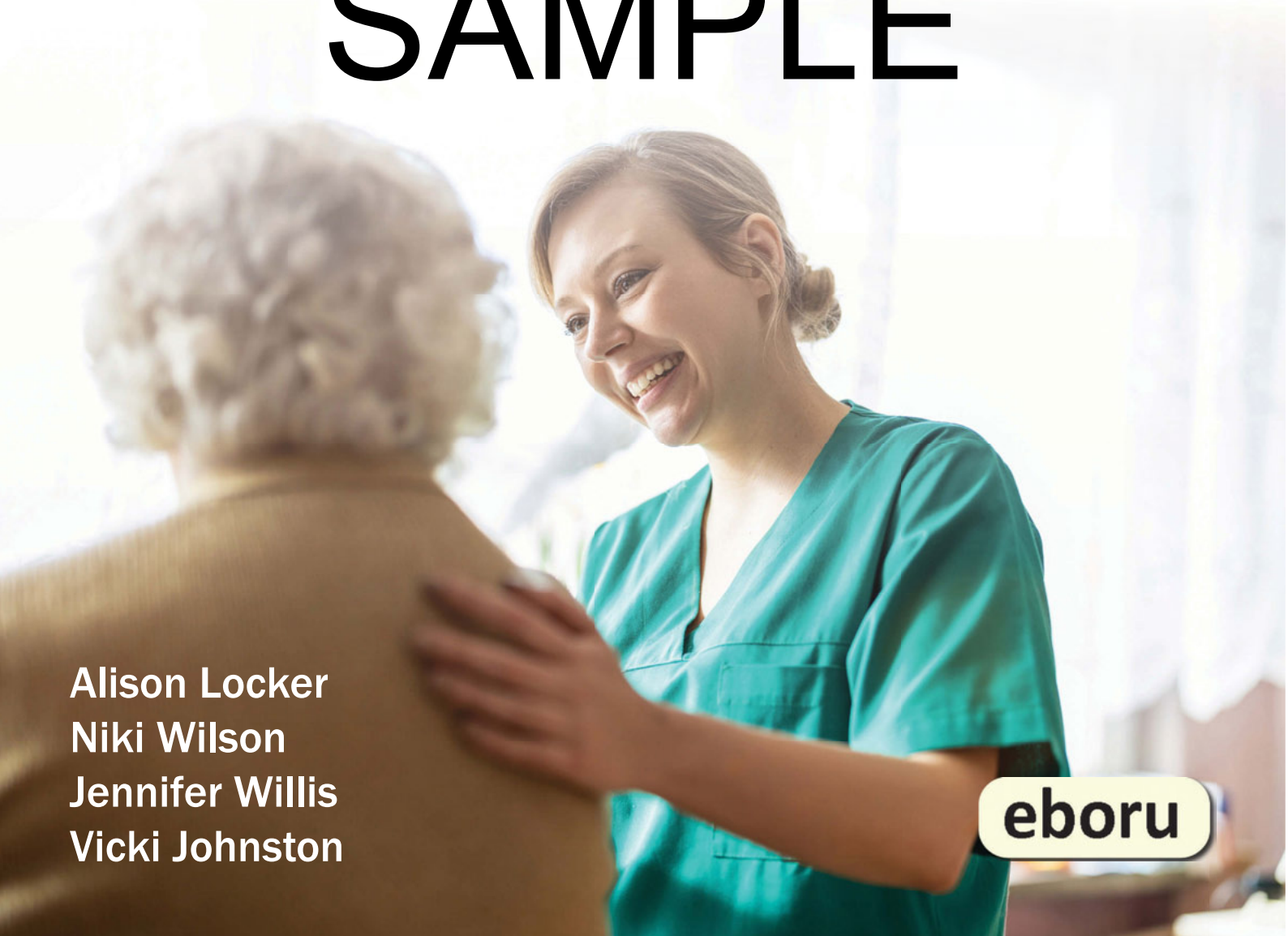
Cambridge Advanced National

# HEALTH AND SOCIAL CARE (AAQ)

Student textbook

SAMPLE



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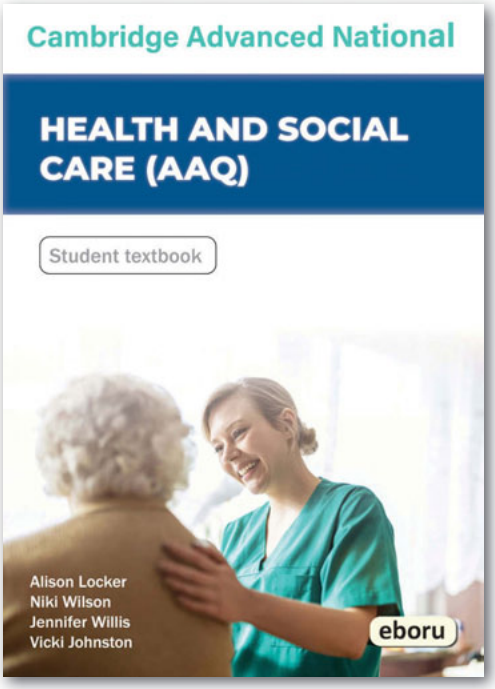
# CAMBRIDGE ADVANCED NATIONAL HEALTH & SOCIAL CARE (AAQ)

## Sample Units

**F091: Anatomy and physiology for health and social care**

**F092: Person-centred approach to care**

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# WHAT TO LOOK OUT FOR!

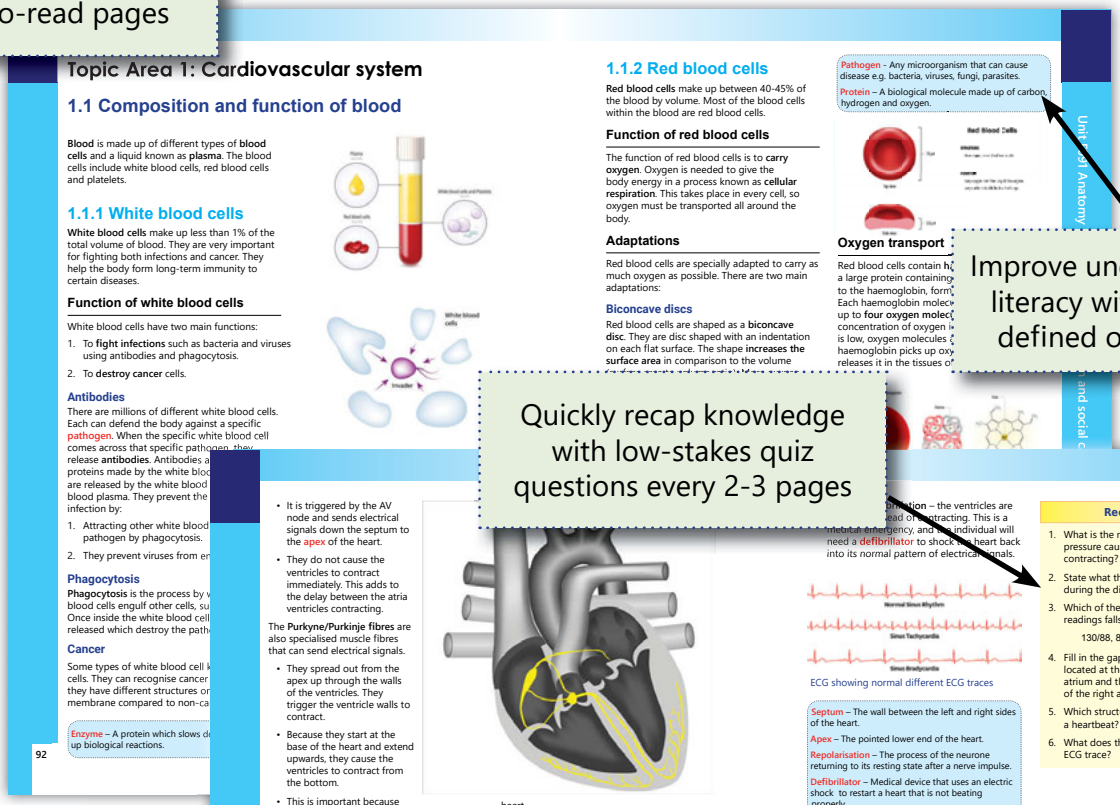
Engage students with visual, colourful and easy-to-read pages

Improve understanding and literacy with tricky words defined on each spread

Quickly recap knowledge with low-stakes quiz questions every 2-3 pages

Develop understanding and learn to apply knowledge with case study scenarios and activities

Support assessment preparation with a range of end of topic practice questions



Topic Area 1: Cardiovascular system

1.1 Composition and function of blood

Blood is made up of different types of blood cells and a liquid known as plasma. The blood cells include white blood cells, red blood cells and platelets.

1.1.1 White blood cells

White blood cells make up less than 1% of the total volume of blood. They are very important for fighting both infections and cancer. They help the body form long-term immunity to certain diseases.

Function of white blood cells

White blood cells have two main functions:

1. To fight infections such as bacteria and viruses using antibodies and phagocytosis.
2. To destroy cancer cells.

Antibodies

There are millions of different white blood cells. Each can defend the body against a specific pathogen. When the specific white blood cell comes across that specific pathogen, they release antibodies. Antibodies a proteins made by the white bloc are released by the white blood blood plasma. They prevent the infection by:

1. Attracting other white blood pathogen by phagocytosis.
2. They prevent viruses from en

Phagocytosis

Phagocytosis is the process by blood cells engulf other cells, su Once inside the white blood cell released which destroy the path

Cancer

Some types of white blood cell cells. They can recognise cancer they have different structures o membrane compared to non-ca

Enzyme – A protein which slows up biological reactions.

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1.1.2 Red blood cells

Red blood cells make up between 40-45% of the blood by volume. Most of the blood cells within the blood are red blood cells.

Function of red blood cells

The function of red blood cells is to carry oxygen. Oxygen is needed to give the body energy in a process known as cellular respiration. This takes place in every cell, so oxygen must be transported all around the body.

Adaptations

Red blood cells are specially adapted to carry as much oxygen as possible. There are two main adaptations:

Biconcave discs

Red blood cells are shaped as a biconcave disc. They are disc shaped with an indentation on each flat surface. The shape increases the surface area in comparison to the volume

Pathogen - Any microorganism that can cause disease e.g. bacteria, viruses, fungi, parasites.

Protein – A biological molecule made up of carbon, hydrogen and oxygen.

Oxygen transport

Red blood cells contain h a large protein containing to the haemoglobin, form Each haemoglobin molec up to four oxygen molec concentration of oxygen i is low, oxygen molecules haemoglobin picks up oxy releases it in the tissues o

Unit F091 Anatomy and physiology for health and social care

- It is triggered by the AV node and sends electrical signals down the septum to the apex of the heart.
- They do not cause the ventricles to contract immediately. This adds to the delay between the atria ventricles contracting.

The Purkyne/Purkinje fibres are also specialised muscle fibres that can send electrical signals.

- They spread out from the apex up through the walls of the ventricles. They trigger the ventricle walls to contract.
- Because they start at the base of the heart and extend upwards, they cause the ventricles to contract from the bottom.
- This is important because it causes the blood to be pushed upwards towards the arteries which are at the top of the ventricles.

Electrocardiogram (ECG) trace

An electrocardiogram (ECG) is used to read the heart's electrical signals. It can pick up problems with the heart and help diagnose problems.

Electrodes are placed on the skin in specific places. The machine measures the heart signals over time and produces an ECG trace. The pattern on the trace shows spikes and troughs which represent the electrical activity in the heart.

To make it easier to interpret the trace, the different peaks and troughs are given the letters P, Q, R, S and T, which are explained below and can be seen in the diagram.

- P – contraction of the atria.
- QRS – contraction of the ventricles.
- T - repolarisation (recovery) of the ventricles so that they will be ready to contract again.

When health practitioners read ECG traces, they look at these peaks and troughs, and the spaces between them, to check that the heart is beating normally. Some common conditions are outlined below.

- Tachycardia – heart beats faster than 100bpm. The peaks of the ECT are much closer together.
- Bradycardia – heart beats slower than 60bpm. The peaks are much further apart.
- Atrial fibrillation – atria not contracting properly, causing irregular heartbeat. The P wave cannot easily be seen.

need a defibrillator to shock the heart back into its normal pattern of electrical signals.

ECG showing normal different ECG traces

Septum – The wall between the left and right sides of the heart.

Apex – The pointed lower end of the heart.

Repolarisation – The process of the neurone returning to its resting state after a nerve impulse.

Defibrillator – Medical device that uses an electric shock to restart a heart that is not beating properly.

Recap questions

1. What is the name of the type of blood pressure caused when the heart is contracting?
2. State what the heart muscle is doing during the diastolic phase.
3. Which of the following blood pressure readings falls within the ideal range:

   130/88, 88/55, 126/90, 110/70
4. Fill in the gaps: The _____ node is located at the top right of the right atrium and the _____ node is at the base of the right atrium.
5. Which structure within the heart triggers a heartbeat?
6. What does the P wave represent in an ECG trace?

Practice questions

1. Explain why the ventricle walls are thicker than the atrium walls. (3)
2. Explain how the valves ensure blood flows in the correct direction. (4)
3. Explain why a GP may be concerned about an individual with a blood pressure of 140/90 (2)
4. Explain what happens during the systolic and diastolic phases of the heartbeat. (3)
5. Outline what an ECG shows. (3)

Apply your understanding

Sophie, a 30-year-old gym teacher, has just been brought into hospital following a road traffic accident. She was sitting in the middle of the back seat with just a lap belt when her car was involved in a head-on collision with another vehicle. The paramedics took an ECG and found that she had a faster than normal heartbeat, where the QRS peaks are much closer together than normal. This condition is called tachycardia. They have also measured her blood pressure and found it to be 85/55mmHg. The consultant in the Accident and Emergency department suspects internal bleeding, so has sent her for a CT scan to see if there is any damage to blood vessels in her abdomen. To make the blood vessels more visible, they have injected her with a dye.

1. If the dye injected into Sophie's veins entered the heart's inferior vena cava vein, list the heart chambers and major blood vessels it will pass through on its way down to blood vessels in the abdomen.
2. Why would internal bleeding cause Sophie's blood pressure to read of 85/55 mmHg?
3. Explain why internal bleeding might give Sophie a fast heartbeat.
4. What does the QRS peak on the ECG represent and what other things are represented on an ECG trace?

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Impact of the condition on the individual

Apply your understanding

You are a social worker, and you have a new service user to assess. Margaret is 85 years old and lives alone in a two-storey house at the top of a steep hill. She does not have a car, so she needs to walk down the hill into town to do her shopping. She has recently been diagnosed as having angina and she has contacted social services because she is struggling to cope at home. She is also feeling depressed and is struggling to do her shopping, cleaning and get to the toilet which is upstairs. The consultant at the hospital has recommended that she gives up smoking and starts eating a healthier diet.

1. Explain why stopping smoking and eating a healthy diet will help Margaret to control her condition.
2. Can you suggest why having angina has caused Margaret's difficulties?
3. Explain to Margaret how a nitrolingual pump works.

End of Topic Practice Questions

1. Identify the parts of the heart in the diagram below. (4)

| | |
|---|---|
| A | |
| B | |
| C | |
| D | |

2. Which blood vessel carries blood from the body back to the heart? (1)
3. Which valve prevents blood from flowing backwards from the left ventricle to the left atrium? Tick one box. (1)

   Aorta ☐
   Pulmonary vein ☐
   Inferior vena cava ☐
   Pulmonary artery ☐
4. Complete the sentences below. (3)

Use words from the list. You can use them once, more than once or not at all.

low high ideal diastolic systolic

Michael has a blood pressure of 88/58 mmHg which is considered to be in the _____ range. The larger of the two values is the _____ pressure and the smaller of the two values is the _____ pressure.

5. Analyse how DVT affects the cardiovascular system. (6)
6. Mary is 62 and has been diagnosed with angina. She experiences pain even when walking short distances. She is also the main carer for her husband who has dementia. Using a nitrolingual pump has helped a little, but she is still finding it too difficult to manage. The doctor has suggested surgery – either an angioplasty or a coronary bypass.

   Discuss which treatment you would recommend for Mary. (9)

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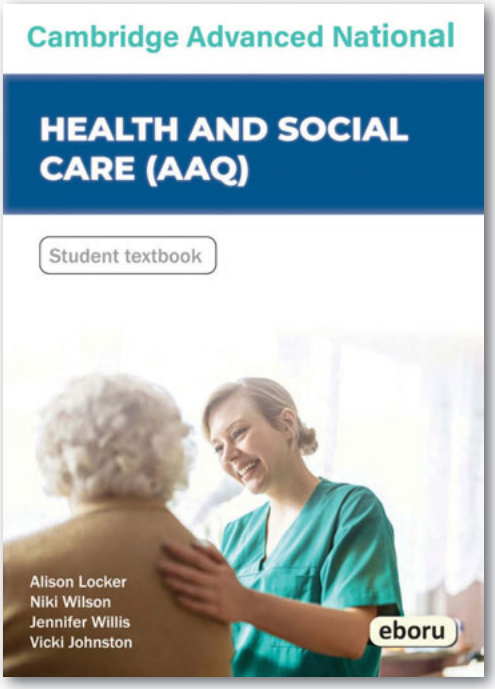



# Units covered within the Student Textbook

## Mandatory Units for Extended Certificate:

F090 Principles of health and social care

F091 Anatomy and physiology for health and social care

F092 Person-centred approach to care

F093 Supporting people with mental health conditions

Sections from these units are included in this sample

For those doing the Certificate (180 GLH) there are three mandatory units: F090, F091, F092.

## Optional Units for the Extended Certificate:

F094 Supporting people with long term physiological conditions

F095 Investigating public health

F096 Supporting people in relation to sexual health, pregnancy and postnatal health

F097 Supporting healthy nutrition and lifestyles

# Unit F091 Anatomy and physiology for health and social care

By the end of this unit you will learn about the different body systems that work together to keep us alive.

In this unit you will learn about:

- the structure and function of different body systems
- important processes in the body
- health conditions that impact on each body system, and how they can be treated or managed
- the impact of lifestyle on different conditions

**How will I be assessed?**

This unit is assessed through a written exam that lasts for 1 hour 30 minutes.

Topic Area 1: Cardiovascular system

Topic Area 2: Respiratory system

Topic Area 3: Digestive system

Topic Area 4: Musculoskeletal system

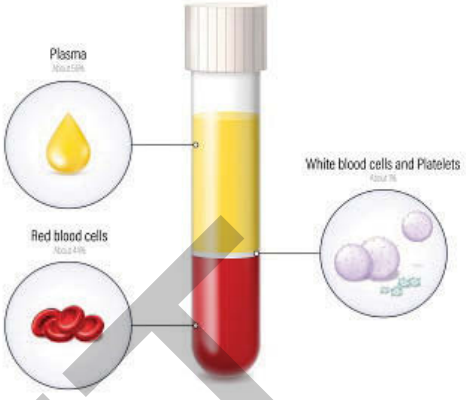
Topic Area 5: Control and regulatory systems

Topic Area 6: Reproductive system

# Topic Area 1: Cardiovascular system

## 1.1 Composition and function of blood

**Blood** is made up of different types of **blood cells** and a liquid known as **plasma**. The blood cells include white blood cells, red blood cells and platelets.



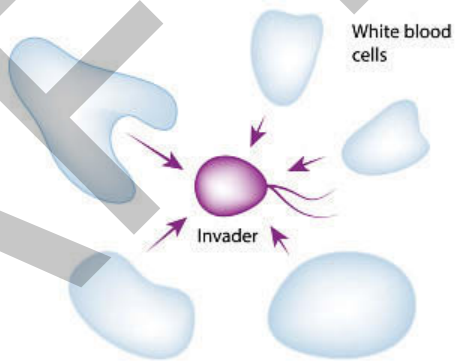

### 1.1.1 White blood cells

**White blood cells** make up less than 1% of the total volume of blood. They are very important for fighting both infections and cancer. They help the body form long-term immunity to certain diseases.

#### Function of white blood cells

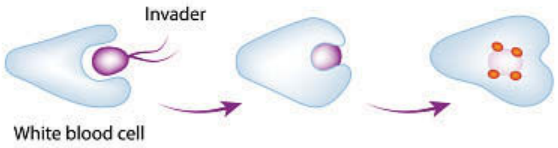
White blood cells have two main functions:

1. To **fight infections** such as bacteria and viruses using antibodies and phagocytosis.
2. To **destroy cancer** cells.




#### Antibodies

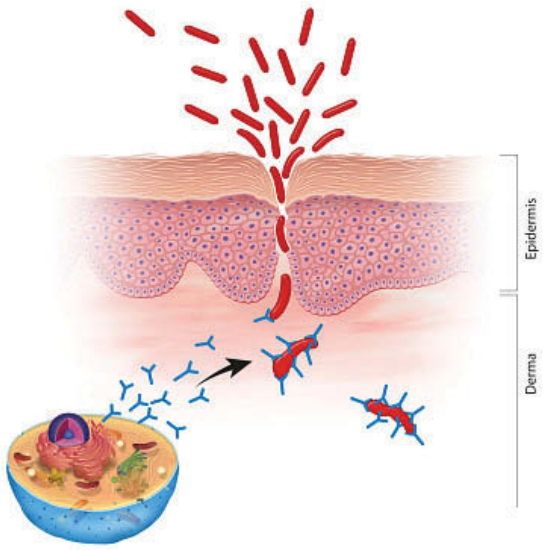
There are millions of different white blood cells. Each can defend the body against a specific pathogen. When the specific white blood cell comes across that specific pathogen, they release **antibodies**. Antibodies are special proteins made by the white blood cell. They are released by the white blood cell into the blood plasma. They prevent the spread of the infection by:




1. Attracting other white blood cells which kill the pathogen by phagocytosis.
2. They prevent viruses from entering the cells.

#### Phagocytosis

**Phagocytosis** is the process by which white blood cells engulf other cells, such as bacteria. Once inside the white blood cell, enzymes are released which destroy the pathogen.




#### Cancer

Some types of white blood cell kill cancer cells. They can recognise cancer cells because they have different structures on their outer membrane compared to non-cancer cells.

Enzyme – A protein which slows down or speeds up biological reactions.

# 1.1.2 Red blood cells

**Red blood cells** make up between 40-45% of the blood by volume. Most of the blood cells within the blood are red blood cells.

## Function of red blood cells

The function of red blood cells is to **carry oxygen**. Oxygen is needed to give the body energy in a process known as **cellular respiration**. This takes place in every cell, so oxygen must be transported all around the body.

## Adaptations

Red blood cells are specially adapted to carry as much oxygen as possible. There are two main adaptations:

### Biconcave discs

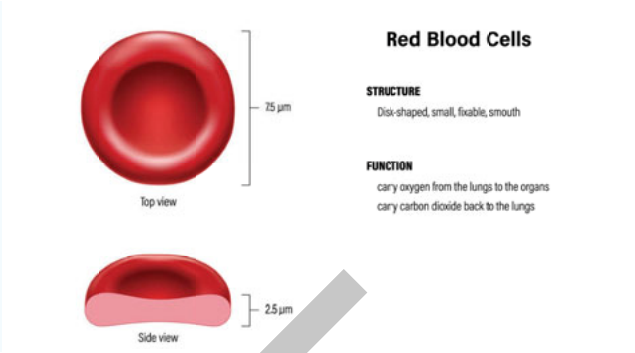
Red blood cells are shaped as a **biconcave disc**. They are disc shaped with an indentation on each flat surface. The shape **increases the surface area** in comparison to the volume (surface area to volume ratio). More oxygen can be absorbed. The shape also makes the cell **more flexible**. Because some blood vessels are very narrow, the cells have to be able to squeeze through, so flexibility is helpful.

### No nucleus

All cells in the body have a nucleus except for red blood cells. This gives a lot more room for haemoglobin, so red blood cells can carry more oxygen.

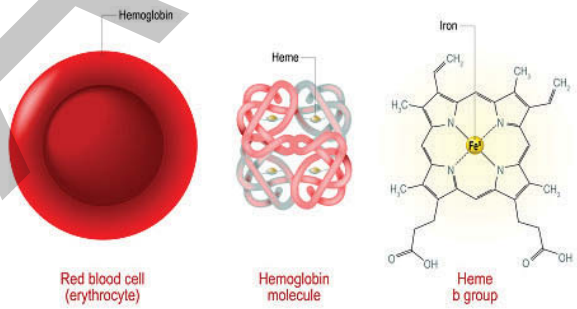
Pathogen - Any microorganism that can cause disease e.g. bacteria, viruses, fungi, parasites.

Protein – A biological molecule made up of carbon, hydrogen and oxygen.




## Oxygen transport

Red blood cells contain **haemoglobin**, which is a large protein containing iron. Oxygen binds to the haemoglobin, forming **oxyhaemoglobin**. Each haemoglobin molecule can carry up to **four oxygen molecules**. When the concentration of oxygen in the surroundings is low, oxygen molecules are released. So, haemoglobin picks up oxygen in the lungs and releases it in the tissues of the body.




# 1.1.3 Plasma

Around **55%** of the volume of blood is made up of blood **plasma**. Blood plasma is mostly water with various substances dissolved in it.

## Function of plasma

Plasma **transports substances** in the blood from one part of the body to another. Substances that are transported by the plasma include nutrients, waste products and hormones.

- Some substances, like glucose, dissolve easily in the plasma.
- Other substances need to bind with special proteins to carry them within the blood. These are called **plasma proteins**. They transport some hormones and **lipids** (fats).

### How plasma affects blood viscosity

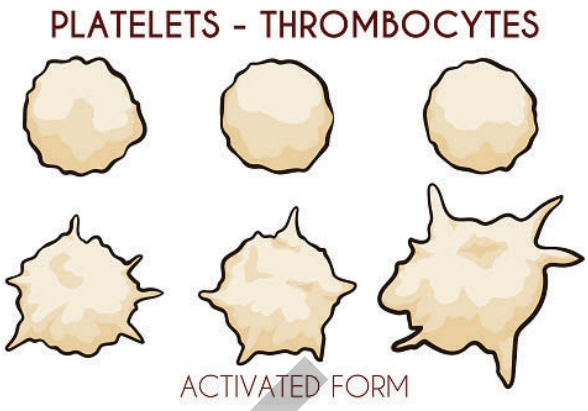
**Viscosity** relates to how easily a liquid flows. A more viscous liquid, like syrup, flows less easily than a less viscous liquid like water.

Plasma **lowers the viscosity of blood** so that it can flow more easily through the blood vessels. If blood could not flow easily and quickly, substances like oxygen would not be carried quickly enough.

An increase of plasma proteins makes the blood more viscous, and it will not flow easily. Various health conditions, infections and dehydration increase the number of plasma proteins and the viscosity.

# 1.1.4 Platelets

**Platelets** are tiny structures within the blood which make up less than 1% of the total volume of the blood. They are made from fractions of a cell.

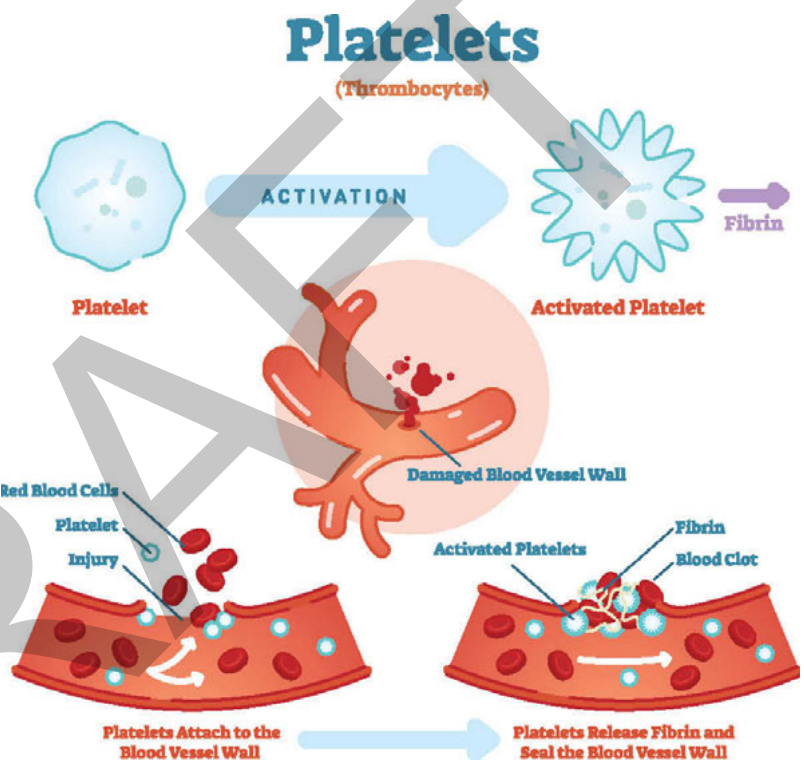



## Function of platelets

The function of platelets is to **clot blood**. This seals off small tears within blood vessel walls, which could allow infections to enter or lead to the loss of too much blood.

**Blood clotting** is a complicated process which involves the following.

- Platelets are usually **spherical** and can flow easily with the blood. They become activated when a blood vessel is damaged. An **activated platelet** becomes **spiky**. Spiky platelets stick to each other to form a platelet plug. This leads to a clump of material which is the beginning of the blood clot. The activated platelets attract other platelets to the site to form a bigger clump.
- **Blood clotting factors** are proteins which are always present in the blood plasma. They are dissolved in the blood plasma. There are many different types. They become activated when a blood vessel is damaged. Then they go through a complicated cascade of changes which ends with the production of an insoluble substance known as fibrin.
- **Fibrin** is an insoluble protein. It is the final product in a cascade of substances caused by activation of blood clotting factors. The strands of fibrin tangle up with the platelets, causing a strong blood clot. A blot clot is a combination of platelets and fibrin strands. The clot can seal up tears in blood vessels until they can heal.




Nucleus – The control centre of a cell containing all the genetic material for the organism.

### Recap questions

1. What component of blood makes up between 40-45% of the volume of the blood?
2. Identify two ways in which white blood cells protect against infection.
3. What is the function of red blood cells?
4. What are the two main components of a blood clot?

# 1.2 The heart

## 1.2.1 The structure of the heart

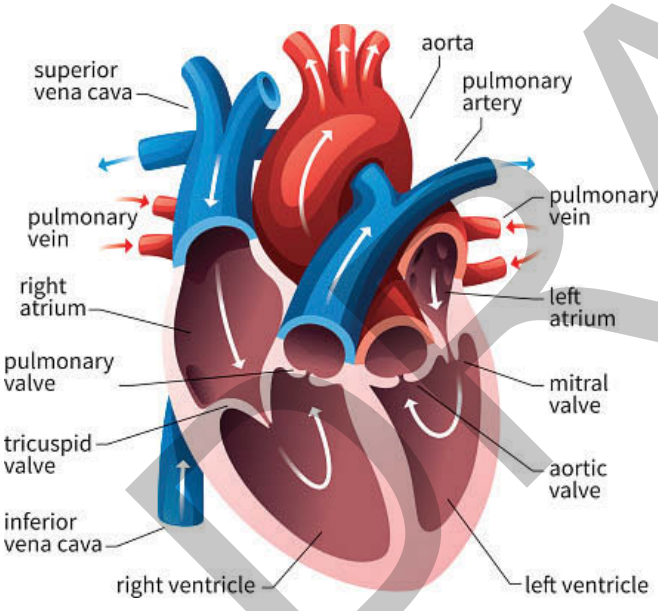
The **heart** pumps blood around the body.

- First, blood goes to the lungs to pick up oxygen and get rid of carbon dioxide. The blood becomes oxygenated.
- This oxygenated blood is then pumped around the body so that oxygen can be delivered to all the cells and tissues.

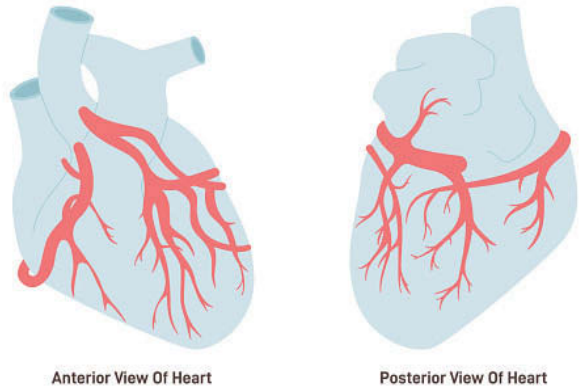
The heart is divided into **four chambers** and has different veins and arteries. It is important to understand the roles of the different chambers and blood vessels connected to the heart.

### Blood vessels

Blood vessels which bring blood to the heart are known as **veins**. The veins which enter the heart from the body are known as **vena cava**.




The structure of the heart




Coronary arteries

Oxygenated – Blood that is carrying oxygen in the red blood cells, shown as red.

Deoxygenated - Blood that is no longer carrying oxygen, shown in blue.

Cardiac muscle - A specialised involuntary muscle that contracts continuously to keep the heart beating

- The **superior vena cava** brings blood from the upper body.
- The **inferior vena cava** brings blood from the lower part of the body.

Both enter the right atrium the heart. On the other side of the heart, blood enters the left atrium from the lungs through the **pulmonary vein**.

Blood leaves the heart through **arteries**.

- The **pulmonary artery** takes blood from the right ventricle to the lungs.
- The **aorta** takes blood from the left ventricle to the rest of the body. The aorta is the largest artery in the body.

### Chambers

There are four chambers in the heart. The walls of each chamber are made from cardiac muscle, which contracts to pump the blood in a specific direction.

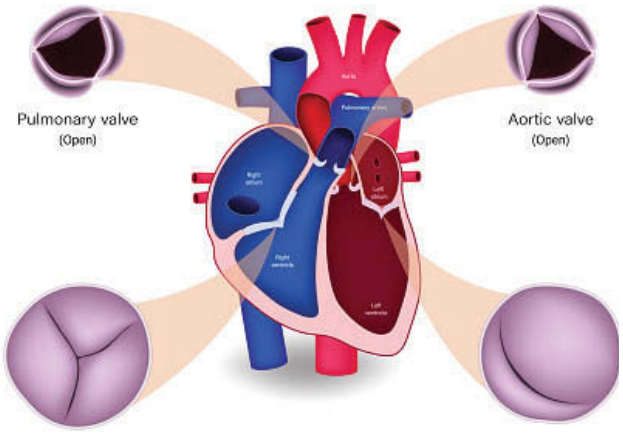
The two chambers at the top of the heart are called **atria**. They have **thin walls** because they only pump blood down into the chambers below.

The bottom two chambers are called **ventricles**. They have **thick walls** because they pump blood further.

The **right ventricle** gets its blood from the right atrium. Blood is pumped from the right ventricle through the **pulmonary artery** to the lungs.

The **left ventricle** gets its blood from the left atrium. This blood is oxygenated and is pumped around the rest of the body. The blood leaves the heart through the **aorta**, which branches into smaller arteries to take the blood all-round the body.

- Blood in the right atrium and the right ventricle is deoxygenated.
- Blood in the left atrium and left ventricle is oxygenated.




## Valves

**Valves** make sure that blood flows in the correct direction through the heart. If it went the wrong way, oxygenated blood might mix with deoxygenated blood and cause problems.

There are valves between each atrium and connected ventricle. They are called atrioventricular valves because they are between the **atrium** and the **ventricle**. They stop the blood from accidentally being pumped back into the atrium from the ventricle.

- The valve between the right atrium and right ventricle is called the **tricuspid valve**. It is called this because it has three attachments to the heart walls.
- The valve between the left atrium and ventricle is called the **bicuspid valve** (sometimes called the mitral valve). The bicuspid valve has two connections to the heart walls.

The second type of valve is found at the base of the aorta and pulmonary artery. They are known as semi-lunar valves. They prevent blood from falling back into the ventricle once it has entered the artery.

- The valve at the base of the pulmonary artery is known as the **semi-lunar pulmonary valve**.
- The valve at the base of the aorta is the **semi-lunar aortic valve.**

## Other structures

The left and right sides of the heart are separated by a wall called the **septum**. It keeps the oxygenated blood on the left from mixing with the deoxygenated blood on the right.

Heart muscle is made of **cardiac tissue**. These are specialised muscle cells that can contract all the time and never get tired. The heart needs to contract around 60 times a minute, even when a person is resting.

The heart needs a constant supply of oxygen and nutrients. These are carried by blood in the coronary artery, which runs around the outside of the heart. If the coronary artery gets blocked it leads to a heart attack.

## Flow of blood through the heart

For each cycle around the body, blood goes through the heart twice. This is because the blood needs to be pumped to the lungs to collect oxygen, go back to the heart, and then be pumped around the body. The process is as follows:

1. **Deoxygenated blood** enters the heart via the **vena cava** veins from the body.
2. The **deoxygenated blood** enters the **right atrium** first.
3. The **deoxygenated blood** goes through the **tricuspid valve** and into the **right ventricle**.
4. The **deoxygenated blood** is pushed from the **right ventricle** into the **pulmonary artery**.
5. The **deoxygenated blood** travels through the **pulmonary artery** to the **lungs**, where it picks up **oxygen**.
6. The blood is now **oxygenated**. It travels back to the heart through the **pulmonary veins**.
7. The **oxygenated blood** enters the **left atrium**.
8. The **oxygenated blood** now goes through the **bicuspid valve** into the **left ventricle**.
9. The **left ventricle** pushes the **oxygenated blood** into the **aorta**.
10. The **oxygenated blood** travels around the rest of the body from the **aorta**.

### Recap questions

1. Name two veins associated with the heart.
2. Which blood vessel carries blood from the heart to the lungs?
3. Fill in the gaps: The blood in the right ventricle is _____. It enters this chamber from the _____

## 1.2.2 Blood pressure

**Blood pressure** is the force of blood pushing against blood vessel walls. It can be measured with a blood pressure monitor. The pressure should be high enough to push the blood to all areas of the body. However, if the pressure is too high, it can damage tissues and organs, causing many problems.

Atrioventricular valve – The valves between an atrium and the ventricle below it.

Semi-lunar valves – Moon-shaped valves that prevent backflow of blood.

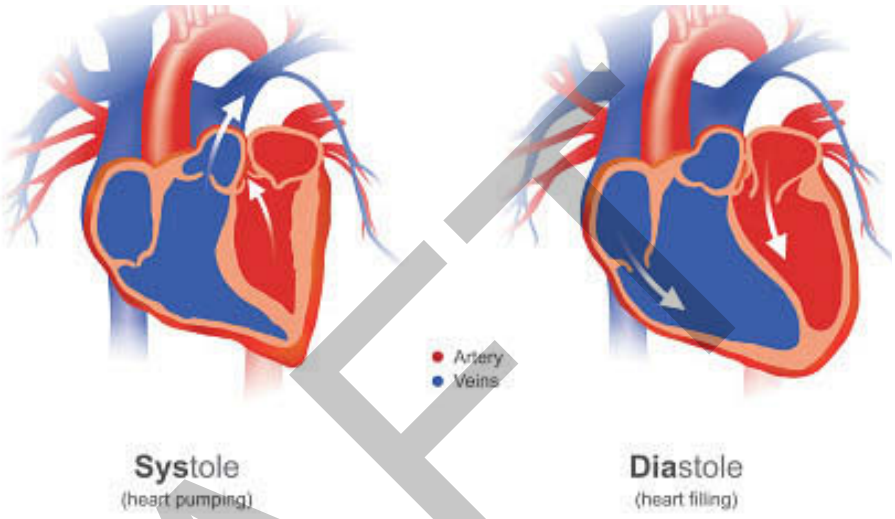
Cardiac cycle – The sequence of contractions and relaxations in one full heartbeat.

Hypotension – Low blood pressure.

Hypertension – High blood pressure.

When the heart beats it goes through different phases of contraction and relaxation. This is known as the cardiac cycle. Both atria contract together while the ventricles are relaxed. Then both ventricles contract while the atria relax.

- When the ventricles are contracting, they increase blood pressure. This is known as the **systolic phase**.
- The heart relaxes during the **diastolic phase**.




When you measure blood pressure you get two pressure readings. An example is 120/80 (pronounced 120 over 80).

- The highest value is when the heart is contracting and is known as **systolic pressure**.
- The lower value is the blood pressure when the heart is relaxing and is known as **diastolic pressure**.
- Blood pressure is measured in mmHg (millimetres of mercury).

The **ideal range** for blood pressure is from 90/60 mmHg to 120/80 mmHg. When blood pressure is below 90/60 mmHg it is **low range** and is called hypotension. People with low blood pressure may feel dizzy and may faint. Readings above 120/80 are **high range** and this is called hypertension. It can lead to serious problems such as stroke, heart attack and kidney disease.

## 1.2.3 Electrical activity of the heart

The heartbeat is controlled within the heart itself. Only the heart rate is controlled by the brain and hormones. To make sure the correct chambers relax and contract in the correct order, the heart contains special structures, which will be described below.

### Structures involved in controlling heartbeat

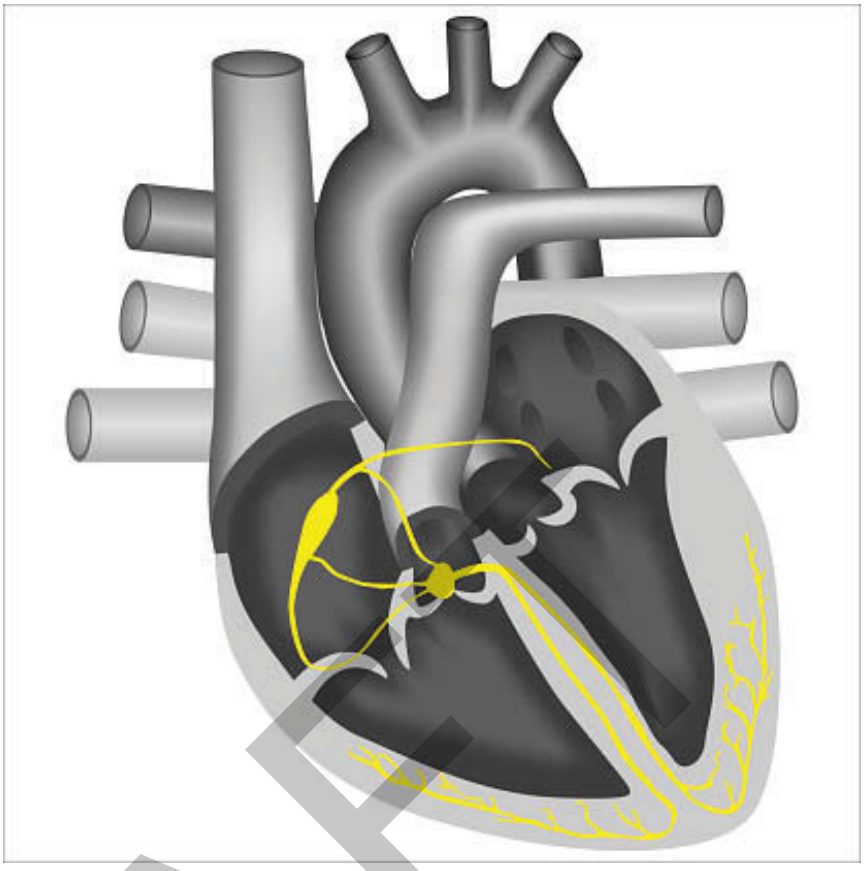
**The SA node** (sinoatrial node) is at the top of the right atrium. It **triggers the heart to beat** and sends out electrical signals which **stimulate the atria to contract**. This starts the cardiac cycle and pushes blood down into the ventricles.

**The AV node** (atrioventricular node) is at the base of the right atrium, near the ventricle.

- It is triggered by electrical signals which have travelled along the atrium muscle from the SA node. It causes the ventricles to contract.
- There is a time delay between the SA node sending a signal and the AV node being triggered. This means that the atria will contract before the ventricles. So, the ventricles have time to fill before they contract.

**The bundle of His** is made from special muscle fibres in the septum of the heart.

- It is triggered by the AV node and sends electrical signals down the septum to the apex of the heart.
- They do not cause the ventricles to contract immediately. This adds to the delay between the atria ventricles contracting.



The **Purkyne/Purkinje fibres** are also specialised muscle fibres that can send electrical signals.

- They spread out from the apex up through the walls of the ventricles. They trigger the ventricle walls to contract.
- Because they start at the base of the heart and extend upwards, they cause the ventricles to contract from the bottom.
- This is important because it causes the blood to be pushed upwards towards the arteries which are at the top of the ventricles.

## Electrocardiogram (ECG) trace

An **electrocardiogram** (**ECG**) is used to read the heart's electrical signals. It can pick up problems with the heart and help diagnose problems.

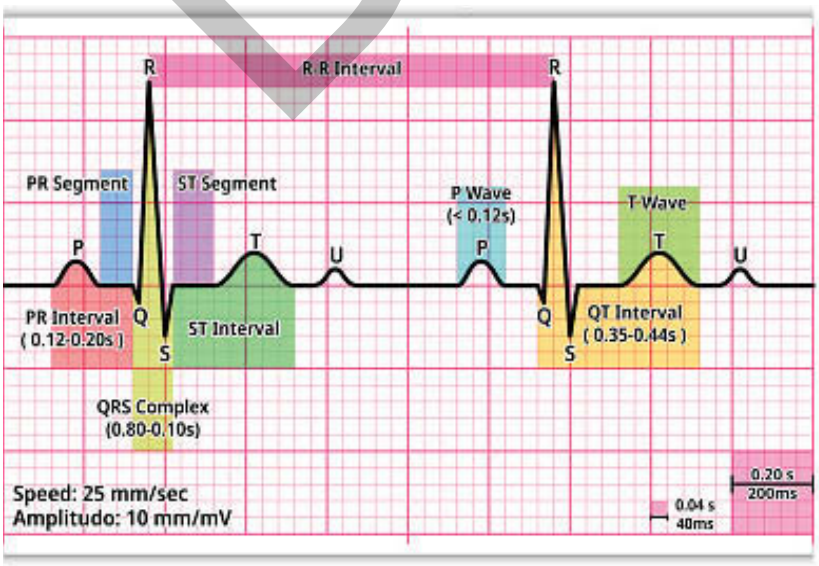
**Electrodes** are placed on the skin in specific places. The machine measures the heart signals over time and produces an **ECG trace**. The pattern on the trace shows spikes and troughs which represent the electrical activity in the heart.

To make it easier to interpret the trace, the different peaks and troughs are given the letters P, Q, R, S and T, which are explained below and can be seen in the diagram.

- **P** – contraction of the atria.
- **QRS** – contraction of the ventricles.
- **T** - repolarisation (recovery) of the ventricles so that they will be ready to contract again.

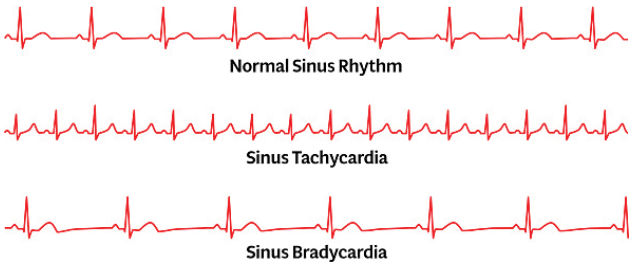
When health practitioners read ECG traces, they look at these peaks and troughs, and the spaces between them, to check that the heart is beating normally. Some common conditions are outlined below.

- **Tachycardia** – heart beats faster than 100bpm. The peaks of the ECT are much closer together.
- **Bradycardia** – heart beats slower than 60bpm. The peaks are much further apart.
- **Atrial fibrillation** – atria not contracting properly, causing irregular heartbeat. The P wave cannot easily be seen.




PQRST wave

- **Ventricular fibrillation** – the ventricles are quivering instead of contracting. This is a medical emergency, and the individual will need a **defibrillator** to shock the heart back into its normal pattern of electrical signals.




ECG showing normal different ECG traces

**Septum** – The wall between the left and right sides of the heart.

**Apex** – The pointed lower end of the heart.

**Repolarisation** – The process of the neurone returning to its resting state after a nerve impulse.

**Defibrillator** – Medical device that uses an electric shock to restart a heart that is not beating properly.

## Recap questions

1. What is the name of the type of blood pressure caused when the heart is contracting?
2. State what the heart muscle is doing during the diastolic phase.
3. Which of the following blood pressure readings falls within the ideal range:

   130/88, 88/55, 126/90, 110/70

4. Fill in the gaps: The _____ node is located at the top right of the right atrium and the _____ node is at the base of the right atrium.
5. Which structure within the heart triggers a heartbeat?
6. What does the P wave represent in an ECG trace?

## Practice questions

1. Explain why the ventricle walls are thicker than the atrium walls. (3)
2. Explain how the valves ensure blood flows in the correct direction. (4)
3. Explain why a GP may be concerned about an individual with a blood pressure of 140/90 (2)
4. Explain what happens during the systolic and diastolic phases of the heartbeat. (3)
5. Outline what an ECG shows. (3)

## Apply your understanding

Sophie, a 30-year-old gym teacher, has just been brought into hospital following a road traffic accident. She was sitting in the middle of the back seat with just a lap belt when her car was involved in a head-on collision with another vehicle. The paramedics took an ECG and found that she had a faster than normal heartbeat, where the QRS peaks are much closer together than normal. This condition is called tachycardia. They have also measured her blood pressure and found it to be 85/55mmHg. The consultant in the Accident and Emergency department suspects internal bleeding, so has sent her for a CT scan to see if there is any damage to blood vessels in her abdomen. To make the blood vessels more visible, they have injected her with a dye.

1. If the dye injected into Sophie's veins entered the heart's inferior vena cava vein, list the heart chambers and major blood vessels it will pass through on its way down to blood vessels in the abdomen.
2. Why would internal bleeding cause Sophie's blood pressure to read of 85/55 mmHg?
3. Explain why internal bleeding might give Sophie a fast heartbeat.
4. What does the QRS peak on the ECG represent and what other things are represented on an ECG trace?

# 1.3 Blood vessels

## 1.3.1 Arteries

**Arteries** are found throughout the body, not just connected to the heart. Bigger arteries branch off to form smaller arteries, which can also branch off into even smaller arteries.

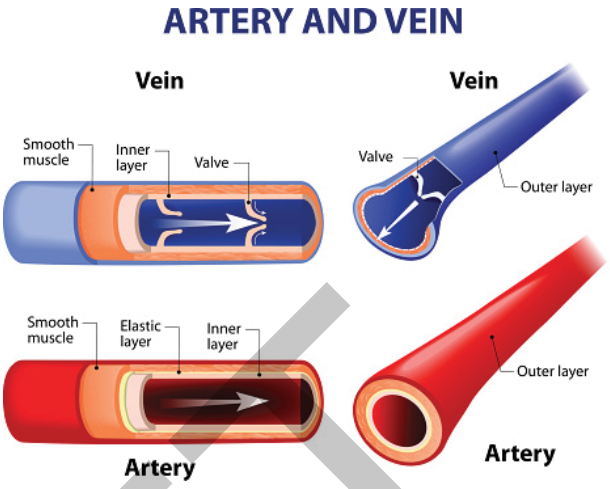
### Function

The function of arteries is to **carry blood away from the heart** and **towards organs and tissues**. The **blood pressure in arteries is high** so that it has the energy to reach all parts of the body. The high blood pressure is caused by the pumping of the heart, but the arteries are adapted to help maintain this pressure as much as possible.

### Adaptations

The adaptations of arteries to withstand and control blood pressure are described below.

- **Thick muscular walls** are strong enough to withstand high pressures. They can also control blood pressure within the artery. To increase pressure, the muscles contract to narrow the lumen. If pressure is too high, the muscles can relax to widen (dilate) the lumen.
- **Elastic walls** allow the arteries to stretch and rebound. Arteries stretch when blood first arrives. The elasticity of the walls then causes the walls to spring back and gives the blood an extra boost. This helps maintain a high blood pressure even further away from the heart.




- **Narrow lumen** helps maintain high blood pressure. When there is less space for the blood, the pressure increases. If the space increased, the pressure would drop. This is why toothpaste comes out of a toothpaste tube when you squeeze it. By squeezing it you are reducing the space available for the toothpaste, which increases the pressure, causing it to come out of the end of the tube.

## 1.3.2 Capillaries

Inside tissues and organs, the very small arteries branch into **capillaries** which have a completely different structure and function to arteries.

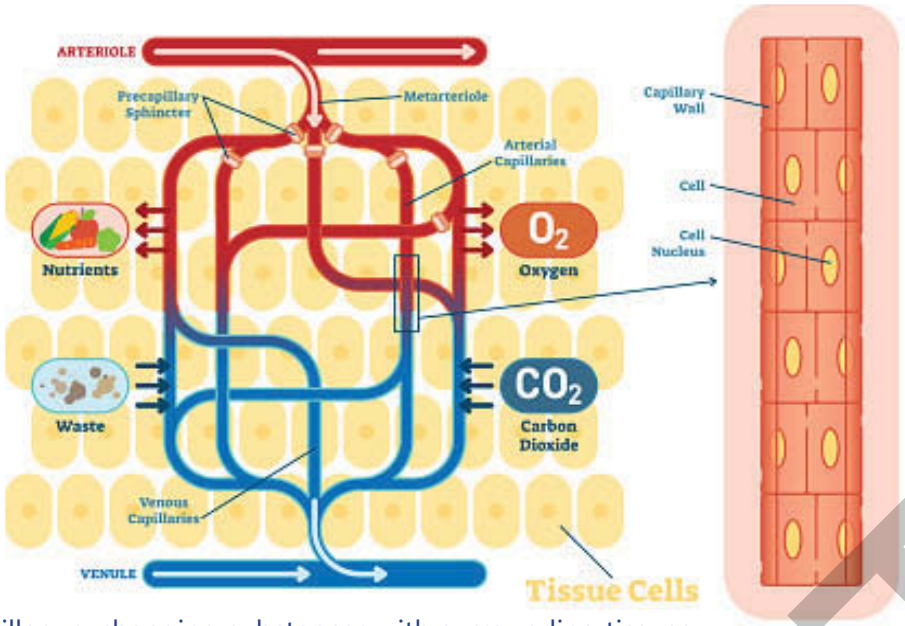
### Function

The function of capillaries is to **exchange substances with the cells that surround them**. Substances that are needed by the cells can leave the blood through the capillary walls. Examples include oxygen, nutrients and hormones. Waste substances that the cell needs to get rid of can enter the capillaries to be taken away. They include carbon dioxide and urea.

### Adaptations

Capillaries need to make it easy for substances to get out. There are several ways that capillaries are adapted to do this:

- **Walls are one cell thick**. This makes it easier to get into and out of the capillary. These cells are also very thin.
- **Porous walls** means that there are small gaps between the cells. These spaces allow the blood plasma and substances it contains to leak out of the capillaries so that it can surround the tissues.
- **A narrow lumen** means that blood cells can only pass through in single file and are pushed against the walls of the capillary as they travel. This means that substances, like oxygen, have less far to travel.
- **Slow blood flow** means that substances have longer to leave or enter the capillaries before the blood moves away.




A capillary exchanging substances with surrounding tissues

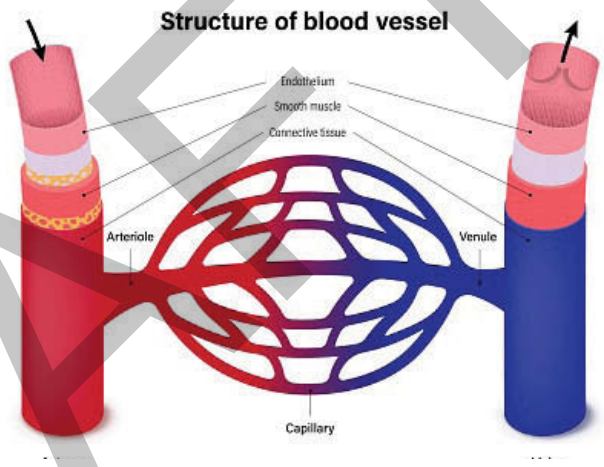
**Lumen** – The inside space of a tube e.g. a blood vessel or the intestines.

**Dilate** – Widening.

**Urea** – A waste product formed when amino acids (that make up proteins) are broken down in the body. Urea is removed from the body in urine.

## 1.3.3 Veins

**Veins** receive blood from capillaries and **take it back to the heart**.




### Function

Blood is at **low pressure** in veins because it slows down as it goes through the capillaries. This can make it difficult for it to get back to the heart.

### Adaptations

Veins need to make sure that the blood keeps flowing in the correct direction. The adaptations described below do this:

- **A wide lumen** reduces resistance so that blood can flow more easily. The less blood that touches the walls the more easily it flows, because the walls slow the blood down due to friction.
- **Valves** prevent blood from flowing the wrong way. The valves are semi-lunar valves, like the ones found at the base of the aorta and pulmonary artery in the heart. However, valves are found throughout the length of each vein. Blood is more likely to flow the wrong way in a vein due to the low pressure. When this happens, the blood forces the valves to open which blocks the way backwards, so the blood has no choice but to flow in the right direction.



### Recap questions

1. Fill in the gaps: Arteries carry _____ blood _____ from the heart and _____ organs.
2. Give one function of the elastic walls of an artery.
3. Under which blood pressure will the muscles in the artery walls contract?
4. State two substances which pass through capillary walls during the exchange of substances.
5. State two features of the structure of a capillary which helps them to exchange substances with surrounding cells.
6. State the pressure of the blood within veins.
7. Which adaptation of veins helps blood flow smoothly through them?

**Apply your understanding**

You are at university studying nursing and your teacher has asked you to present information about blood vessels to your fellow students. You have been given two of the blood vessels and a microscope slide showing the other type of blood vessel. You have been asked to explain certain characteristics of the blood vessels.

1. Explain which are the two larger blood vessels. How you can tell the difference between the two of them?
2. Which of the blood vessels needs to be viewed under a microscope? Why?
3. Explain how one of the two larger blood vessels helps maintain a high blood pressure.
4. Explain how the structure of the smallest blood vessel is adapted to its function.

# 1.4 Conditions of the cardiovascular system

## 1.4.1 Angina

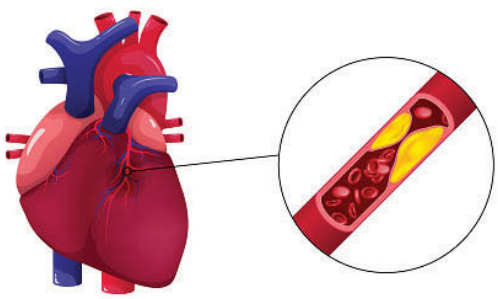
**Angina** is a condition which causes pain in the chest. The pain is often triggered by physical activity and goes away when the individual has rested. It is usually caused by a condition known as coronary heart disease. This is due to the narrowing of the coronary arteries which supply the heart muscle with blood.

### Causes

Angina is caused by a **build-up of a fatty substance** called plaque on the walls of the coronary artery. Plaque, which contains substances like calcium and cholesterol, builds up when the artery lining is damaged. It stiffens the blood vessels so that they cannot adapt to pressure changes as easily. This is a type of plaque known as **atheroma** and is the main cause of angina.

The plaque means that there is less space in the lumen of the artery so less blood can pass through. The heart muscle does not get enough oxygen, particularly if the individual is being active. When you are more active, your heart needs to pump faster to deliver more oxygen which is used for energy. In people who have angina the **narrowing of the coronary arteries** prevents enough oxygen getting to the heart muscle, resulting in pain.

Atherosclerosis



### Signs and symptoms

The main signs and symptoms are as follows:

- **Tight chest** – it feels like the chest is being squeezed.
- **Chest pains** which are often caused by physical activity. The pains can spread to the arms, neck and jaw.
- **Breathlessness** due to there not being enough oxygen getting to the heart muscle. The body responds by trying to breathe more quickly.

Other symptoms can include nausea, dizziness, fatigue and sweating.

### Diagnosis and monitoring

Angina is a condition which cannot be cured but the symptoms can be managed, and treatment can slow the progression of the condition. Diagnosis and monitoring of the condition can help improve the quality of life of the individual.

#### ECG

Someone with angina will show a normal ECG unless they are having an angina attack. When they are having an attack, the pattern on the ECG changes in specific ways. These changes usually affect the shape of the T wave, which represents the recovery of the ventricles after contraction.

## Angiogram

An **angiogram** is a special x-ray used see if coronary arteries are blocked or narrowed. The coronary arteries are made visible to an x-ray by injecting a special dye close to the coronary arteries. The x-ray shows the coronary arteries and where they are blocked. Angiograms are used to diagnose angina but can also check that no new arteries are blocked or getting narrower.

## Blood tests

Blood tests can detect chemicals (known as markers) that are present when the arteries are damaged. They can also detect other risk factors such as high cholesterol and high levels of certain fats. Blood tests tend to show whether angina is a likely cause of the symptoms rather than directly diagnosing the condition.

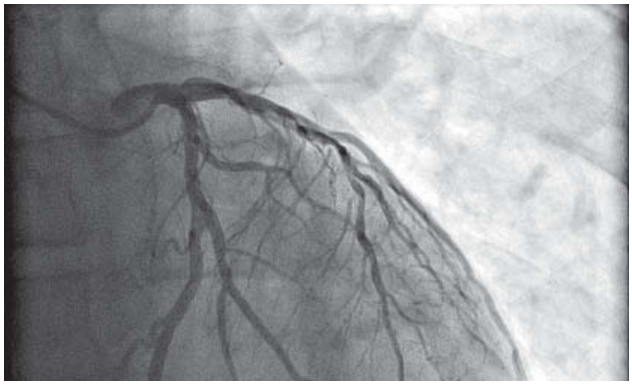
# Treatments

When someone has been diagnosed with angina, treatments are given to manage the condition and improve the quality of life of the individual. They include both surgical and non-surgical treatments as described below.

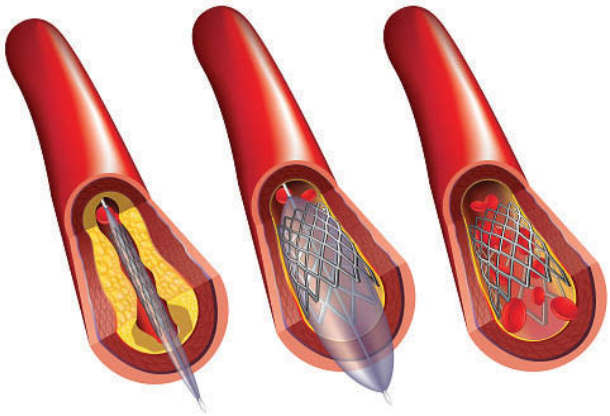
## Surgical treatments

An **angioplasty** is a surgical procedure which aims to unblock or open narrowed arteries.

A wire mesh is placed in the artery to hold it open where the plaque narrows the artery. This is done using a catheter which is inserted into the cardiovascular system often in the groin or wrist. The tube is guided all the way to the narrowed area of the coronary artery. There is a balloon at the end of the catheter which can be inflated when the catheter is in the right place. The balloon pushes the plaque out and widens the artery. The wire mesh, known as a stent, is placed at the site to keep the artery open permanently. The stent often has medication on it which prevents more plaque from building up at the site.



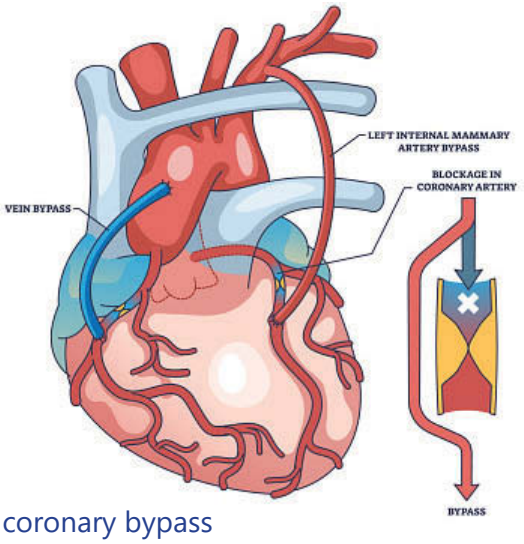
An image from an angiogram



Stages of an angioplasty

| Benefits of angioplasty | Limitations |
|---|---|
| Symptoms are relieved immediately. | Surgery causes a risk of infections where catheter was inserted. |
| Reduces the risk of heart attacks | The stent can cause more plaque build-up. |

A **coronary bypass** operation restores blood flow by creating a new route for the blood so that it goes around the blockage. Blood vessels from elsewhere in the body are used to link sections of the coronary artery before and after the blockage. These are known as **grafts**. For example, a blood vessel from the leg may be used to form the bypass. During surgery, the heart is often stopped intentionally. The individual is kept alive with machines which pump blood round the body.




A coronary bypass

Plaque – A sticky build-up of substances inside the walls of blood vessels.

Catheter – A flexible tube which can be inserted into the body. Some types of catheter are inserted into blood vessels.

| Benefits of coronary bypass | Limitations |
|---|---|
| Symptoms improve immediately. | Major surgery which increases the risk of bleeding, blood clot formation and infection. |
| Risk of heart attack reduced. | The surgery can cause irregular heartbeats (**arrhythmia**). |
| Life of the individual is prolonged. | Increased risk of developing kidney and breathing difficulties. |

### Non-surgical treatments

A **nitrolingual pump** (angina pump) contains a liquid (glyceryl trinitrate) which you spray under your tongue as soon as you experience the pain of angina. It is absorbed immediately so it acts very quickly to relieve pain. Angina pain is due to the coronary arteries not letting enough blood through, due to plaque build-up.

The active ingredient in the nitrolingual pump causes the coronary arteries to **dilate**. This process is known as **vasodilation**. This allows enough blood to get to the heart muscles and the pain goes away.

| Benefits of nitrolingual pump | Limitations |
|---|---|
| Relief from pain is almost immediate. | It does not treat the blockages caused by atheroma. |
| It can be used before physical activity to prevent angina pain. | Side effects include headaches and dizziness. |
| It is easy and convenient to carry. | Only 3 doses can be given in 15 minutes so it may not be enough for some people. |
| It does not involve swallowing tablets which is difficult for some people. | It is not suitable for people with low blood pressure as it lowers pressure. |

**Anticoagulant medication** is used to prevent the blockages in the arteries from getting worse. People with angina are at risk of having a heart attack. Anticoagulant drugs are used to make this less likely. They work by making the blood harder to clot.

| Benefits of anticoagulant | Limitations |
|---|---|
| Reduces the risk of heart attacks and ischaemic strokes (see later). | It does not remove blood clots that have already formed. |
| It is useful after surgery to prevent blood clots from forming. | Blood may not be able to clot when it needs to so it can lead to excessive bleeding. |
| They improve blood flow in general so other organs benefit. | Some foods with high levels of vitamin K affect how the medication works. Examples include grapefruit, cranberries, kale, egg yolks and certain cheeses. |

## Factors that make the condition more likely

Things that make people more likely to develop a condition are known as **risk factors**. Some risk factors are out of the control of the individual, but others can be reduced. Factors that increase the risk of angina do so because they cause plaque to form. Some damage blood vessels which encourages the formation of plaque.

### Obesity

**Obesity** is classed as being overweight to the extent that the body mass index is 30 or above. Obesity causes plaque formation because people who are obese are more likely to have a diet high in fat. Obesity also increases blood pressure, which damages the linings of arteries and encourages plaque. Being overweight means that more blood is needed in the body putting a strain on the heart.

### High fat and salt in the diet

**Fat** directly contributes to plaque formation.

**Salt** increases blood pressure, which damages blood vessels and causes plaque to develop.

### Smoking

Chemicals in **cigarette smoke** damage the linings of the blood vessels. They also make blood clot more easily. Cigarette smoke contains carbon monoxide which means that the blood can carry less oxygen. This also increases the strain on the heart.

**Nicotine** increases heart rate and blood pressure, which strains the heart.

## Diabetes

People with **diabetes** often have high levels of blood glucose, which directly damages the lining of the arteries. Diabetes also increases inflammation which also makes plaque develop. People with diabetes form blood clots more easily which can block the coronary arteries.

## Stress

**Stress** causes changes to the body. When stress goes on for a long time, it can lead to permanent changes, which make angina more likely to develop.

- Stress causes hormones such as adrenaline and cortisol to be released. These increase heart rate and blood pressure, which damages blood vessels
- Stress can also lead to a person overeating or smoking which themselves increase the risk of angina.

## Control and prevention

**Lifestyle changes** can prevent the condition from developing or from getting worse.

- **Reducing fat** in the diet will make it harder for plaque to build up in the arteries.
- **Reducing salt** intake should prevent the blood pressure from getting too high.
- **Stopping smoking** will stop harmful chemicals from getting into the blood. Stopping smoking also means the blood can carry more oxygen so the heart does not have to work as hard to get enough oxygen to all parts of the body.
- **Reducing stress** reduces the levels of stress hormones in the body. These hormones are designed to help you get out of dangerous situations but are not good for you long term. Stress can be reduced by relaxation. Taking up meditation is one way to do this. An individual can also try to avoid stressful situations, for example by changing to a less stressful job.
- **Regular exercise** strengthens the heart and helps blood to flow more easily, making it harder for plaque to build up. It helps keep blood pressure low. Exercise also **reduces blood cholesterol levels** – another cause of atheroma.
- **Losing weight** helps prevent angina because being overweight or obese encourages the formation of plaque in the blood vessels. Being overweight puts more strain on the heart because it has to pump more blood around the body.


A healthy diet is good for the heart

Body mass index – BMI is a comparison between height and weight.

Carbon monoxide – A harmful molecule. If breathed in it can cause suffocation, because the haemoglobin in the body binds to it more easily than to oxygen.

Adrenaline – A hormone from the adrenal gland that gets the individual ready for action. For example, it increases heart and breathing rates.

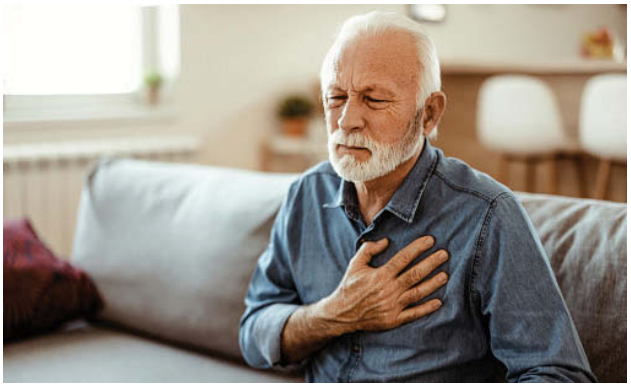
Cortisol – Often known as the "stress hormone" because it is released during stress. In short bursts it helps the person to cope with stress but in the long term it causes damage.

Meditation – A technique used to relax, focus thoughts and heighten awareness.

Self-esteem – A term used to define how much a person values themselves.

## Impact of the condition on the individual

Having a condition like angina affects all aspects of a person's life. Some of the possible impacts are detailed below.



| | |
|---|---|
| **Physical** | Pain in the chest, especially during physical activity. Feeling tired and breathless all the time due to less oxygen being carried by the blood. The individual is less likely to want to exercise. It may affect their job or leisure activities. |
| **Intellectual** | Pain makes it difficult to focus so it is harder to learn new skills. It will also make it harder to make decisions. This may lead to dependency on other people. |
| **Emotional** | The individual may be anxious about the possibility of having a heart attack. They may have to make big changes to their lifestyle which are difficult to adapt to. They may feel like it is their fault they have the disease due to their previous lifestyle choices. This may affect their self-esteem. |
| **Social** | The fear of pain or of having an attack may make the individual reluctant to go out. They may start to withdraw from social activities. This could lead to social isolation and may increase the feelings of anxiety they already have about their condition. They may also need to be more dependent on other people, such as family, which may lead to conflict. |

### Recap questions

1. Fill in the gaps: Angina is caused when _____ builds up in the lining of the _____ arteries.
2. State when angina pain is most likely to occur.
3. Angina causes chest pains which can radiate to the neck. State two other common areas the pain radiates to.
4. What is the name of the special type of x-ray which can show whether blood vessels in the heart are blocked?
5. Which surgical treatment for angina is used to open blood vessels that have been narrowed by angina?

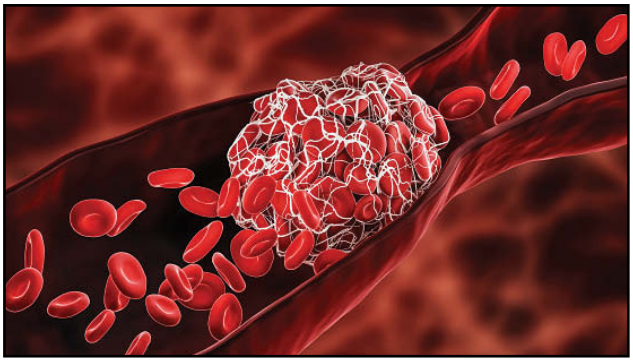


## 1.4.2 Deep vein thrombosis (DVT)

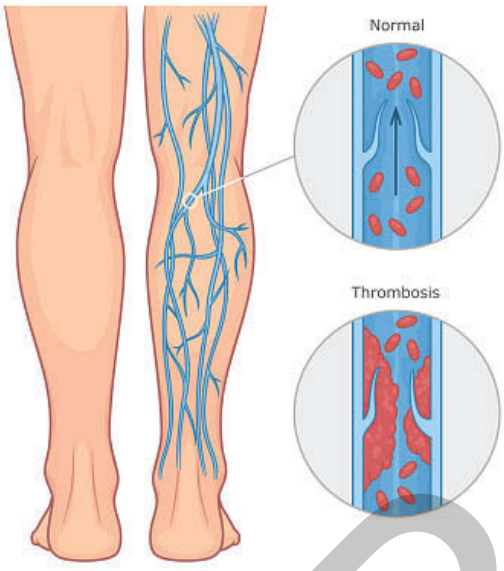
Blood contains **platelets** which help the blood to clot. The scientific name for platelets is thrombocytes and a **blood clot** is known as a thrombus. The blood's ability to clot is important and helps prevent someone losing too much blood. However, sometimes clots form when they shouldn't. When blood clots develop in a vein that is deep within the body it is known as a **deep vein thrombosis** (**DVT**). A common place for them to form is in the deep veins in the legs or pelvis.

When they block the vein, they can cause pain and swelling because they block the blood flow through the vein. The build-up of blood behind the clot causes the area to swell. The clot can break away and travel elsewhere in the body. If it travels to the lungs, it can cause a **pulmonary embolism** which is very serious as it blocks an artery in the lungs. This can directly damage lung tissue or make it harder for the blood to pick up enough oxygen. The lack of oxygen can damage other organs and cause heart strain.

A blood clot in a vein



Deep vein thrombosis in the leg




## Causes

- **DVT** can be caused by damage to the vein because of **injury**.
- Another common cause is **long periods of lack of activity**. This could be because an individual is ill in bed. It is hard for blood to return to the heart because of the low blood pressure in veins. The squeezing action of the muscles while you are walking normally helps with this. If you are not walking, the blood can collect in the veins making it more likely that a clot will form.
- There are also some **medical conditions** that make DVT more likely to develop such as cancer or heart disease.

## Signs and symptoms

The main symptoms include the following:

- **Pain** at the site of the thrombosis due to the obstruction caused by the blocked vein. This causes the vein to swell and push on surrounding tissues. The pain usually throbs in time with the heart.
- **Swelling** caused by the blocked vein. It also triggers an immune response known as **inflammation** which adds to the swelling. As the blockage is in one leg, it will cause only one leg to swell.
- **Redness** at the site of the DVT because the blocked blood vessel causes the blood to pool in the area where it can be seen through the skin. Inflammation also contributes to this effect.

DVT causes swelling and redness

## Diagnosis and monitoring

The blood clot can move and block blood vessels elsewhere, which can lead to serious complications and even death. So, it is vitally important to diagnose and treat the condition as quickly as possible. The two main methods of diagnosis are described below.

### Ultrasound

An **ultrasound** scan uses **high frequency sound waves** which bounce off parts of the body into a machine which can detect these echoes. Ultrasound scans can show the flow of blood through veins and show if a vein is blocked.

Part of the machine is passed over the skin over the suspected site of the DVT. Often gel is applied to the skin to help it pick up signals

**Thrombocytes** – Another name for platelets. Thrombocytes help blood to clot.

**Thrombus** – Another word for a blood clot.

**Inflammation** – The body's natural response to injury. Inflammation is designed to fight infection and repair damage quickly. Long-term inflammation can cause damage.

An ultrasound scan

better. After treatment has begun, further ultrasound scans can make sure the blood clot is not getting bigger and check treatment is working.

### Venography

**Venography** uses a special type of x-ray to look at blood vessels in the body. Normally, x-rays do not show soft tissue like arteries and veins. To make them visible, the patient must be injected with a special dye. It takes a few minutes for the dye to spread around the body, so several x-rays are taken at intervals to show the dye travelling through the blood vessels. This shows where the blockages are.

## Treatments

Treatments are often used in combination rather than relying on just one.

### Anticoagulant medicine

**Anticoagulant medicine** makes it harder for blood to clot and prevents a DVT from getting bigger. It also prevent more clots from forming. It does not dissolve blood clots but makes it easier for the body to break them down.

| Benefits | Limitations |
|---|---|
| Reduces the risk of heart attacks and ischaemic strokes (see later). | It does not remove blood clots that have already formed. |
| It is useful after surgery to prevent blood clots from forming. | Blood may not be able to clot when it needs to, so it can lead to excessive bleeding. |
| They improve blood flow in general, so other organs benefit. | Some foods with high levels of vitamin K affect how the medication works. E.g.: grapefruit, cranberry, kale, egg yolks and some cheese. |

### Thrombolytics

**Thrombolytics** are used to break down the clot. They stimulate the body's own blood clot dissolving mechanism. Thrombolytics are injected directly into the vein near the blood clot.

| Benefits of thrombolytics | Limitations |
|---|---|
| Dissolves the clot immediately. | Increases the risk of excessive bleeding due to upsetting the body's ability to clot. |
| Reduces the risk of complications from DVT such as swollen legs. | They should not be used for people who are at risk of a haemorrhagic stroke. |
| Prevents pulmonary embolism. | Does not prevent new clots from forming. |

### Thrombectomy

A **thrombectomy** involves the physical removal of the blood clot. Usually, a catheter is inserted into a vein, often in the groin, and guided to the site of the clot. It can carry drugs, a suction device or a laser to remove the clot. In some cases, the blocked vein can be cut into directly to remove the clot.

These procedures have the advantage of providing an immediate solution to the problem. This helps reduce the risk of complications such as pulmonary embolism, heart attack and stroke.

Risks include infection at the site of the cut, and damage to blood vessels.

| Benefits of thrombectomy | Limitations |
|---|---|
| Immediate relief of symptoms. | Increased risk of infection at the site of the cut to the blood vessel. |
| Reduces the risk of pulmonary embolism, heart attack and stroke. | Blood vessels can become damaged. |

### Filters

**Filters** are used to prevent blood clots travelling to the lungs and causing a pulmonary embolism. They are placed in the vein that carries blood from the body back to the right atrium of the heart – the inferior vena cava.

They are put in place with a **catheter** which can be inserted into the groin or neck. Once in the correct place, the filter is opened. It will prevent big blood clots from getting past but will allow blood to flow through.

| Benefits of filters | Limitations |
|---|---|
| They reduce the risk of pulmonary embolism. | They do not prevent further clots from forming. |
| They are useful for patients who cannot take anticoagulant medication. | They can encourage clotting at the site of the filter. |
| They can be removed after the risk of pulmonary embolism has reduced. | They are designed to be used on a temporary basis but are difficult to remove. |

## Factors that make the condition more likely

### Age (60+)

DVT becomes more likely **over the age of 60**.

- Veins become less elastic with age. Blood is more likely to get stuck in the vein causing clots to form.
- People tend to move less when they get older. Movement of the legs is important in getting blood back to the heart.
- Other conditions like heart disease are more likely to affect older people and these conditions make DVT more likely.

### Overweight

Being **overweight** has several risk factors.

- It more likely that you will develop conditions such as heart disease which can cause DVT.
- People who are overweight may also be less likely to exercise.
- A larger amount of fat tissue makes it harder for blood to get back to the heart, so it builds up in the veins and clots.
- There are also higher levels of blood clotting factors, so blood clots more easily.

### Smoking

Smoking has several risk factors:

- The chemicals in **cigarette smoke** stimulate clotting, making the blood more "sticky" so it will clot more easily.
- Smoking damages the lining of the blood vessels, stimulating clotting.
- Smoking also affects blood circulation, so it is harder for blood to get back to the heart. Blood builds up in the veins and clots more easily.

### Contraceptive medication

Contraceptive medication, such as the oestrogen pill, have been known to cause DVT in some people. Oestrogen in the medication affects the blood clotting factors, so blood clots more easily. Some people have a genetic predisposition for easily clotting blood which is stimulated when combined with the oestrogen in the medication.

### Hormone replacement therapy

**Hormone replacement therapy** (**HRT**) also involves taking artificial oestrogen, so increases risks in the same way as the contraceptive pill. HRT is a treatment given to women to reduce the symptoms of the perimenopause.

### Previous DVT

People who have **had one DVT are more likely to have another**, because some of the reasons for the first clot are still present. For example, damaged blood vessels will still be present. Damaged blood vessels stimulate blood clots to form. These people are also more likely to have underlying conditions that caused their first DVT such as heart disease.

Catheter – A tube that is inserted into the body.

Haemorrhagic stroke – A type of stroke caused by a burst blood vessel causing a bleed into the brain.

Contraceptive medication – Medication which prevent pregnancy.

Oestrogen – An female hormone that helps regulate periods.

Genetic predisposition – Having genes that make certain diseases more likely to develop.

Perimenopause – The end of the fertile period of a woman's life, when fewer female hormones are released and periods become irregular. It can cause unpleasant symptoms such as mood changes and hot flushes.

### Flying/restricted movement

Because blood pressure in the veins is low, the body relies on the muscles squeezing the veins to help return blood to the heart. **Moving the legs**, such as during walking, is ideal for this. When a person's **movement is restricted**, blood will start to build up in the veins, making clots more likely. This effect is made worse when flying in a plane:

- Cramped seating positions restrict leg movement.
- Lower than normal air pressure contains less oxygen, causing blood to thicken and clot more easily.
- People are often dehydrated on a plane due to the dry atmosphere. This also thickens the blood and makes clots more likely.

## Control and prevention

It is vital that DVT is controlled once it has been detected, to prevent the blood clot causing damage to surrounding tissues. It is even more important to make sure it does not move somewhere else to cause life-threatening problems such as a pulmonary embolism. Several control and prevention methods are described below.

### Compression stockings

**Compression stockings** are very tight. They aim to do the work of the muscles by squeezing veins to push blood back towards the heart. This prevents blood from pooling in the veins and stimulating clots.

Compression stockings can be very difficult to get on and many people may need a carer to help them with this.

### Regular movement

People who are at risk of developing DVT should **move regularly.** For example, people on a plane should get up and walk along the aisle if possible. People with mobility problems may be given specific exercises by a physiotherapist to help prevent blood clots.

### Hydration

People at risk of DVT are also encouraged to **drink more water**. Many older people can become dehydrated easily. This could be because they cannot always tell if they are thirsty, or it is too difficult to get up and make a drink. Some are reluctant to drink too much as it makes them go to the toilet more.

### Lifestyle changes

Lifestyle changes to reduce the risk of DVT include **stopping smoking**, **losing weight** and **exercising more regularly**.

People are also encouraged not to sit in one position for too long. They should get up regularly and have a walk around. Drinking more water will also help prevent blood from thickening.

## Impact of the condition on the individual

| | |
|---|---|
| **Physical** | **Pain** can lead to **less exercise** which will **weaken the cardiovascular system**. DVTs can also be very dangerous as the clot can break free, travel to the lungs, and cause a pulmonary embolism which could be fatal. The DVT can also **damage the area** causing persistent swelling. |
| **Intellectual** | Pain and anxiety will **affect concentration**. Some people may miss out on education as a result. Others may be **less likely to carry out activities** which stimulate them mentally. |
| **Emotional** | The pain and anxiety of the condition can lead to **depression**. Individuals are likely to be anxious about possible deterioration in their condition, or the development of serious complications such as pulmonary embolism. The individuals may also find the necessary lifestyle changes quite stressful. |

| | |
|---|---|
| **Social** | The pain, anxiety and depression caused by the condition may make people **withdraw from social contact**. This could be because it may seem too much effort to go out and have contact with other people. The regular medical appointments may also make it **difficult to maintain relationships**. The stress of the condition may also put a **strain on relationships** with close family members causing arguments. On the other hand, some of the lifestyle changes and support groups available for the condition can **increase people's social contacts**. |

Physiotherapist – A health and social care worker who helps individuals regain lost abilities by guiding them through special exercises.

Dehydrated – When the body contains less water than it should

Deterioration – When the condition of something gets worse.

Complications – Difficulties and extra conditions that develop because of the individual's main health issue.

## Recap questions

1. State one reason why blood in the veins struggles to get back to the heart, even in people without DVT.
2. Which method of diagnosing DVT uses high-frequency sounds to form a picture of the area?
3. State the name of the type of medicine which makes it harder for blood to clot.
4. What condition is caused when a blood clot moves into the lungs?
5. Fill in the gaps: The chemicals in cigarettes damage the _____ of the blood vessels. They also stimulate _____. Both make DVT more likely to form.
6. State two reasons why flying makes DVT more likely to develop.

## Practice questions

1. Outline the use of an angiogram for diagnosing angina. (3)
2. Explain two benefits of exercising regularly to reduce the risk of developing angina. (4)
3. Analyse the effects of angina on an individual. (6)
4. Describe the use of ultrasound scans to diagnose DVT. (4)
5. Discuss treatments available for DVT. (9)

## Find out more

Watch about different types of angina made by the British Heart Foundation: https://www.youtube.com/watch?v=k5VjGgk7Wqc

Watch the videos about DVT made by BUPA: https://www.youtube.com/watch?v=0QEo9QAqA3k

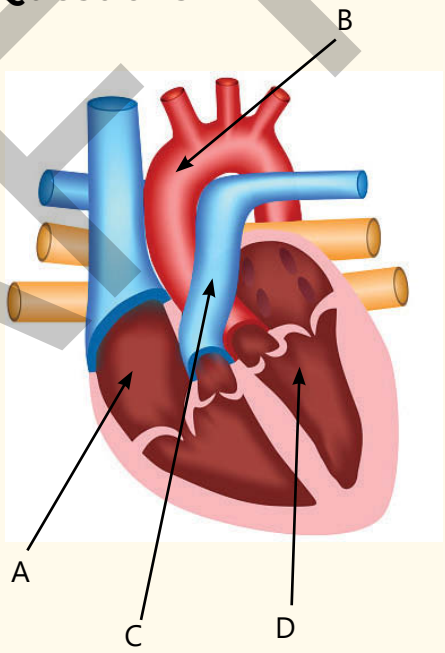
## Apply your understanding

You are a social worker, and you have a new service user to assess. Margaret is 85 years old and lives alone in a two-storey house at the top of a steep hill. She does not have a car, so she needs to walk down the hill into town to do her shopping. She has recently been diagnosed as having angina and she has contacted social services because she is struggling to cope at home. She is also feeling depressed and is struggling to do her shopping, cleaning and get to the toilet which is upstairs. The consultant at the hospital has recommended that she gives up smoking and starts eating a healthier diet.

1. Explain why stopping smoking and eating a healthy diet will help Margaret to control her condition.
2. Can you suggest why having angina has caused Margaret's difficulties?
3. Explain to Margaret how a nitrolingual pump works.

## End of Topic Practice Questions

1. Identify the parts of the heart in the diagram below. (4)




| | |
|---|---|
| A | |
| B | |
| C | |
| D | |

2. Which blood vessel carries blood from the body back to the heart? (1)
3. Which valve prevents blood from flowing backwards from the left ventricle to the left atrium? Tick one box. (1)

- Aorta ☐
- Pulmonary vein ☐
- Inferior vena cava ☐
- Pulmonary artery ☐

4. Complete the sentences below. (3)

Use words from the list. You can use them once, more than once or not at all.

**low** **high** **ideal** **diastolic** **systolic**

Michael has a blood pressure of 88/58 mmHg which is considered to be in the _____ range. The larger of the two values is the _____ pressure and the smaller of the two values is the _____ pressure.

5. Analyse how DVT affects the cardiovascular system. (6)
6. Mary is 62 and has been diagnosed with angina. She experiences pain even when walking short distances. She is also the main carer for her husband who has dementia. Using a nitrolingual pump has helped a little, but she is still finding it too difficult to manage. The doctor has suggested surgery – either an angioplasty or a coronary bypass.

   Discuss which treatment you would recommend for Mary. (9)

# Unit F092 Person-centred approach to care



By the end of this unit, you will understand how and why the individual is always the main focus in health and social care and how professionals can empower them. This unit includes how individuals can be made equal partners in the planning of their care, and how they can be enabled to have maximum choice and control.

You will learn about:

- The values that underpin a person-centred approach and the tools that can help to achieve this.
- How professionals should communicate in health and social care services.
- How professionals should build relationships and the barriers that may need to be overcome to achieve person-centred care.
- How to write one-page profiles to support the needs of individuals.

### How will I be assessed?

This unit will be assessed through an internal assessment consisting of two tasks relating to taking a person-centred approach.

Topic Area 1: Taking a person-centred approach

Topic Area 2: Meeting needs and providing support in a person-centred way

Topic Area 3: Communication skills needed to offer person-centred care

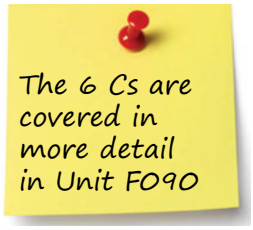
# Topic Area 1: Taking a person-centred approach

## 1.1 Current context of the person-centred approach

### The 6Cs

#### The introduction of the 6Cs

The 6Cs were introduced in December 2012 due to repeated examples of poor-quality care across the UK. They were introduced in a Department of Health strategy, Compassion in Practice (2012). The intention of this strategy was to promote a renewed vision of high-quality care.




#### What are the 6Cs?

The **6Cs**, as outlined in the Compassion in Practice strategy, are:

- Care
- Compassion
- Competence
- Communication
- Courage
- Commitment

#### The importance of professionals using the 6Cs

If professionals use the 6 Cs effectively, service users will:

- receive **high levels of care** from people trying to do a really good job
- be **treated as individuals**, with empathy and dignity
- always have someone looking out for their **best interests**
- feel more able to **seek the help they need** when they have concerns
- have **more confidence** in the support the professionals can provide.

The 6Cs can help teams of professionals work well together. It ensures they all follow the same values and will have similar priorities. This can help to prevent conflict between professionals. It also reduces the risk of professionals feeling overworked or underappreciated within a team.

### Person-centred values

**Person-centred values** ensure that professionals provide care that meets the needs of service users and respects their wishes.

There are nine person-centred values.

#### Individuality

This ensures that service users are treated according to their own needs, beliefs and wishes, and are not victims of stereotypical treatment. Care and support are adapted to specifically meet these needs.

#### Rights

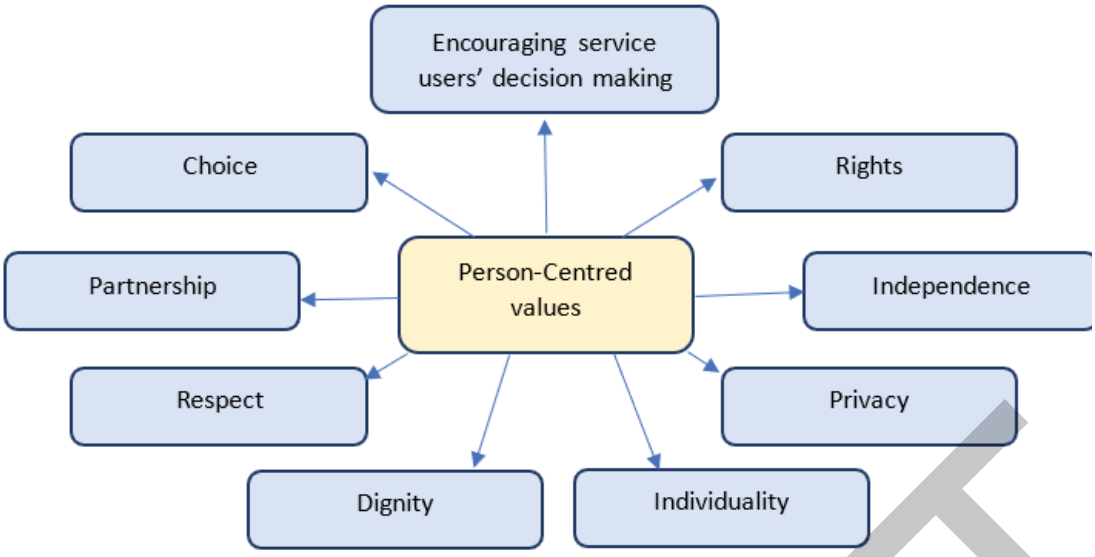
All service users should have their **rights upheld**. The Human Rights Acts 1998 explains that service users have the right to be protected from harm, and be treated with dignity, when receiving care.

#### Independence

All service users have the right to **independence**. This means that professionals should only give support where necessary. They should empower and enable service users to do what they can without help, in order to promote their dignity.

#### Privacy

Everyone has the right to privacy. This could be the privacy with their family life or privacy from other people – for example, when being supported with personal care.




Empathy – The ability to understand the needs and feelings of others from their point of view.

See Unit FO90 for more on person centred values of care

The right to privacy also includes **not having their information shared without permission**. (Sometimes, however, information might be shared without permission to protect them from harm). Professionals need to understand why sharing information unnecessarily is a risk.

## Dignity

Treating service users with **dignity** means treating them in ways they want, in ways that do not cause embarrassment, and which protects their beliefs. This involves taking time to communicate with the service users to ensure their beliefs are upheld in the way they are cared for.

## Respect

To show **respect** means to listen to and value the opinions of others, regardless of whether professionals agree with them. This should not affect the care given to service users, who should feel that their opinions and views are important.

## Partnership

Professionals cannot care for service users in isolation from others. Service users, their family and other professionals working with them all have important information and skills. Working in **partnership**, treating everyone with respect and using good communication will ensure service users get the most effective holistic care.

## Choice

Professionals should ensure that all service users are given **choices** in their day-to-day care. They should have all the information and possibilities explained to them in a way that is most appropriate for them, and then given the tools to enable them to make and verbalise their decisions.

## Encouraging service users' decision making

Service users should be involved in overall **decision making** about their care as much as possible. This could include the use of advocates or professionals using alternative methods of communication.

Information should be shared with the service user, their advocate and/or their family, to ensure that when meetings about their care are held, they can contribute in the most effective way. This will build relationships between all parties involved, and can help to build service users' confidence and positivity in the care they are given.

## Activity

Consider and answer the following questions.

1. Assess to what extent you think the person-centred values of care are important.

2. Compare the differences in health outcomes between:
   - a service user being given care that followed these values
   - a service user being given care that does not follow these values.

3. Sarah is looking for residential care for her mother who is 80 years old. As she walks around the home, she notices the following things:
   - There are no personal items in any of the rooms belonging to the residents.
   - There are menu choices posted in various places throughout the home.
   - One of the care workers asked Sarah if she minded some information being shared with another care worker.
   - A care worker supporting another individual to get dressed, but the door was left open.

Describe which of the person-centred values are being followed in this residential home, and explain Sarah could act on what she sees.

Advocate – An individual who speaks on behalf of another person, perhaps due to their age, illness, or lack of understanding.

### Recap questions

1. Why is it important that individuals are given the chance to be as independent as possible?
2. What could be the consequences of not promoting an individual's dignity?

## Personalisation

**Personalisation** in health and social care means ensuring service users are at the heart of the care they are given. It means that care is specific to each individual, and treats each user as an individual.

When individuals are at the heart of their care they are involved in all decision making, with professionals working all around them. They should feel not only listened to, but heard.

In practical terms, personalisation means that:

- users should be involved in making decisions
- the care plan created for them should respect what care they want and how they want to receive it.

## Role of a person-centred approach in delivering care

In this section we have looked at a few different contexts for a person-centred approach. A person-centred approach is very important for the standard and quality of care.

In a person-centred approach, service users:

- will receive **higher-quality care**
- are **more likely** to **be comfortable** with the care being provided
- are **more likely** to **follow advice** and **use the support** they are given effectively
- are **more likely to ask for help** when they feel they need it
- are **more likely** to **attend appointments**
- will have **more confidence in the professionals** providing care
- will **benefit from professionals working together** effectively
- are **less likely to be victims** of neglect or abuse.

Teams of professionals that take a person-centred approach are:

- **more likely** to **spot and report** substandard care, neglect or abuse
- **more likely** to **work well with other professionals** to provide the best care, because they will all follow the same values and have similar priorities
- **less likely** to **experience professional conflict**
- are **less likely** to **experience conflict** with service users
- **less likely** to **feel overworked or underappreciated**
- **less likely** to **waste time** on missed appointments

## The Care Act 2014

The **Care Act 2014** was introduced to ensure people have the right to make decisions about their own care. It supports personalisation because it enables people to make their own decisions about:

- what support they want
- and who they want to provide this support.

This empowers individuals to understand more about the care and support services out there and their own specific needs.

This supports person-centred care as individuals who are more informed about their own needs will:

- feel more able to speak up about what they want to happen
- and become more involved in making decisions about their own care.

Empower - Give people the tools, knowledge and authority to make decisions and control their own lives.

### Apply your understanding

Abigail is suffering with her asthma and using her inhaler more than normal. She is 24 years old and was diagnosed with asthma when she was 6. Struggling with it is unusual for her. She needs support to get this under control and to have confidence in her abilities to take part in physical activities again.

During an appointment, her GP carries out a peak flow test and discusses the medications she is currently using. Abigail says that she feels anxious about doing anything physical. The GP listens to her concerns and makes fortnightly appointments for her with the asthma nurse. This is so Abigail has a professional available to discuss any changes in her condition as the weeks go on, and so that investigations can be repeated.

The current asthma nurse realises that the previous asthma nurse never had regular appointments with Abigail, or even a yearly asthma review. This means that Abigail's asthma has been left unchecked for a while. Abigail did not contact the GP as she has had no reminder from the surgery.

The nurse discusses this with the GP to ensure it is not repeated. He also discusses the results of the investigations over the next 6 weeks. They both meet with Abigail to discuss a plan to get her asthma under control.

1. Which of the 6Cs have been followed by the professionals in this case study?
2. How would these make Abigail feel?
3. Describe two positive long-term outcomes of the work of the professionals.

## Recap questions

1. Describe two of the benefits of a person-centred approach for individuals needing care.
2. Why do you think personalisation is important?

## Activity

You will now complete research on The Care Act 2014. Create a power point or information leaflet that can be given to family members to inform them of their rights, what they should expect from professionals and how this supports person centred care. Include:

- How assessments are carried out
- Financial considerations when paying for care
- The duties of professionals
- Care and support plans
- Personal budgets
- How direct payments are used
- Transitions from children's care to adult care
- What the standards are

## Find out more

The Compassion in Practice document is a vital document to support nurses, midwives and care staff to do their role effectively. These roles come with many challenges, but by following the Compassion in Practice document, it can ensure professionals are prepared for their roles.

You can find the document here for further reading: http://www.england.nhs.uk/wp-content/uploads/2012/12/compassion-in-practice.pdf

Social Care Institute for Excellence created a video to show a real-life example of personalisation. It is useful to see it in practice to help your understanding.

The video can be viewed here: https://www.youtube.com/watch?v=2qUcIQvnBC0

## Apply your understanding

Jenny is 68 and was diagnosed with Alzheimer's, a type of dementia, two years ago. She is a retired school headteacher. She has two daughters and one grandson who she enjoys spending time with.

She has a home carer visit her twice a day to make sure that she is safe and is able to do everything she needs.

Jenny likes to get up out of bed every day, shower and get dressed. She says this makes her feel like she has a purpose in the day, and when people visit she doesn't like to be in her nightclothes. She likes to take her medication later in the day, as they often make her feel quite unwell. She enjoys watching TV and likes to sit outside in her garden.

At first, the carer followed her wishes. However, as the carer began to seem more rushed, there were times when she didn't help Jenny to dress or wash, saying that she was only going to be sitting around in the house anyway. This led to Jenny feeling embarrassed when her daughter and grandson visited. She also felt like she couldn't sit outside. The carer gave Jenny her medication in the morning, as she said she wasn't sure whether she would be back in the evening as expected. This led to Jenny feeling sick and having a headache from the medication most of the day. This meant she couldn't watch TV and wasn't in the mood for guests when her daughter wanted to call.

1. Explain how the carer failed in her ability to offer personalised care to Jenny.
2. How would Jenny feel? Which person-centred values were shown, and which were not?
3. What impact would this have on Jenny's physical and emotional health?
4. How would the Jenny's care affect her relationship with her daughters and grandson?
5. What should Jenny and her daughters do to improve the situation?

# 1.2 What a person-centred approach is

## What is important to and for a person

There are many things that are important to individuals who are receiving care. These are things that they want and know will benefit them and improve their care. There are also things that are important for a person to have. These are things that should improve their quality of life and the way they live.

Some examples of what is important to a person include:

- **Being treated as an equal partner in decision making about their care**. This is important so that service users are not left in the dark about the choices being made about them, so they feel able to speak up and have a voice.
- **Being able to make decisions about their life and care.** This is important so that service users are confident that their needs are being taken care of and if they have made a decision about their care, they are more likely to work with the professionals offering the help they need.
- **Having more of what is important to them.** This could include support with specific needs, such as more help with physical care or more help with their independence.

Some examples of what is important for a person include:

- **To live their life the way they want.** This could include being able to live in an area they want or have support with the things they feel like they need help with, at times that suit them and doesn't affect their life negatively.
- **Being employed.** Being employed can give purpose and structure to people's lives, and can improve a person's health and well-being. This could include support when applying for jobs or help to maintain employment, even if their needs change.
- **Being able to form meaningful relationships.** This could include having support to maintain family life. It can also include support to be able to access places to make friends and build relationships, such as day centres, schools or religious settings.
- **Being able to participate in community activities.** This could include being able to access places like a library, a swimming pool or a gym. It might mean going to specific classes at certain times for individuals with specific needs.
- **Being able to volunteer.** This could include being able to give back to the local community, such as within support groups or in local family centres, for example. Volunteering gives people structure and purpose, and it can be a good way to meet people.
- **Feeling like they belong.** This is important for everyone. People feel they belong when they have a place within a community and feel safe, and are not being excluded.

There may be times when the things that are important **to** a person may not align with the things that are important **for** that person. In these cases, it is important that the service user and professionals work together to find a suitable balance. Balance is important so that the care remains person-centred, whilst still meeting all the person's needs in the most effective and ethical way.

# Roles and responsibilities

A **role** is a position a professional has within a team.

**Responsibilities** are the tasks and duties professionals need to carry out in order to fulfil their job description.

Many people have different roles and responsibilities in person-centred care.

- The **main person** involved is the **service user** themselves. They should be involved right from the start and attend meetings to do with their care.
- **One professional normally leads** the care - often someone working within Social Services - but this does depend on the needs of the individual. They should be the ones making assessments of the needs of individuals and leading multi-agency teams to ensure these needs are met.
- There would normally be **many other professionals involved**, including other health care and social care professionals, and those who can give support as an advocate. There are also professionals who can give emotional and long-term guidance.

Accountable - Being held responsible for the outcomes

It is important that all professionals involved in providing a person-centred approach are aware of their different roles and responsibilities. This is to ensure:

- there is **no overlap** of effort, which wastes resources
- there are **no gaps** in care
- everyone is held accountable for meeting the needs of service users.

If there is any confusion about roles and responsibilities, it can lead to professionals repeating care being given by others, service users' needs not being met, service users losing confidence, or service users having to repeat their concerns or information numerous times.

## Recap questions

1. In one sentence, describe the difference between roles and responsibilities.
2. Give one example of what might be important to a person.
3. Why it is important to professionals that person-centred care is given?

## Apply your understanding

Ruby is 24 years old. She had a car accident 6 months ago and has **paraplegia** – for Ruby, this means she is paralysed below the waist. She is still building her confidence to carry out hygiene tasks, so she currently needs daily personal care. She also needs support to help her to get back to doing many things she did before the accident, such as work and having a social life. Ruby has discussed these needs with a range of professionals and care plans have been agreed.

- The role of the occupational therapist is to support Ruby in regaining some independence. This should include making adaptations to her home and supporting her return to employment by making recommendations to her employer.
- The role of the home carer is to visit twice per day and support ruby to shower, dress and complete chores such as washing.
- The role of the social worker is to assess Ruby's needs and make referrals to other agencies as and when needed by Ruby.

If the professionals working with Ruby understand their roles and responsibilities well:

1. Explain how this would ensure that what is important **for** Ruby is met.

2. Explain how this would ensure that what is important **to** Ruby is met

3. Analyse which of Ruby's needs will be upheld, how and why.

# Co-production

**Co-production** in health and social care is when the contributions of professionals and service users are recognised as being **equally important in making decisions** to improve the life of individuals.

Co-production can **ensure the relationships between service users and professionals are positive**, leading to more cohesive working and enabling person-centred care to be at the forefront of everyone's minds when planning and organising care.

There are three elements to co-production: voice, choice and control.

## Voice

This means giving service users a **voice** that others hear when making decisions about their care. Service users should have opportunities to:

- voice their **wants**, **needs** and **wishes**
- and voice **who they are** and **who they want to be**.

Their voice may need to be heard using alternative communication (such as British Sign Language or Makaton) or through using the support of an advocate. If a service user's voice is heard, they will feel important and that their voice matters, giving them confidence to stand up for their beliefs in a positive way.

Cohesive - When things work together effectively

Informed Decision – When people have all the information available to them to support their decision making, giving them greater control

## Choice

This means giving service users the opportunity to make their own **choices** about their own care. This could include the type of care they receive, who they receive it from, and how they receive it.

This should happen whenever a decision needs to be made. Service users should be given all the information needed to make an informed decision.

## Control

This means giving service users the opportunity to put their choices into practice. This helps them to take ownership of their own care and needs. **Control** of the things around them might include their employment, their social life and their way of living.

# Applying person-centred values

The person-centred values are vital to ensure person-centred care is given.

Applying these values will ensure professionals are aware of the how individuals should be treated and what to do if there are concerns in order to protect and safeguard them.

To apply these values, professionals need to work together, using excellent communication skills and empathy, to build a culture of good practice. This will ensure the needs of individuals are upheld.

### Activity

1. Describe how upholding the person-centred values of care can help co-production to occur positively.
2. Assess how professionals being aware of what is important **to** a person and **for** a person can help co-production and person-centred care.

### Recap questions

1. Do you remember what the Person-Centred Values of Care are? Write a list of them. Look back in the book if you cannot recall them all.
2. Describe one alternative communication method which might need to be used to ensure individuals have a voice.
3. Some things individuals might want to control are their employment and social life. Explain why you think this might be.

# 1.3 Independence and Rights

Disabling environment – When the environment consists of physical or social barriers that impact an individual's life negatively.

## Considerations for inclusion within the local community

There are many reasons why people with a particular need or diagnosis may be excluded from the local community.

- It could be due to the community being a disabling environment for them, perhaps due to a physical disability.
- It could be due to the **lack of understanding of other people** within the community, perhaps due to the age of the person or due to a mental health issue.

Public Health England recognises that if we put communities at the heart of public health, it can empower people to have a greater say in their lives and engage people who are most at risk. People who feel like they can't engage within society are often the ones who are the least likely to access services and are usually the people who have the worst health outcomes.

In order to ensure inclusion in local communities, professionals should:

- **Understand the health needs** of the local population, and the things that are influencing poor health for different communities.
- Consider how **people's social and emotional needs** are affecting their health – for example, their relationships, social networks, and support in their neighbourhood.
- Adopt **person-centred practice** when mmunicating with and assessing service users. This may involve health coaching and co-producing care plans.
- Find out what community and voluntary services and groups there are in the local area, and **actively signpost service users** to them to improve their health and wellbeing

(Community Centred Practice: Applying All Our Health, 2022 (GOV.UK, n.d.))

Some specific things local communities could do to enable the participation of all include:

- Ensuring the **safety of outdoor environments**. This can include safer pathways, roads and access to services.
- Ensuring services are **located in central places**. This should include GP surgeries and Social Care Services as well as family and day centres.
- Supporting professionals to **offer all the services** local communities need.

By doing these, it can ensure that those who are most vulnerable have more chance of accessing the services they need, leading to improved health in local communities and then across society.

# Respecting individuals' rights to accept or decline support

All professionals want to provide the most appropriate support available to individuals they are working with. However, service users have the **choice** whether to **accept or decline the support they are offered**.

This can be very difficult for professionals to accept, but they need to make sure that they do not impart their own ideas and feelings onto service users or force them into making a decision they are not comfortable with. (Taylor, R.M., 2013)

In order for service users to be able to make decisions, professionals need to ensure they have capacity to make decisions. **Capacity** is the ability to understand and process information effectively, to enable them to make an informed decision. (Leo, R.J., 1999)

Therefore, it is the role of professionals to **communicate as much information as possible** to service users and their families, so that when service users make a decision about care, it is made with confidence and full understanding, and will lead to them feeling comfortable in the long term.

In order to communicate effectively, alternative communication methods may need to be used, such as:

- Makaton, British Sign Language.
- Braille, large font.
- A range of different languages.
- Information may need to be **provided in different forms**, such as printed leaflets or information sheets, communication boards.
- Information may need to be **provided in different places**, such as community centres, libraries, GP surgeries, through telephone helplines, on websites, or in schools.

This helps to ensure that when decisions about care are made, service users have had every opportunity to access the information needed to ensure this is an informed decision.

There are, however, some people who are unable, or **lack the capacity**, to make their own decisions about their care. These include:

- **Children** under the age of 18 years old.
- **Some people in End of Life care**, who are unable to make decisions due to the impact of medication, lack of available support, or because they are not conscious.
- Service users being **held under the Mental Health Act 2007**.
- People who are **intoxicated**.

## Activity

Give two reasons why you think the following groups would be unable to make informed choices about their own care.

| | Reasons why these are unable to make decisions |
|---|---|
| Children under age 18 | 1.<br>2. |
| End of Life Care | 1.<br>2. |
| Due to Mental Health Act 2007 | 1.<br>2. |
| People intoxicated | 1.<br>2. |

## Recap questions

1. Describe one of the alternative communication methods in as much detail as you can.
2. Explain why people who are intoxicated might lack the capacity to make their own decisions.

## Find out more

If you are unaware of the alternative communication methods, the following video may be helpful for your understanding.

https://www.youtube.com/watch?v=6WMm3eUF07Q

## Declining care

There are many reasons why a service user may decline the care they have been offered.

### They do not agree with the care they are being offered

A service user **may not agree** with the support that they have been offered. They may have even vocalised this in meetings, but gone unheard. This will lead to the service users not attending appointments or scheduling treatments that have been agreed by professionals.

### There are charges they cannot afford

These charges could include:

- the **cost of transport** to services, such as taxis or fuel,
- the **cost of parking** at services or in cities where they are based,
- the **loss of wages** from taking time off work to attend appointments.

This could result in them feeling unable to attend.

### They do not understand the need or importance of the care

Some service users may **not want to understand** why a particular treatment or care service is necessary. This could lead to them not accepting offers of treatment or care, even when it could have a significant positive impact on their health.

Denial – Refusal to acknowledge or accept the truth about something.

### They do not want to deal with the side effects of the care

Some treatments come with harsh or long-term side effects. This can include chemotherapy or recovering from surgery. Some people may make the decision not to go ahead with recommended treatment because they **do not want it to negatively impact on their quality of life**. For example, it might affect the time they have with their family if their condition is terminal or progressive.

### They are in denial

Some service users may be in denial about their health. This may be because they haven't had time to process the information that has been given to them, or they don't believe what they have been told. This could be because a diagnosis has come as a shock - for example, an illness that didn't show any symptoms.

Service users **do have the right to decline support or care**, regardless of the reason, and this needs to be accepted by professionals. Discussions and support can continue to try to overcome any barriers that might reverse their decision, such as providing transport to reduce costs. However, in the end, the final decision lies with the service users themselves.

# Supporting individuals to be as independent as possible

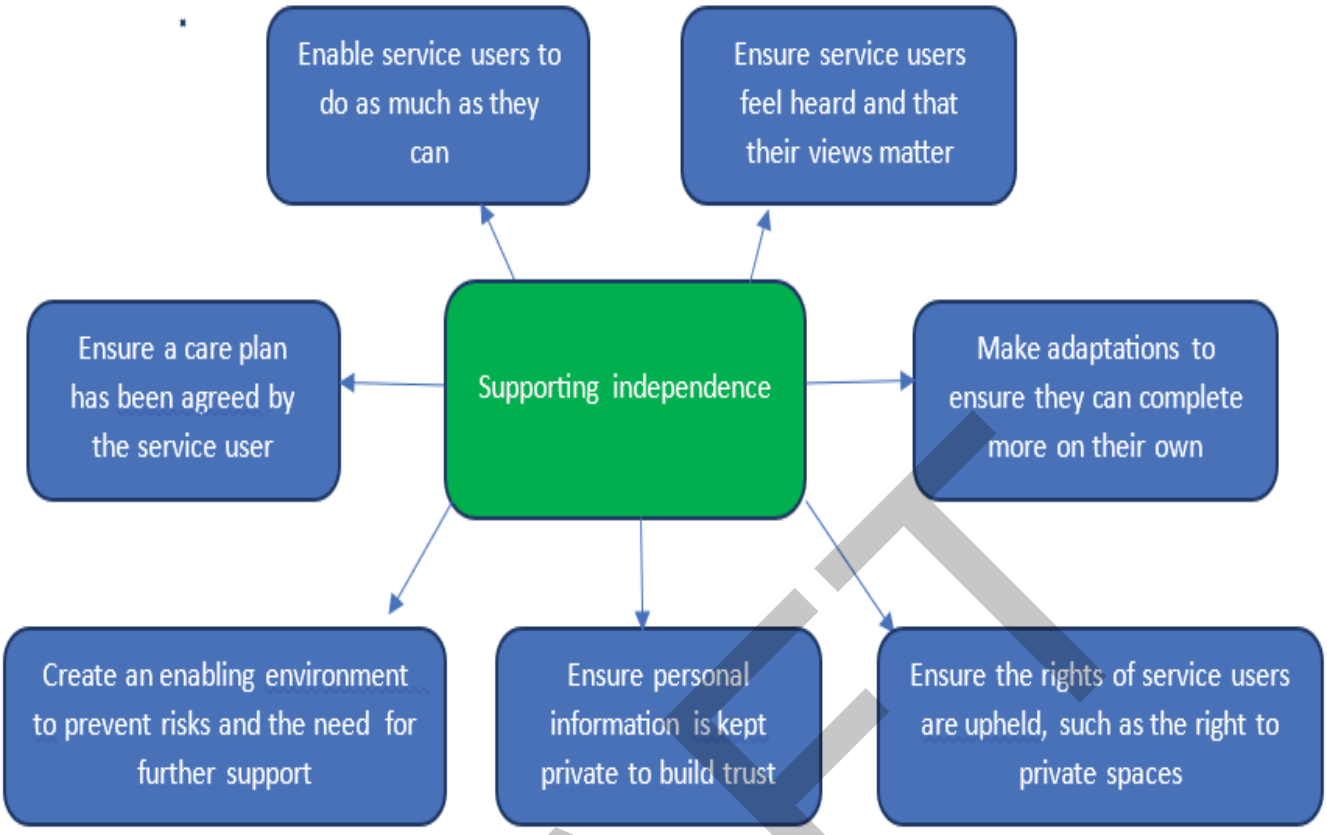
Enabling service users to be as independent as possible has **many positive impacts**. It can:

- Improve confidence in their own skills
- Improve confidence that the professionals are practicing person-centred care
- Improve relationships between service users and professionals
- Improve a service user's physical and mental health
- Improve professionals' understanding of the needs of the service user
- Improve a service user's ability to speak for themselves

There are many ways to support the independence of service users. Some of these strategies are shown on the next page.

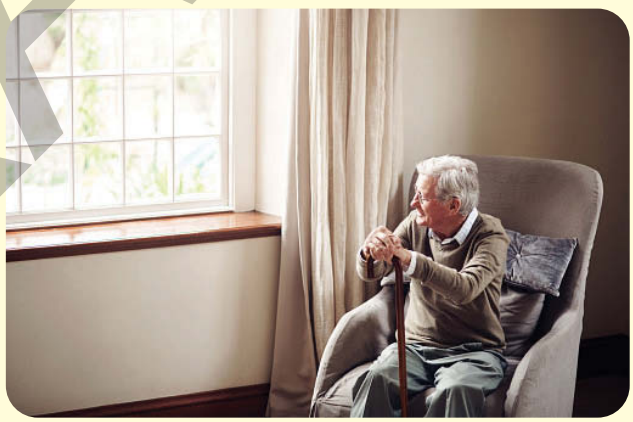
**Recap questions**

1. Why might some people might decline the care they have been offered?
2. Describe how these decisions can also affect an individual's family too.




**Apply your understanding**

John has just been diagnosed with lung cancer. John stopped smoking 30 years ago, so this diagnosis came as quite a shock to John and his family. As he was not looking out for symptoms, it has progressed quite a lot. The treatment is not looking favourable, and he has heard stories that people often suffer with serious side effects from the treatment. He has spoken to his family and explained to them that he does not want to undergo treatment. He feels he has had a good life and that he would rather spend the time he has left enjoying being with his family, not suffering from severe side effects.



1. Explain which of the reasons for declining care apply to John? How do you know this?

2. a) Analyse which of the strategies for supporting independence could help John? b) Justify what these could lead to?

# 1.4 Benefits of a person-centred approach

A person-centred approach ensures personalised care is given, tailored to the user's specific needs and wishes, so that all their physical, intellectual, emotional, and social development needs are supported.

A person-centred approach can have **many benefits**. This is because the care given to service users will be appropriate to meet their holistic needs and will be more likely to lead to positive outcomes that all will be happy with.

## Allows the service user to remain independent

Losing independence is usually one of the most difficult things for people to cope with. This is often because it is a sign that things will never go back to the way they were again, and that they now need to learn to live in new ways. This can be a distressing time as people lose their sense of self and worry about losing their dignity.

Person-centred care means that professionals have an in-depth understanding of:

- the **needs of the service users** they are caring for
- and the **abilities of service users** too.

With this knowledge and understanding, professionals can enable service users to utilise their skills so they can continue to be independent for longer. In practice, this might mean they could:

- continue to **perform their own personal care** routines
- **remain in their own home** for longer.

This has positive emotional and social health benefits, as they can continue to do activities of their own choice.

## Improves the experience of using health and social care services

Many health and social care services are long term. An example of this is a residential home. If an individual needs long-term care in a residential home, this might be the rest of their life. Person-centred care will have an immense impact on their lives.

In this example, a residential home is where the service users will live and receive all their care. If this is then person-centred, this will mean:

- they are offered **food that they enjoy**
- activities are **appropriate and fun** for each individual
- there are **social outings** that they can participate in and enjoy.

This is because their needs and wishes are understood and have been taken into consideration at all times. Residents are more likely to enjoy their time at the home, with a better quality of life and more positive overall wellbeing.

Professionals working with the residents will also feel a sense of achievement, and have pride in their efforts and the positive difference they have made to the lives of others.

## Increases wellbeing, self-esteem and confidence

Self-esteem and **confidence** are vitally important in the lives of service users. If an individual feels confident in themselves, and worthy of care and support from others, they are more likely to use the care given to them effectively. They are also more likely to maintain positivity and as much independence as possible.

Person-centred care can increase the confidence and self-esteem of service users, because:

- they see that they are **being listened to** and heard
- they are **being treated as valuable individuals**
- they are able to **do the things they want**.

They will be more able to speak up and voice their opinion, leading to even more personalisation of care, and more positive overall wellbeing.

## Increases confidence in other services

Some service users regularly use more than one service, such as, for example:

- a GP surgery and hospital
- a day centre and home care.

Service users can be reluctant to try services that are new to them, perhaps due to not having a contact there or being unsure of what their role will be.

However, if their current services use a person-centred approach, users are more likely to trust that other services will do the same. This makes them more likely to accept the support of other services they need.

On the other hand, if some professionals in the existing care service are not using a person-centred approach, then the service user might think that all other services will treat them negatively and avoid them, missing out on the help they could give.

## Promotes positive relationships

Person-centred care means professionals are:

- listening and hearing
- taking ideas or concerns into consideration
- understanding what users like and don't like
- clearly understanding users' need for care and support.

As a result, service users are much more likely to **appreciate the time and effort** put into their care and have **positive feelings** towards professionals. They are more likely to be happy to speak to them, work with them, and open up to them when needed. This will mean that, in times of further need, service users will feel like they have someone they can talk to and rely on to help.

Holistic - All of the interconnected needs of individuals.

Self-esteem – confidence in one's own worth or abilities.

Perception – People's awareness or thoughts about something.

This can also **encourage teamwork**, not only between the service users and professionals, but with any family, friends or advocates who are involved. This is because they will see that their family member or friend is happy using the service and has been treated as a valued individual throughout their care.

### Recap questions

1. Why is it important that professionals understand the abilities of individuals using services?
2. How can person-centred care affect the self-esteem of individuals?
3. How can person-centred care help professionals to work together?

### Activity

Imagine you are about to take over a day centre in your local area. Under previous management it had many negative reviews and complaints. This has led to much negativity, as people in the area are holding onto views of what it used to be like.

1. Explain some strategies to let people in the local area learn about the new day centre. How would this differ according to age?
2. Analyse what services the day centre could include in their new programme to ensure person-centred care is given and that the above benefits can be experienced by visitors.
3. Evaluate how easy or hard it would be to change the perception of others. Remember to give reasons for your answers.

# 1.5 Methods used to ensure a person-centred approach

## Person-centred planning tools used to gather information about individuals

We have described the benefits of a person-centred approach. To put a person-centred approach into practice, professionals use a range of **planning tools**. It is important that the correct tools are used to learn about an individual and their needs.

Learning about a service user can take a lot of time and patience. Professionals need to show **empathy** and have the ability to **develop positive relationships** with users. This is more likely to empower service users to be honest and feel able to share personal information that can lead to person-centred care.

Professionals should be given the opportunity to learn how to use the following tools:

- Good day/Bad day
- Important to/Important for
- Perfect week
- Relationship circle

Used effectively, these tools can help promote a person-centred approach across services.

### Good Day / Bad Day

Service users will have good days and bad days, and depending on their needs and understanding, this can have a varying impact.

- **Good days** can bring joy, optimism and increased wellbeing.
- **Bad days** can lead to negativity and pessimism, affect relationships, lower overall wellbeing and have an impact on safety.

Sometimes, it can be small things that can make someone's day a good day, for example:

- being able to sit outside
- speaking to a particular person.

Some of these things might seem small or unimportant, but they can make a big difference to the lives of the service user. Therefore it is important to understand what these things are.

The **Good day / Bad day tool** is a simple one-page document that can be used in discussions with service users. The aim of the document is for them to:

- describe what can make a day a good day for them
- what can make it a bad day.

This is so that professionals and services can:

- try to **implement as many of the factors for a good day** as possible,
- be on the lookout to **eliminate the factors that make a bad day**, or try to reduce their impact where they are unavoidable.

Using this tool can help service users focus on the discussion. It can be added to whenever they think of something they may have forgotten.

The tool can help to ensure a person-centred approach, as things they enjoy are added into their days more often. This can lead to the service users having more good days than bad days, and can help to promote good relationships between service users and professionals.

## Perfect week

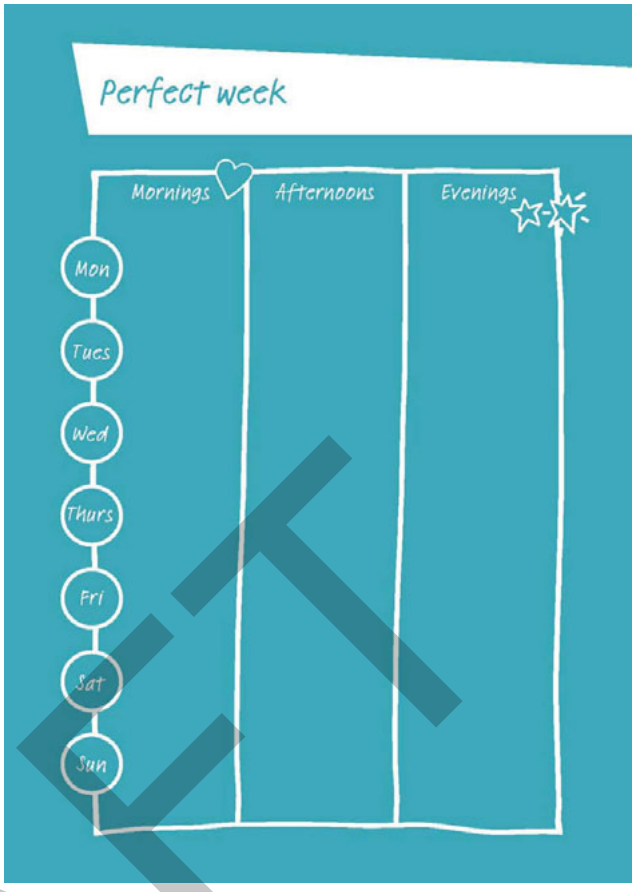
Another tool is for service users to consider what they would want to happen in their **perfect week**. This might include things such as:

- education or training
- social activities
- leisure activities.

It is a **good tool for new service users** attending a setting, to enable professionals to understand what activities they would like to do. It can give service users an opportunity to discuss their future aspirations or how they want to progress from week to week.

This tool can be used to gather information during transition meetings so that a service user knows that their needs and wishes have been written down and understood. The tool **gives an opportunity to discuss all the activities or tasks** in the morning, afternoon and evening of a perfect week.

It can be completed on a week-to-week basis, to encourage conversations and to enable professionals to continue to learn about the individual. Professionals can use their understanding to plan ahead and prepare as many things as possible to try to make their week perfect.




Transition meetings - Meetings to support the transition of people like, perhaps from hospital to residential home, or between residential homes, or from residential to hospice, etc.

## Important to / Important for

There are differences between what is important **for** service users and what is important **to** them.

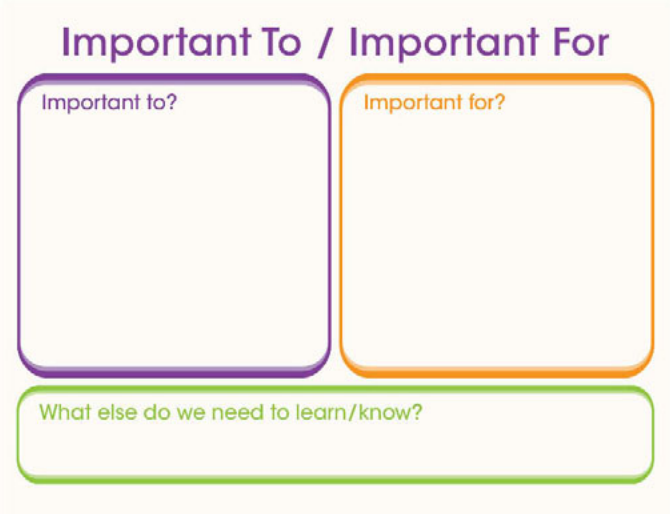
- Professionals often think about what is important for service users, such as how they need taking care of and what professionals they need referring to.
- The things that are important to a service user are the things they find important and meaningful in their lives, such as spending time with their family or watching their favourite TV programs.

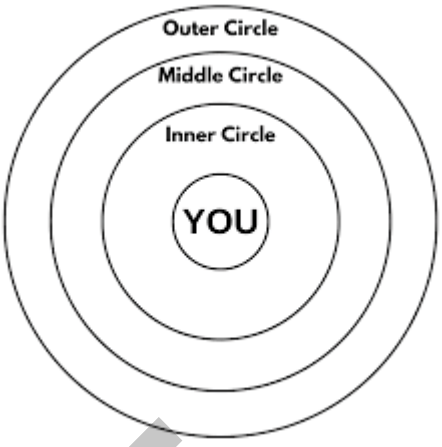
This tool is a one page-document that gives professionals the opportunity to discuss each point with service users. It is useful because:

- The service user can see why the **professionals think each point is important for them**. This can help them to be confident in what is coming up and gives them an opportunity to voice their own opinions on each suggestion.
- It can also help the professionals to **understand the things the service users feel are important to them**, so they can work together to ensure they have as many opportunities for these to happen as possible.
- Where there is any conflict between 'important to / important for', this tool provides an **opportunity to discuss and try to resolve or compromise**.

This tool can also be completed with family members or advocates, to provide as much information as possible for discussion, so that everyone involved is aware of how to give them effective care.

With the service user's permission this tool can be placed in an area where all professionals can see it. It can be updated at regular intervals when things change, such as when religious festivals are approaching or when health deteriorates. It can help to ensure person-centred care is given at all times.




A relationship circle

## Relationship circle

Service users will have **different relationships in their lives** that professionals need to be aware of.

- Some service users will have many members of their family and friends around for support,
- Some might have none, perhaps due to relationship breakdowns or the deaths of family members.

It is important for professionals to **understand who is around and available for service users**. This ensures that professionals don't step on the toes of informal carers, and can instead offer support to them to maintain their own health and wellbeing.

- It is also important to know who is important to service users and how these relationships can be supported.
- It can also help to know which relationships could be improved, or ideally need to be introduced into their lives to support their health.

Writing this information down can help service users to see who they can rely on. This can be even more important for individuals who are suffering from conditions such as dementia.

A **relationship circle** helps to ensure person-centred care, as there may be specific people in service user's lives who they want to do specific tasks. Having this formally written down ensures it can continue. With the user's permission this document can also be passed to other professionals in other agencies, to ensure there is continuity of care.

# Interviewing an individual

Using the visual tools outlined above can help professionals conduct interviews and keep them focussed on the things that need to be discussed. The tools can **help focus the attention of service users** who might find this difficult, and gives them something to refer to at a later date.

Having access to these tools can help professionals prepare for interviews, as the topics to be discussed are already decided. This can give professionals the opportunity to plan a place to conduct interviews – for example, they may know they will need a table where all involved can see all the documents with enough space for service users and their family to sit and discuss comfortably.

There are many skills that professionals need to conduct interviews in a supportive and empathetic manner. These include:

- using **open body language**
- maintaining **positive eye contact**
- conducting the interview at a **suitable pace** for the service users - not too fast or too slow - which will help to put service users and their families at ease.

Throughout an interview it is important that professionals complete the pages of the relevant tools, so that they can be reviewed and contribute to their care plan, using words from the service user's own mouth.

Professionals should also take further notes of any important information that can be added

to their care plan if applicable. This can include things like:

- changes to the amount of **informal care** available
- changes to their **preferences**.

These notes should be kept private and only be shared with people who need to know and have permission. This means:

- **locking them away** if they are written on paper
- **password protecting** documents if they are on a computer.

## Creating a one-page profile

A **one-page profile** (**OPP**) is a key document that can be created by professionals to give an overview of information about a service user. It includes information that those working with the service user would benefit from knowing.

The key features of a one-page profile include:

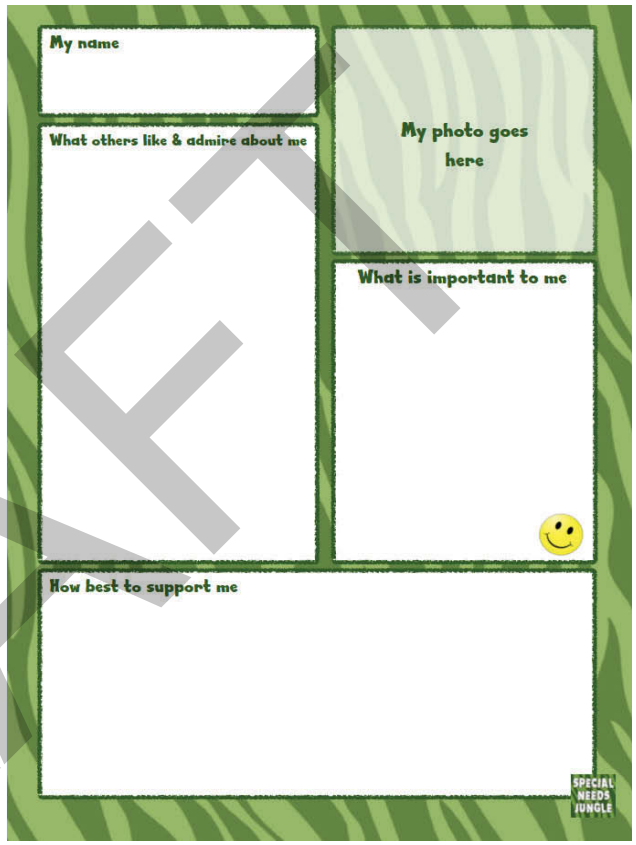
1. **Personal details** about an individual, such as name, age and occupation.
2. What people **like and admire** about them.
3. What is **important** to them.
4. How they want to be **supported**.

Completing a one-page profile can help to ensure a person-centred approach:

- It can be shared with any professionals working with them, so that they have an understanding of the individual
- It can be taken with the service user to places like respite care or day centres, so that interviews do not have to be repeated. This can reduce stress or anxiety.

An OPP helps to ensure person-centred care because it is completed with service users who can **share their knowledge and own ideas** about what support can be given and how. It can also help professionals to **understand the differences between service users**, especially if they are new to a setting, as OPPs can contain photographs and personal information too.

An OPP can also help service users to feel confident that they will be cared for in a way that is personal to them and suits their needs.




### Activity

1. Complete your own 'Perfect Week'. Really think about what would make your day and week perfect and what is important to you.
2. Assess how the perfect week tool could support a new professional working with an individual.

### Recap questions

1. What are the differences between Good Day/Bad Day and the Perfect Week tools?
2. Which individuals might the relationship circle be extremely useful for?
3. What are the personal details needed on a one-page profile?
4. What body language should be used when interviewing individuals needing services?

### Find out more

For further information on how to create inclusive environments, use the following website link: www.ndti.org.uk/

## End of Topic 1 Practice Activity

**Case Study: Sarah Thompson**

**Background:** Sarah Thompson is a 32-year-old woman who has been living with multiple sclerosis (MS) for the past six years. As the disease progressed, she has faced various physical care and support needs, including difficulty with mobility, partial paralysis, fatigue, and occasional speech challenges. Sarah has always been an independent individual who worked as a graphic designer, but her confidence has significantly decreased due to her condition and the reliance on others for daily activities. Sarah got divorced from her husband a few years ago, after he struggled to cope with her needs. She has no children but has excellent relationships with her own parents and her sister, who she relies on a lot for emotional support. Her sister enjoys talking to her about when they were younger and they have a similar sense of humour. Her niece is someone she really looks forward to spending time with as she visits often. She is interested in graphic design and gets a lot of advice from Sarah. Her brother lives very locally and he has been a big help in meeting her needs, such as shopping for her or taking her out when she is feeling able. Since he lives alone, he enjoys her company. She has a carer, Nicole, who visits daily to support her, and her role varies depending on whether Sarah is having a good or bad day.

**Physical Care and Support Needs**

1. **Mobility Assistance**: Sarah requires help with moving around her home and community. She uses a walker and needs support when navigating stairs or uneven surfaces.
2. **Personal Care:** Daily activities like bathing, dressing, and grooming have become challenging. Sarah sometimes needs assistance to maintain her hygiene and dress appropriately.
3. **Meal Preparation**: Fatigue affects Sarah's ability to cook, so she needs help with meal preparation and planning to ensure she maintains a healthy diet.
4. Medication Management: Sarah has a regimen of medications that need to be taken at specific times. She requires reminders and support in organising her medications.

**Confidence Issues**

Sarah's confidence has waned significantly due to her physical limitations and reliance on others. She often feels embarrassed about needing assistance and worries about being a burden to her family and friends. This has led to increased social withdrawal and reluctance to participate in community activities or outings. She used to enjoy going shopping and going to the theatre, but this has become more and more difficult in recent years. She now tries to enjoy doing things around her home, such as drawing when she can, but misses the things she used to do. She often feels envious of others around her. Despite this, all of her family enjoy her positive spirit and they try to help whenever they can.

You will use the case study above throughout the topic area practice activities.

**Scenario**

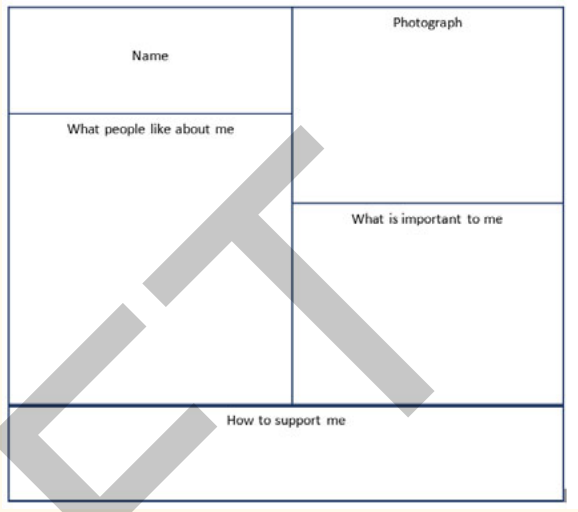
You have just completed your training to deliver care for individuals in their own home. You need to use person-centred approaches and values and recognise the wants and needs of individuals when planning and delivering care.

Now complete the following tasks:

1. In order to feel confident in the care being provided to Sarah, you will need to understand her wants and needs to enable a person-centred approach to be used. An interview would be a good way to gather this information, but this needs planning due to Sarah's needs.
2. Create a plan to conduct this interview, including when and where this should take place and the questions that should be asked. Include an explanation about how you will ensure

a person-centred approach is used during the interview to encourage participation and what the benefits of this would be for Sarah.

3. Assume the interview has taken place. Using the case study, complete the person-centred planning tools as these would have been completed during the interview. The planning tools are described in Section 1.5.1.
4. Then create a one-page profile for Sarah using the information given above and the information in the person-centred tools used. Make sure accurate written communication skills are used.




5. Assess how well the tools have been used to enable you to gather the information needed to make informed decisions about the care Sarah needs. How would it make a difference to her life? How much would it help professionals to work together?
6. Now you have completed the process of using the tools and the one-page profile, how effective do you think this would be in gathering appropriate information and supporting the needs of individuals such as Sarah?
7. Exchange your person-centred tools and one page profile with a peer. How well do they think your information accurately reflects the needs and lifestyle of Sarah? Then analyse the feedback you have been given, how could making amendments according to this improve the one-page profile and then the care of Sarah?
8. If you were to create a one-page profile for another service user, what changes and improvements would you make to improve the process? Justify how these improvements would impact service users positively.

This section has been in preparation for meeting the Topic Area 1 assessment criteria.

| Pass | Merit | Distinction |
|---|---|---|
| **P1** Create a plan for an interview with your chosen individual. | **M1** Explain in your plan how you will use a person-centred approach when interviewing your chosen individual. | **D1** Evaluate the effectiveness of the overall process in creating an accurate, detailed one-page profile. |
| **P2** Conduct an interview with your chosen individual to gather information about them. | | |
| **P3** Complete the specified tools with an appropriate level of detail. | **M2** Assess how well you used the tools to gather and capture information about your chosen individual. | |
| **P4** Create a detailed one-page profile for your chosen individual using accurate written communication skills. | | |
| **P5** Collect feedback on the one-page profile from your chosen individual about how accurately they consider it reflects them as a person. | **M3** Analyse how accurate the one-page profile is, using the feedback from your chosen individual. | **D2** Recommend and justify improvements you would make if you were to create a one-page profile for a real individual. |