BTEC National Health and Social Care (AAQ) Student Textbook- Answers

*****

The practice questions, marks and answers included in this book are the authors' own work. They have not been checked or approved by the awarding organisation. They are designed to help learners develop knowledge, skills and understanding but they do not replicate real examination papers, assessments or mark schemes.

For definitive advice and details about assessment please refer to the awarding organisation website.

*****

Unit 1: Human Lifespan and Development

A1

p.9

Recap questions

1. Pick up objects using pincer grip.
   Hold a spoon or crayon.
2. Head circumference will grow or height and weight increases.
3. A gross motor skill is the use of larger muscles such as arms and legs. An example of a gross motor skill is the ability to roll over or kick a ball.
4. Main points:
   - Infants are biologically pre-programmed to form positive deep emotional attachment to a primary carer (usually the mother)
   - Children would naturally show signs of separation anxiety when away from their primary care giver (including when they are with a secondary carer).
   - If infants do not form this attachment bond Bowlby states that there could be negative consequences in terms of social, emotional and cognitive development which includes forming positive relationships in later life, reduced intellectual abilities, low self-esteem and feeling unsafe
5. Main points:
   - 3months: earliest forms of communication e.g. babbling, cooing noises and often babies have a different cry for different needs
   - 6 months: Beginning to make a range of sounds i.e. gurgling when playing
   - 12 months: will start to copy sounds and make repetitive vowel sounds like "baa" or "daa"
   - 18 months: can say up to 20 words – e.g. names of people or simple objects
   - 2 years: start to talk in simple sentences

p.11

Recap questions

1.
    - Height and weight increases.
    - Fine and gross motor skills develop.
2.
    - Head circumference increases.
3.
    - Bowlby believes that an infant can develop an attachment to their primary caregiver, but this must happen within the critical period where they should experience proximity to a caregiver. If this doesn't happen separation anxiety can occur.

p.11

Practice questions

1. According to Bowlby failing to create a secure attachment to a primary caregiver in the critical period can result in difficulty forming relationships in the future, it could also impact social development by affecting parenting styles.
2. Interactions with other children such as play can support the development of fine and gross motor skills as it encourages children to learn how to use resources such as a ball or a paintbrush which then supports the mastering of certain fine and gross motor skills.
3. The environment an infant is exposed to can influence a child's holistic growth and development in both a positive and negative way. For example, if a child is in an environment with access to space and resources the ability to develop fine and gross motor skills is encouraged, which supports language development through reading books. This then supports positive emotions and relationship development with other children.

p. 13

Recap questions

1. 3-8 years [1]
2.
    - Walk on tiptoe [1]
    - Ride a small bike
3.
    - Increase in vocabulary [1]
    - Problem solving skills

p. 14

Recap questions

1.
    - Kick a ball [1]
    - Skipping
2.
    - 3-8 years [1]
3.

- Vocabulary develops in early childhood due to exposure to new words from those around them. [1] For example, this could be from family members or professionals in a school setting. [1] This means children will repeat words they hear to develop their understanding of the world and to form sentences. [1]

p. 14

Practice questions

1. Playing with other children can influence a child's understanding of other emotions. For example, they will recognise if a child is happy or sad during a game. This also supports their own emotions as they begin to recognise winning and losing during play which plays a big part in the introduction of emotions to children.
2. Growth and development in infancy and early childhood both continue to develop rapidly but is slower in early childhood. Another key difference is that in infancy an infant is unable to recognise emotions or communicate these but in early childhood language has increased due to a widening of vocabulary and an ability to form sentences.

p. 15

Recap questions

1. A primary sexual characteristic is linked to an individual's reproductive organs. For example, ovaries releasing eggs and the enlargement of the penis.
2.
    - Facial hair [1]
    - Hips widen [1]
3. An ability to understand concepts that require out of the box thinking. [1]

p. 17

Recap questions

1. The overall view we have of ourselves, this includes our behaviour and personality.
2.
    - Risk of peer pressure
    - Increased independence
3.
    - One difference is that primary sexual characteristics are present from birth, but secondary sexual characteristics develop during puberty. For example, a uterus is present from birth whereas breast buds developing do not occur until adolescence.
    - Another difference is that secondary sexual characteristics are observable traits by those around them. For example, developing facial hair is clearly visible compared to sperm spontaneous erections.

p. 17

Practice questions

1. Intimacy allows an individual to become vulnerable around others, this then encourages emotions such as empathy.
2. Friendships can become more important than family in adolescence because an individual is navigating new situations which often involves friends. This helps support emotional and social development. They can also be important as friends are often around an individual more than family in this life stage whilst at school or college.

p.19

Recap questions

1. 19-45 years
2.
    - Peak physical fitness
    - Peak fertility
3. An individuals job can influence intellectual development through the increase in knowledge. For example, an adult may widen their vocabulary to understand words associated with their occupation.
4. One of:
    - Peak physical fitness
    - Peak fertility
5.
    - Further or higher education
    - Training in an occupation
6. Self-concept becomes more established in early adulthood as an individual understands more about their behaviour and personality. For example, they can understand the type of person they are, whether they are kind or aggressive.

p.19

Practice questions:

1. Independence increases into early adulthood as an individual may move out of the family home and must support themselves financially and domestically whereas an adolescent may still be dependent upon their parent or carer for aspects such as shelter and food.
2. Bowlby would argue that positive attachments in infancy and early childhood can lead to high self-esteem into early adulthood as good bonds promote better attachments in early adulthood. However, issues with attachments early on could lead to issues with self-esteem as a persons ability to form relationships may be affected according to Bowlby.

p.21

Recap questions

1.
    - Adolescence
    - Early adulthood
2.
    - Headaches
    - Mood swings

3. By middle adulthood an individuals vocabulary and language skills are at its peak and can continue to develop through an individuals occupation. This means a person in middle adulthood can articulate themselves well to deal with complex situations.

p.22

Recap questions

1.
    - Loss of libido
    - Hot flushes
2. One reason is linked to an individuals occupation where it can teach an individual method of communication that are more appropriate for their job as well as teaching them new vocabulary to help them verbalise information clearly.
3.
    - Bereavement can impact social development as it can cause an individual to become socially isolated due to a loss of close friends or family.
    - Retirement can also impact social development as it can increase an individual's social opportunity by establishing new friendships or relationships during an individuals free time.

p.22

Practice questions

1. An individual may reflect and assess their career prospects, they may choose to have a change in career or to retire. This is because of a range of possible factors such as changes in work environment or a change in view of current job situation. For example, a person may decide they no longer want to work in a sector due to wanting a change or because of issues within the current working environment.
2. The menopause can cause emotions such as mood swings, anxiety and in some cases depression. This is because of lower levels of the hormone oestrogen. A fluctuation in this hormone causes women to experience a range of emotions because of the onset of symptoms which can also impact self-esteem and self-image due to physical symptoms such as weight gain.

p.23

Recap questions

1. Lifestyle choices such as high fat diet or smoking.

2.

- Decline in short term memory

- Wisdom

3. 70-84 years
4. When a person holds a wealth of knowledge and is able to apply this knowledge to situations due to having vast life experience.
5.
    - One type of physical development experienced in late adulthood is a reduction in lung capacity. This is because of natural ageing causing changes to the structure of the respiratory system.
    - Another type of physical development is reduced mobility. This is because of a loss in muscle mass causing weakened joints.

p.23

Practice questions

1. In middle adulthood an individual may experience the emotion of contentment due to being retired and having new freedoms to socialise and enjoy activities more. Whereas in late adulthood an individual may experience feelings of loneliness due to experiencing bereavement meaning they may have lost loved ones causing them to be alone.
2. An individuals cognitive ability is declining in this life stage due to brain cells dying which then causes issues in short term memory. If an individual's short-term memory declines it means they have lost the ability to recall information well, this then prevents them from learning something new as it will take them longer to recall for it to then transfer into their long-term memory.

p.25

Recap questions

1. Elasticity of the skin declines as individuals experience a natural decline I collagen which is responsible for ensuring the skin structure.
2. Dementia is caused by a breakdown in connections in the brain because of cell damage.
3. Glaucoma

p.27

Recap questions

1. A cognitive super-ager is when an individual has maintained their cognitive abilities into later adulthood. For example, their memory remains intact. This happens because an individual has a positive lifestyle that supports healthy brain function.
2. In late adulthood an individual can still have some levels of creativity and wisdom due to having a large amount of knowledge gained from life experience whereas in later adulthood this ability may begin to decline due to damage to brain cells which can influence the onset of conditions such as dementia.
3.

- Depression
- Emotional regulation or emotional intelligence

p.27

End of Learning Aim Questions

1. Early adulthood [1]
   Infancy [1]
2. One example of social development Simone might be experiencing is establishing a group of friends. [1]
3.
   - One type of physical development Suki may experience if the development of gross motor skills. [1] This is because by the age of 2 Suki should be able to use her legs to balance so that she can walk. [1]
   - Another type of physical development is she will continue to get taller. [1] This is because height will continue to grow. [1]
4.
   - One type of emotional development Simone may experience is a change to their self-concept, this may increase. [1] This is because her new role of being a mum may influence her confidence in her identity. [1]
   - Another type of emotional development is she may form an attachment to Suki. [1] This is because she will be caring for her daughter full time and will be developing a strong connection with her. [1]
5.
   - Diet can impact physical health by causing weight gain. [1] This is because the extra fat being consumed is being stored in the body as excess fat as the extra calories are not being exceeded. [1]
   - Another impact diet can have physically is lethargy. [1] This is because eating unhealthy foods can cause an individual to have low energy levels as the right nutrients are not being consumed to provide the body with enough energy. [1]
6. Lifestyle factor [1]

B1

p. 30

Recap questions

1. Genetic predisposition means an individual has an increased risk of developing a health condition because the condition runs in the family.

2. Cardiovascular disease

p. 32

Recap questions

1.

- Coughing

- Jaundice

2. Speech and language therapist
3. A genetic disorder such as Cystic Fibrosis can be inherited from a mutation in the genes that was passed down from both biological parents, this is known as a recessive disorder.
4. Genetic predisposition
5. Unhealthy diet
   Smoking
6. Cystic fibrosis is a recessive disorder which means it is inherited from both biological parents and causes a thick sticky mucus to build up in the lungs which increases the risk of recurring chest infections.

p. 33

Practice questions

1. Huntington's disease is a condition that causes symptoms such as memory lapse, depression and mobility issues. This condition is known as a neurodegenerative disorder which means it affects the brain and will worsen over time. This condition however is not usually noticeable until early to middle adulthood. This condition is inherited from one biological parent making this dominant gene, the HTT gene.
2. A genetic disorder is a condition that an individual has inherited a faulty gene directly from either one or both biological parents and this typically is a visible condition such as cystic fibrosis. Whereas a genetic predisposition is when an individual has an increased risk of developing conditions such as breast cancer because there is a family history of the condition. However, an individual can be predisposed to a condition, but this may not necessarily occur in a lifetime as often these conditions need a trigger from the environment unlike a genetically inherited condition. For example, individuals can be predisposed to type 2 diabetes but with a healthy lifestyle can avoid developing the condition.

p. 34

Recap questions

1.

- Being physically active
- Consuming a healthy diet

2. Genetic inheritance
3. Malnutrition

   Obesity

p. 36

Recap questions

1.

- Smokers cough

- Lung cancer

2. Increased anger
3. Exercise can cause an increase in social opportunities. For example, individuals may choose to exercise with a group of friends providing time for socialising.

p. 37

Recap questions

1. Low self-image
2. Smoking
3. Tooth decay is one-way poor oral health can impact physical development. This is because not cleaning teeth can cause plaque build up which causes the enamel to wear off causing cavities to occur which eventually lead to the teeth rotting. Another physical effect of poor oral health is risk of infections. This is because bacteria that is not cleaned away can easily get into any cavities in the teeth, leading to pain.

p. 38

Practice questions

1. A diet that is balanced and healthy that ensures the foods they eat are healthy and contain key vitamins suitable for pregnancy are important for the development of the foetus. For example, if a diet cannot contain vitamins, then a woman should ensure they take prenatal vitamins, such as folic acid. However, an unhealthy diet can lead to mother and baby not receiving the right amount of nutrition required for health growth and development, resulting in issues with premature birth or small birth weight.
2. If an individual is not receiving adequate amount of sleep it can result in them having low energy. This is because the body will be fatigued and unable to function well. Yet an individual with the right amount of sleep will feel more energised and motivated to want to exercise because they have good energy levels.

p. 38

Apply your understanding

1. Lifestyle factor
2. Benjamin will begin to improve his stamina. This means he will be able to sustain exercise for longer periods of time.
3.

- One negative effect of poor sleep is a weakened immune system. This is because the body lacks energy to be able to fight off illness and infection.
- Another negative effect is lack of concentration. This is because the brain has not been given rest time and will therefore struggle to stay focused on certain tasks.

p. 40

Apply your understanding

1.

- Life expectancy differences between social classes
- Differences in access to health services

2. One reason for inequalities within access to health services is due to a postcode lottery. This means that based upon a persons location will determine how many services and the types of services available.

p. 42

Apply your understanding

1. Unsafe housing conditions
2. The NHS defines health inequalities as something that causes unavoidable differences in health amongst different groups of people, such as differences between social classes.
3. One example of a health inequality is discrimination leading to issues with access to services. This may occur because different demographic groups may be treated differently because of their characteristics such as because of their sexual orientation.

p. 43

Practice questions

1. Services could be improved by having updated policies regarding areas such as discrimination to ensure health inequalities do not occur. They could also conduct quality assurance of services by gaining feedback from service users and staff to determine the strengths and weaknesses of a service to then action these. It is important to address the health inequality gap to ensure all individuals needs are being met and health issues are addressed effectively.
2. One health inequality difference based on demography is between the two genders. For example, women often experience a higher life expectancy due to taking precautions with their health and behaviours, compared to me who are typically more likely to take part in risky behaviours such as drink driving.

p. 43

End of Learning Aim Questions

1. Early adulthood **[1]**
2. Occupational health nurse **[1]**
3. A professional such as a physiotherapist could support Oscar by providing appropriate exercises **[1]** to support his back movement to help ease the pain. **[1]**
4. Oscar is suffering from a musculoskeletal issue **[1]** due to him having back pain. This means the work he does may be putting strain upon his back muscles causing tension. **[1]**
5.
    - One negative effect of this is reduced mobility. **[1]** This is because the pain and stiffness in his back may cause him to be unable to move around or conduct activities. **[1]**
    - Another negative effect is low self-esteem. **[1]** This is because not being able to work or go out socialising may affect how he feels about himself, he may lack confidence is his ability to do his job as well. **[1]**

6. Noise pollution **[1]**
7.
    - Working on a building site could cause an increased risk of injury. **[1]** This is because a building site often has a lot of hazards such as risks in using equipment or trips. **[1]**
    - Another effect is stress. This is because the workload may be quite demanding **[1]** and they may be given tight deadlines which could cause Oscar to feel pressured to stay at work longer. **[1]**

C1

p. 46

Apply your understanding

1. Chicken pox
2. Clara may have developed chicken pox through exposure to another infected child.
3. The GP may be concerned about a speech or language delay because Clara is still babbling rather than using simple words and phrases. Therefore, this may indicate a developmental delay affecting her ability to communicate.

p. 46

Recap questions

1. 9-18 years
2.
    - A lifestyle choice such as smoking or vaping in adolescence could be negative upon physical health because it could lead to issues later in life such as a smokers cough or lung cancer.
    - Another lifestyle choice that could impact an adolescents intellectual wellbeing is alcohol consumption. This is because alcohol can cause impaired judgement and decision making, causing an adolescent to make poor life decisions whist intoxicated.
3.
    - Influenza
    - Ear infection

p. 49

Recap questions

1. Infancy and early childhood
2. Dementia is a progressive condition which means it will get worse over time. This is caused by a build up of proteins in the brain that causes nerve cells to become damaged and stop functioning.
3. A health condition more likely to develop in adolescence is unplanned pregnancy. This is because some adolescents may carry out sexual activities as part of their curiosity about sex. This then leads to physical effects associated with pregnancy such as nausea and heartburn.

p. 49

Practice questions

1. An individual in early adulthood may participate in risky behaviours because they now experience more freedom in their life. For example, they can now drive and are able to afford a car due to earning a steady income. This means they could conduct driving related risks such as speeding or drink driving. Individuals in this life stage also have freedom with finances meaning risks such as gambling or consuming heavy amounts of drugs and alcohol may be more common. However, it can also be suggested that not all individuals in this life stage participate in risk taking behaviours as increased freedom often means increased responsibility and sensibility with things such as money.
2. Obesity can occur in any life stage because this is based down to lifestyle choices such as diet and exercise. Children in infancy and early childhood do not have much choice in how much or how little food they eat or exercise they do as this is often influenced by parents or carers. However, if they are encouraged to engage in an unhealthy diet and little exercise this can contribute towards childhood obesity. Most individuals that suffer from obesity in childhood often struggle with this into adulthood. As we progress through the life stages individuals gain more independence over their lifestyle choices and again if they are consuming an unbalanced diet and not exercising the excess energy will be stored as fat in the body. Therefore, obesity can occur in any life stage as it is dependent on the choices made by an individual or others around them.

p. 52

Recap questions

1. Breast cancer
2. It is important to conduct health checks on newborns because it allows for early intervention to take place to support the baby with their development. For example, they can have a health check for hearing.
3. Herd immunity is when enough people within a population are vaccinated against a disease. This then helps protect the rest of the population from the spread of the disease.

p. 52

Apply your understanding

1. The midwife will conduct a newborn hearing test on Ionut. This will be done in the first few weeks of Ionut's life and will help them to identify any hearing impairments early on so that appropriate intervention can be implemented. The hearing test will involve placing an earpiece into Ionuts ear to measure their response to sound.
2.
    - One vaccination Ionut will need is the MMR vaccine which protects infants from conditions such as rubella. This is administered in two vaccines, one when the infant is 1 years old and another when they reach the age of 3 years.
    - Another vaccination is the 6-in-1 vaccine that protects against conditions such as whooping cough. This is administered over 3 doses when an infant is between 8-16 weeks old.

3. Maja may be concerned about Ionuts hearing because hearing loss can be passed down through genetics which could mean there is a chance Ionut has inherited this from Maja. Therefore, it is important Ionut has his hearing screened so that appropriate interventions can be given if necessary.

p. 54

Apply your understanding

1. Vaccinations provide herd immunity. This helps protect community members who may not have been vaccinated such as newborns or those with weak immune systems.
2.
   - Diabetes
   - Hypertension
3. 'Stoptober' encourages individuals to quit smoking.

p. 54

Practice questions

1. Health promotion and prevention campaigns are important because they have a crucial role in improving public health of a local authority or the wider population. By improving public health, it then supports the pressures placed upon the NHS by reducing healthcare costs and maintaining the health of individuals. For example, vaccination campaigns help to reduce the spread of infectious diseases such as meningitis (4).
2. Health promotion focuses on encouraging populations to conduct positive lifestyle choices such as a healthy diet and regular exercise. Whereas health prevention aims to reduce the risk of disease or spread of disease. For example, preventing illnesses related to smoking cigarettes through prevention strategies such as the smoking ban (3).

p. 56

Recap questions

1.

- Mental health nurse
- Learning disability nurse

2. A general practitioner has the role of diagnosing patients with minor illnesses and prescribing medication to treat the illness or make appropriate referrals to secondary care services.
3. Alcohol consumption

p. 60

Recap questions

1. Psychiatrist
2. Physiotherapist

3.

- One way a midwife can support a woman through pregnancy is by providing antenatal classes. This means they support women before giving birth by providing them with education about the birthing process and how to care for a newborn.
- Another way is by providing the woman with emotional support. This can be done by providing emotional reassurance about any worries or concerns the woman may be having about birth or about caring for a newborn. They can provide this by displaying a level of empathy.

p. 60

Practice questions

1. A psychiatrist is a doctor who specialises in the diagnosis and treatment of mental health issues such as depression and can prescribe medications as appropriate. Whereas a counsellor provides therapy to patients with mental health conditions. Their main role is to provide a level of emotional support to help a patient understand their own thoughts, emotions and behaviours.
2. An individual with dementia may benefit from a multi-disciplinary team of professionals that includes a neurologist, dementia nurse and an occupational therapist. A neurologist is appropriate as they specialise in diagnosing and managing brain conditions such as dementia. A dementia nurse will then support a dementia patient by providing ongoing care and support for both the patient and their family. An occupational therapist will also help support independent living by assessing the patients home and making adaptations where necessary. All professionals involved in the care of a dementia patient in this life stage will have regular reviews of the overall care as part of the multi-disciplinary team.

p. 60

Practice questions

1. A feature of a multi-disciplinary team is that it consists of a range of professionals from differing healthcare fields. This is so that they can provide holistic care for a patient.
2. An integrated care system allows different services to come together to support one individual. This means they are in constant communication to ensure effective care is always provided for the individual.
3.

- Washing and dressing
- Communicating

p. 60

Practice questions

1. Both a multi-agency approach and multi-disciplinary approach are important for providing holistic and effective care to an individual with health care needs. These approaches bring together both services and professionals from differing sectors to support an individual. Teamwork from these approaches ensures better patient outcomes, reduced hospital admissions and better use of resources.
2. If professionals fail to work together in a multi-disciplinary team it can lead to fragmented care and poorer patient outcomes. For example, if a professional fails to communicate with another professional it can result in delayed diagnoses, medication errors and increased

strain on services. In extreme cases failings can lead to harm and neglect of patients that are considered vulnerable such as the elderly and children.

p. 60

End of Learning Aim Questions

1.
    - Early childhood (3-8 years) [1]
    - Adolescence (9-18 years) [1]
2. Physical activity [1]
3. One way they can work together is communicating about the treatments and decisions made for Sandeep. [1] For example, the GP may prescribe medications, and the physiotherapist will provide exercises to improve mobility. These treatments would then be discussed between the two professionals. [1]
4. (6 marks):
    - Physical health: She may experience reduced mobility, muscle weakness, and potential complications such as pressure sores. Daily tasks will require adjustments, and she may need assistive devices or home modifications.
    - Emotional and mental health: Coming to terms with a sudden, life-changing injury can lead to stress, anxiety, depression, or feelings of loss. She may struggle with self-esteem and independence.
    - Social well-being: Sandeep's social life may change as she adapts to her new mobility. She may feel isolated if she faces accessibility barriers or struggles to participate in activities she once enjoyed. Support from friends, family, and support groups is crucial.

Unit 2: Human biology and health

p. 65

Recap questions

1. **It only allows certain substances to pass through, while stopping others. It allows gases (like oxygen) and nutrients (like glucose) to enter the cell. Waste products (like carbon dioxide) leave the cell via the membrane.**
2. Gases (like oxygen) and nutrients (like glucose) to enter the cell. Waste products (like carbon dioxide) leave the cell via the membrane.
3. **46 chromosomes (23 pairs)**
4. A specific segment of **DNA** that contains the instructions for making a particular protein
5. **Eye colour, hair colour, height**
6. **Ribosomes** are the smallest of the cell organelles. Their function is to produce proteins (protein synthesis).
7. **Amino acids**
8. Mitochondria are often referred to as the 'powerhouses' of the cell, as they are responsible for releasing energy that can be used by the cell
9. **Muscle contraction, protein synthesis**

p. 65

Practice questions

1. C Ribosomes
2. D 46
3. A selectively permeable cell membrane will only allow certain substances to pass through the membrane but will stop the movement of others. This gives the cell a degree of control over what substances can enter or leave the cell.

p. 67

Recap questions

1. Skin, intestines, respiratory system
2. Simple epithelial tissue is made up of a single layer of cells. Compound epithelial tissue is made up of multiple layers of cells.
3. Protection, absorption, excretion, filtration, sensory reception
4. Blood is made up of red blood cells(which carry oxygen),white blood cells(which fight infection),and platelets(which help blood clot),and plasma which transports dissolved substances (e.g. glucose)
5. It forms a mesh-like structure which is found under the skin, around organs, and in blood vessels. It supports and cushions organs, as well as holding them in place
6. Commonly known as fat, itis found beneath the skin, around organs, and in bone marrow.

p. 69

Recap questions

1. Striated, nonstriated (smooth), cardiac
2. Voluntary movement
3. It is involuntary (not under conscious control) and contracts slowly and rhythmically to perform functions like digestion, blood flow regulation, and bladder control.
4. Specialised junctions that connect cardiac muscle cells, allowing for rapid and synchronised contraction of the heart.
   Nervous tissue is found throughout the body, with the brain and spinal cord forming the central nervous system (CNS), and nerves branching out to every part of the body to form the peripheral nervous system (PNS).
5. Sensory neurones are responsible for transmitting information from the body's sensory receptors to the central nervous system (brain and spinal cord).
6. These receptors can be found in various parts of the body, including the skin, eyes, ears, nose, tongue, and internal organs
7. Motor neurones are responsible for carrying signals from the central nervous system (brain and spinal cord) to muscles and glands, causing them to contract(muscles) or secrete substances (glands)
8. Voluntary actions like walking, talking, and picking up objects. And involuntary actions, such as heart rate, digestion, and respiration.
9. Support and protection, insulation, nutrient and waste management, immune defence

p. 71

Recap questions

1. Catabolism is the process of breaking down complex molecules into simpler ones to release energy. Anabolism involves using energy to build complex molecules from simpler ones
2. Aerobic respiration is the process by which cells convert glucose into energy in the presence of oxygen.
3. Glucose and oxygen
4. In the cytoplasm
5. Anaerobic respiration is the process of producing energy without oxygen. Anaerobic respiration occurs in the cytoplasm and is a much less efficient way to produce ATP compared to aerobic respiration. Anaerobic respiration takes place when oxygen levels are low or absent.
6. Lactic acid and a small amount of ATP

p. 72

Recap questions

1. Cell division, passage of nerve impulses, contraction of muscle tissue, homeostasis, anabolism
2. The maintenance of constant internal environment
3. Temperature regulation, blood sugar control, and hormone production.
4. The process of building complex molecules from simpler ones
5. Basal Metabolic Rate (BMR)is the amount of energy your body burns while at complete rest
6. Men tend to have higher BMRs than women, due to typically having more muscle mass
7. Breathing, circulating blood, respiration

p. 72

Practice questions

1. A

2.

- Support and protection: Glial cells provide structural support for neurones, anchoring them in place. They also help to protect neurones from injury.
- Insulation: Some neuroglial cells produce myelin, a fatty substance that insulates axons and speeds up the transmission of nerve impulses.
- Nutrient and waste management: Glial cells supply neurones with nutrients and oxygen and remove waste products.
- Immune defence: Neuroglia help protect the nervous system from pathogens by acting as part of the immune response.
- Regulation of the cell environment: Glial cells help to maintain the appropriate chemical balance around neurones, which is essential for them to function properly.

3. Similarities:

- Purpose: Both processes break down glucose to release energy for cellular activities.
- Starting Molecule: Both processes begin with glucose as the initial substrate.
- ATP Production: Both processes produce ATP, the energy currency of cells.

Differences:

- Aerobic requires oxygen; anaerobic does not require oxygen
- Aerobic is more efficient, producing more ATP per glucose molecule. Anaerobic is less efficient, producing less ATP per glucose molecule
- Aerobic produces carbon dioxide and water. Anaerobic produces lactic acid in animals.
- Aerobic happens in both cytoplasm and mitochondria. Anaerobic occurs in the cytoplasm

4. Basal Metabolic Rate (BMR) is the minimum amount of energy required by the body to sustain basic life functions at rest. It represents the energy expenditure of the body when it is at complete rest, including functions like breathing, circulation, and cell maintenance.

   Factors influencing BMR:

- Age: BMR tends to decline with age due to a decrease in muscle mass and an increase in fat mass. Muscle tissue is more metabolically active than fat tissue, so a decrease in muscle mass leads to a lower BMR.
- Sex: Men typically have a higher BMR than women due to differences in body composition. Men generally have a higher proportion of muscle mass, which contributes to a higher metabolic rate.

  Note: Other factors that can influence BMR include genetics, body size and composition, thyroid hormone levels, and physical activity levels.

p. 73

Recap questions

1. The maintenance of a constant internal environment
2. Body temperature, blood sugar levels, water levels
   Negative feedback is a regulatory mechanism in which a system's output reduces or counteracts the initial stimulus that caused it. Think of it like a thermostat controlling the temperature in a room: when the temperature gets too high, the thermostat turns the heat off, causing the temperature to drop back to the desired level.

p. 73

Recap questions

1. It is important for the body to keep blood sugar levels within constant range. Your brain relies on glucose as a constant source of energy. However, too much glucose in your blood can cause damage to your eyes, kidneys, and other organs
2. Insulin
3. Glucagon
4. Pancreas
5. Osmoregulation is the body's process of maintaining a stable water balance.
6. It ensures the correct balance of water and salts in the body, essential for proper cell function. Without it , cells could become dehydrated or swollen, which could lead to organ failure
7. Antidiuretic hormone (ADH)

p. 74

Apply your understanding

1. When body temperature rises above the normal range, temperature sensors in the skin and hypothalamus (in the brain) detect the change. The body responds by initiating cooling mechanisms, such as sweating and vasodilation (widening of blood vessels). When body temperature drops, the body activates warming mechanisms like shivering and vasoconstriction (narrowing of blood vessels). These responses work to restore the body's core temperature back to the desired set point.
2. <u>Physiological Demands of Running:</u>
   Metabolic Heat Production: The muscles are generating a huge amount of heat during the marathon. The longer the race, the more heat is generated, overwhelming the body's cooling systems.
   Dehydration: Running a marathon, especially over 20 miles, leads to significant fluid loss through sweating. This reduces the body's blood volume, making it harder for the cardiovascular system to pump blood to both the working muscles and the skin for cooling.

   <u>Environmental Factors:</u>

High Temperature: The hot day makes it harder for the body to lose heat through radiation and convection, as the temperature difference between the skin and the air is smaller. The body's primary cooling mechanism then becomes sweating.
High Humidity: This is the most critical factor. Humidity is the amount of moisture in the air. When the air is already saturated with moisture, sweat can't evaporate as effectively. Since evaporation is the body's most efficient way of cooling down, the inability to sweat properly leads to a rapid increase in core body temperature. This explains why Sam is "covered in sweat" but is still overheating; the sweat isn't evaporating; it's just dripping off.

p. 77

Practice questions

1. Two of (2):

- Delivers oxygen and nutrients.
- Removes waste products – carbon dioxide, urea, lactic acid.
- Platelets clot blood.
- Supports the immune system – white blood cells

2. During systole the atria contract (1), this forces blood into the ventricles (1) the ventricles contract (1) the right ventricle squeezes blood into the pulmonary artery (1) the left ventricle squeezes blood into the aorta (1).

p. 77

Recap questions

1. It is responsible for delivering vital substances (glucose, oxygen) to all parts of the body
2. A = right atrium, B = aorta, C = left ventricle, D = atrioventricular valve
3. To prevent backflow of blood. Keeps the blood moving in one direction
4. When the ventricles contract to force blood out
5. Arteries, veins and capillaries
6. Thick , muscular walls that can withstand the high pressure of blood pumped by the heart
7. Capillaries
8. To prevent backflow of blood
9. Proteins, mineral ions

p. 79

Practice questions

1.

- Diffusion of oxygen from alveoli to blood capillaries (1 mark)
- Diffusion of carbon dioxide from blood capillaries to alveoli (1 mark)
- Oxygen binds to haemoglobin in red blood cells for transport (1 mark)
- Carbon dioxide is exhaled (1 mark)

2.

- Cartilage rings provide structural support and prevent collapse (1 mark)
- Mucous membrane produces mucus to trap dust and particles (1 mark)
- Cilia move mucus upwards to be swallowed or coughed out (1 mark)

3.

- Diaphragm contracts and flattens during inhalation, increasing chest cavity volume (1 mark)
- Intercostal muscles contract, lifting the ribcage upwards and outwards (1 mark)
- Diaphragm relaxes and moves upwards during exhalation (1 mark)
- Intercostal muscles relax, decreasing chest cavity volume (1 mark)

p. 79

Recap questions

1. Rings of cartilage, which provide structural support and prevent it from collapsing
2. The inner lining of the trachea is lined with a mucous membrane that produces mucus. This mucus traps dust, dirt, and other particles, preventing them from entering the lungs.
3. The trachea divides into two bronchi, one leading to each lung. The bronchi further divide into smaller and smaller tubes called bronchioles. These bronchioles end in tiny air sacs called alveoli.
4. Alveoli
5. Across the walls of the alveoli
6. Blood capillaries

p. 81

Recap questions

1. The CNS and PNS
2. Cerebrum
3. Frontal lobe, parietal lobe, temporal lobe, and occipital lobe
4. The cerebellum is located at the back of the brain and is primarily responsible for coordinating movement, balance, and posture.
5. Breathing, heart rate, and blood pressure
6. The spinal cord transmits sensory information from the body to the brain, and motor signals from the brain to the body.

7. Sensory functions, motor functions and autonomic functions
8. Sensory and motor
9. The sensory division transmits impulses from peripheral organs to the CNS, providing information about the body's environment. The motor division transmits impulses from the CNS to peripheral organs, causing actions or effects.
10. The somatic nervous system controls skeletal muscles, allowing for conscious movement
11. The autonomic nervous system regulates involuntary functions like heart rate, digestion, and respiration, controlling cardiac muscle

p. 82

Recap questions

1. The autonomic nervous system controls involuntary functions such as heart rate, blood pressure, digestion, and body temperature.
2. Sympathetic and parasympathetic
3. It increases heart rate, blood pressure, and breathing rate. It also dilates the pupils and diverts blood flow to the muscles.
4. It slows heart rate, lowers blood pressure, and stimulates digestion

p. 82

Practice questions

1.

- Cerebrum: Responsible for conscious activities like thought, perception, and voluntary movement (1 mark)
- Cerebellum: Coordinates movement, balance, and posture (1 mark)
- Brainstem: Controls vital functions like breathing, heart rate, and blood pressure (1 mark)
- Relays sensory and motor information between the brain and the body (1 mark)

2.

- Sensory division transmits impulses from peripheral organs to the CNS (1 mark)
- Provides information about the body's environment (1 mark)
- Motor division transmits impulses from the CNS to peripheral organs (1 mark)
- Causes actions or effects (1 mark)

3.

- Sympathetic: "Fight-or-flight" response, increases heart rate, blood pressure, and breathing rate (1 mark)
- Parasympathetic: "Rest and digest" response, slows heart rate, lowers blood pressure, stimulates digestion (1 mark)

4.

- CNS: Brain and spinal cord, the central control centre (1 mark)
- PNS: Connects the CNS to the rest of the body (1 mark)
- Autonomic nervous system: Part of the PNS, controls involuntary functions (1 mark)

p. 83

Recap questions

1. The hypothalamus is a small region deep within the brain, which plays a role in controlling the endocrine system. It serves as a communication hub, linking the nervous and endocrine systems.
2. The hypothalamus produces hormones that stimulate or inhibit the release of hormones from the pituitary. These hormones in turn regulate a wide range of bodily functions, including growth, metabolism, reproduction, and stress response.
3. The hypothalamus receives information from various parts of the body, including the brain, spinal cord, and peripheral nervous system. It then processes this information and responds by regulating the secretion of hormones from the pituitary gland
4. The pituitary gland is located just below the hypothalamus
5. The hypothalamus produces hormones that stimulate or inhibit the release of hormones from the pituitary.
6. Growth, metabolism, reproduction, and stress response.

p. 85

Recap questions

1. The thyroid gland secretes thyroid hormone
2. In females, the ovaries produce oestrogen and progesterone. Oestrogen is responsible for the development of female secondary sexual characteristics, including breast development, widening of the hips, and the onset of menstruation. Progesterone is involved in the preparation of the uterus for pregnancy
3. Growth stimulating hormone is produced by the anterior pituitary gland. It stimulates the growth of tissues and organs, including bones and muscles.
4. The endocrine system is responsible for maintaining the body's water balance, a process known as osmoregulation. One of the most important hormones involved in osmoregulation is antidiuretic hormone (ADH). ADH is produced by the hypothalamus
5. ADH
6. When blood volume decreases solute concentration increases (indicating dehydration), the hypothalamus releases ADH into the bloodstream.

p. 86

Recap questions

1. Insulin and glucagon
2. Beta cells
3. They increase

4. Glucagon primarily acts on the liver, stimulating the breakdown of glycogen into glucose and the synthesis of new glucose molecules from non-carbohydrate sources (amino acids or fatty acids)
5. Adrenal glands.
6. Adrenaline helps to prepare the body for potential injuries by promoting blood clotting
7. Aldosterone
8. Aldosterone is a key hormone in regulating blood pressure by influencing the body's sodium levels and water balance
9. When blood pressure increases, aldosterone secretion is reduced, allowing more sodium and water to remain in the kidney filtrate, leading toa decrease in blood volume and blood pressure

p. 86

Practice questions

1. To link the nervous and endocrine systems by regulating the secretion of hormones from the pituitary gland.

2. Testosterone.

3. Insulin is secreted by beta cells of the pancreas in response to increased blood glucose levels (e.g., after a meal).

   It promotes the uptake of glucose by target tissues like muscle, liver, and adipose tissue.

   In the liver, it stimulates the conversion of excess glucose into glycogen for storage.

4. Any **4** from:

- The hypothalamus signals the adrenal glands to release adrenaline.
- Adrenaline increases heart rate and blood pressure
- Dilates airways to enhance oxygen delivery.
- Promotes the breakdown of glycogen for energy
- Reduces pain sensitivity.

5. Osmoregulation maintains the body's water balance.

- ADH (antidiuretic hormone) is produced by the hypothalamus.
- ADH is released when blood volume decreases or solute concentration increases.
- ADH acts on the kidneys to increase water reabsorption
- ADH reduces urine output.
- When blood volume increases, ADH secretion decreases, allowing for increased water excretion.

6. Any **6** from:

- Hormones from various glands regulate growth and development.
- Thyroid hormone is essential for overall growth
- Thyroid hormone influences metabolism and bone growth.

- Testosterone is the male sex hormone
- Oestrogen is the female sex hormone.
- Testosterone and oestrogen promote the development of secondary sexual characteristics.
- Growth hormone from the pituitary gland stimulates tissue and organ growth, especially during childhood and adolescence.

p. 87

Recap questions

1. Ligaments are tough, fibrous bands of connective tissue
2. Provide stability, support, and structure to the musculoskeletal system. They connect bones to bones to hold the skeleton together
3. Ligaments connect bone to bone. Tendons connect muscle to bone
4. Cartilage is a tough yet flexible tissue that can withstand significant forces without breaking
5. Cartilage is found in various parts of the body, including joints, the nose, the ears, the trachea, and the intervertebral discs (between the vertebrae)
6. Long bones and short bones

p. 89

Recap questions

1. Bones form the rigid framework of the human body, providing structural support, protection for vital organs, and a surface for muscle attachment.
2. Collagen
3. These joints are characterised by their lack of movement or very limited mobility. They provide stability and support to the body by firmly connecting bones together
4. Cartilaginous joints are joints that are held together by cartilage
5. Synovial
6. They are characterised by a fluid-filled joint cavity, cartilage, a synovial membrane, and ligaments. Synovial joints are surrounded by a fibrous capsule that provides stability and support
7. Synovial joints are responsible for a wide range of movements, including flexion, extension, abduction, adduction, rotation, and circumduction.

p. 89

Practice questions

1. B
2. B
3.

- Antagonistic pairs work in opposition to each other.
- When one muscle contracts (agonist), its antagonist relaxes.
- This pulls the bone allowing controlled movement

- Example: biceps brachii and triceps brachii in arm

4.

- Cartilage provides support, structure, and flexibility.
- It reduces friction between bones in joints, preventing wear and tear.
- It cushions and absorbs shock.
- Found in joints, nose, ears, trachea, and intervertebral discs.

5.

- Fibrous joints: Held together by collagen fibres, limited movement, provide stability (e.g., sutures of the skull).
- Cartilaginous joints: Held together by cartilage, allow for limited movement (e.g., intervertebral discs).
- Synovial joints: Most movable, contain a joint cavity, cartilage, synovial fluid, and ligaments (e.g., shoulder, knee).

6. Muscles often work in groups.

- Antagonistic pairs: Work in opposition (e.g., biceps and triceps).
- Synergistic muscles: Work together to assist the primary mover.
- Fixator muscles: Stabilize joints during movement.

Examples of each type of muscle interaction should be included.

p. 90

Recap questions

1. The immune system is the body's defence mechanism, responsible for protecting against pathogens (disease-causing microorganisms) such as bacteria, viruses, fungi, and parasites.
2. The innate immune system and the adaptive immune system
3. White blood cells (leukocytes) are a major part of the immune response. There are different types, each with its own specific functions. Neutrophils are the most common type of white blood cell and are crucial for fighting bacterial infections. Macrophages are large white blood cells that engulf and destroy pathogens. Natural killer cells are specialised white blood cells that can kill virus-infected cells and cancer cells.
4. Antibodies are proteins produced by B cells, a type of white blood cell. They bind to antigens, which are foreign proteins on the surface of pathogens. This binding helps to neutralise pathogens and mark them for destruction by other immune cells
5. The lymphatic system is responsible for draining fluid from tissues and transporting immune cells
6. The bone marrow, a soft tissue found within bones, is the primary site of blood cell production, including immune cells such as lymphocytes and neutrophils. These cells are essential for fighting infections and other immune responses.

p. 92

Recap questions

1. The lymphatic system is a network of vessels, nodes, and organs that play a role in the body's immune function and fluid balance. It serves as a drainage system, collecting excess fluid(lymph) from tissues and returning it to the bloodstream. This helps to prevent swelling
2. It serves as a drainage system, collecting excess fluid(lymph) from tissues and returning it to the bloodstream. This helps to prevent swelling.
3. Lymphatic nodes, located along the lymphatic vessels, act as filters, trapping and destroying pathogens and debris(cellular waste
4. Tissue fluid from the lymphatic system drains back into the circulatory system.
5. The lymphatic system works with the digestive system, as it plays a role in the absorption of fats in the small intestine. Fatty acids and glycerol are first absorbed into lymphatic vessels before being transported to the bloodstream
6. Fatty acids and glycerol are first absorbed into lymphatic vessels before being transported to the bloodstream
7. Producing gametes(sperm and eggs) and facilitating fertilisation
8. Testes
9. Testosterone

p. 93

Recap questions

1. Growth and development of the foetus
2. Ovaries
3. Serves as the passageway for sperm during sexual intercourse and for the delivery of a baby
4. The digestive system is responsible for breaking down food into smaller soluble molecule that the body can absorb and use for energy and growth.
5. The alimentary canal is a long, muscular tube that extends from the mouth to the anus
6. The liver
7. Tthe pancreas produces digestive enzymes(lipase, proteases and carbohydrases) that aid in the breakdown of fats, proteins, and carbohydrates
8. Saliva contains an enzyme (amylase) that begins the breakdown of carbohydrates
9. The nervous system controls the movement of food through the digestive tract and regulates the secretion of digestive enzymes

p. 93

Apply your understanding

1. To store and concentrate bile.
2. Bile emulsifies fats, breaking them down into smaller droplets.

This increases the surface area for lipase enzymes to act on, aiding in fat breakdown.

3. Bile is released directly and continuously into the small intestine, rather than being stored and released in response to a meal.
4. Without the gallbladder, bile is released directly into the small intestine, potentially in larger amounts. This can irritate the intestinal lining and lead to increased bowel movements. Undigested fats can also contribute to diarrhoea.
5.

- Reduce fat intake (e.g., limit fried foods, fatty meats, high-fat dairy).
- Eat smaller, more frequent meals.
- Avoid or limit trigger foods (e.g., greasy foods, processed foods).
- Increase fibre intake gradually (e.g., fruits, vegetables, whole grains).

p. 93

Practice questions

1. C gall bladder
2. Transports lymph fluid containing immune cells (e.g., lymphocytes) throughout the body. Lymphatic nodes filter lymph, trapping and destroying pathogens. Transports immune cells to sites of infection or inflammation.
3.

- Production of sperm in the testes.
- Production of testosterone.
- Delivery of sperm during sexual intercourse via the penis.

4.

- Nervous system: Controls digestion [1] regulates enzyme secretion [1].
- Circulatory system: Transports nutrients absorbed from the digestive system [1].
- Endocrine system: Produces hormones that regulate appetite, digestion, and metabolism [1]
- Immune system: Protects the digestive tract from pathogens [1]
- lymphatic system: Involved in fat absorption [1]

5.

- Breakdown of food into smaller molecules for absorption.
- Alimentary canal: Mouth, oesophagus, stomach, small intestine (duodenum, ileum), large intestine (colon).
- Enzymes: Amylase (mouth), pepsin (stomach), lipase, proteases, carbohydrases (pancreas).
- Role of accessory organs: Liver (bile), pancreas (enzymes), gallbladder (bile storage), salivary glands (saliva).

p. 95

Recap questions

1. Atherosclerosis and hypertension
2. Plaque is composed of cholesterol, fatty substances, cellular waste products, calcium, and fibrin.
3. Chest pain, shortness of breath, sweating, nausea, and vomiting.
4. Angina is a condition characterized by chest pain or discomfort. It occurs when the coronary arteries become narrowed, reducing blood flow to the heart.
5. Shortness of breath, fatigue, and swelling in the legs and ankles.
6. The respiratory system and the digestive system.
7. Pulmonary oedema is a condition where fluid builds up in the lungs. It can occur when the heart is unable to pump blood efficiently, leading to fluid backup in the lungs.
8. Reduced blood flow to the digestive organs can lead to decreased digestive function and symptoms such as nausea, vomiting, and loss of appetite.
9. Blood clots can form in the heart due to CHD and break off, traveling to the brain and causing a stroke.

p. 97

Recap questions

1. Blood flow to the brain is interrupted or reduced.
2. Ischaemic stroke and haemorrhagic stroke.
3. Brain damage, bleeding, and clotting.
4. Blood clots can block blood flow to the brain, leading to tissue damage. The clots can also break off and travel to other parts of the brain, causing multiple strokes.
5. Problems with sensation, movement, coordination, changes in mood, personality, and cognitive function.
6. By causing muscle weakness or paralysis, particularly on one side of the body, leading to difficulties with movement, balance, and coordination.
7. By increasing the risk of heart attacks and strokes due to underlying conditions like high blood pressure and atherosclerosis.

p. 99

Recap questions

1. A long-term disorder that worsens over time.
2. Emphysema and chronic bronchitis.
3. Long-term exposure to harmful substances, primarily smoking and breathing in pollutants.
4. Alveoli.
5. A persistent cough that produces mucus.
6. A persistent cough.
7. Excess mucus production in the airways.
8. Wheezing is a whistling sound during breathing caused by narrowed airways due to inflammation or mucus blockage.
9. Mucus in the airways provides a breeding ground for bacteria and viruses, increasing the risk of lung infections.
10. COPD can lead to an increased heart rate as the body tries to compensate for reduced oxygen levels by pumping more blood.

11. Reduced oxygen delivery to tissues and organs.
12. A persistent cough that produces mucus.

p. 101

Recap questions

1. Weight loss.
2. Decreased physical activity due to shortness of breath and reduced oxygen delivery to muscles.
3. Pulmonary hypertension is a condition where blood pressure in the pulmonary artery increases significantly, often as a complication of COPD, due to increased strain on the heart.
4. COPD can lead to pulmonary hypertension, weaken the heart, and contribute to atherosclerosis, increasing the risk of heart attack, stroke, and other cardiovascular diseases.
5. Weight loss, malnutrition, and an increased risk of gastroesophageal reflux disease (GERD).
6. Reduced physical activity, poor nutrition, and the use of steroid medications can contribute to decreased bone density in people with COPD.

p. 101

Practice questions

1. Blood clots can form in the heart due to CHD and break off, traveling to the brain and causing a stroke (3 marks).
2. Reduced blood flow to the digestive organs can lead to decreased digestive function and symptoms such as nausea, vomiting, and loss of appetite (2 marks).
3. By causing muscle weakness or paralysis, particularly on one side of the body, leading to difficulties with movement, balance, and coordination (3 marks).
4. Strokes can damage the heart muscle, leading to heart failure or arrhythmias (6 marks).
5. Increased heart rate due to reduced oxygen levels (1 mark)
   Development of pulmonary hypertension (1 mark)
   Increased risk of atherosclerosis, heart attack, and stroke (1 mark)
6.

- Weight loss (1 mark)
- Muscle weakness (1 mark)
- Reduced mobility (1 mark)
- Increased risk of infections (1 mark)
- Psychological impact (e.g., anxiety, depression) (1 mark)

p. 103

Recap questions

1. Wheezing, coughing, shortness of breath, and chest tightness.
2. Genetic and environmental factors.
3. Pneumonia

4. Asthma can narrow the airways, making it difficult to breathe during sleep.
5. High blood pressure and increased risk of atherosclerosis.

p. 105

Recap questions

1. To regulate blood sugar levels.
2. Type 1 and Type 2.
3. Obesity and a sedentary lifestyle.
4. A condition where the body's cells become less responsive to insulin.
5. High blood sugar can lead to weight gain by increasing appetite and reducing energy expenditure. Conversely, low blood sugar can cause weight loss.
6. Cataracts and diabetic retinopathy.
7. Increased thirst.
8. Mood changes, such as irritability, depression, and anxiety.
9. High blood sugar levels can impair the body's ability to use glucose for energy efficiently.
10. High blood sugar levels can impair blood flow and wound healing, increasing the risk of infection.

p. 106

Recap questions

1. High blood sugar damages blood vessels, leading to atherosclerosis, high blood pressure, and high cholesterol, all of which increase the risk of heart disease and stroke.
2. Neuropathy is nerve damage caused by high blood sugar levels. Symptoms include numbness, tingling, pain, and weakness.
3. Diabetic retinopathy is damage to the blood vessels in the retina of the eye caused by high blood sugar levels. It can lead to vision loss and even blindness.
4. Diabetes can weaken the immune system by impairing the function of white blood cells and hindering the ability of immune cells to reach infection sites.
5. Gastroparesis is a condition where the stomach empties slowly, often caused by nerve damage in the digestive system. Symptoms include nausea, vomiting, and bloating.

p. 108

Recap questions

1. The two most common types of dementia are Alzheimer's disease and vascular dementia.
2. Alzheimer's disease is caused by the buildup of abnormal protein deposits in the brain.
3. TIAs are mini-strokes that last for a short period of time. While they do not cause permanent damage, they can indicate underlying vascular problems and increase the risk of a full-blown stroke. Multiple TIAs can lead to cumulative brain damage and contribute to vascular dementia.
4. In addition to cognitive decline, individuals with dementia can experience slowness of thought, confusion, problems concentrating, severe personality changes, depression, incontinence, and difficulties swallowing or coughing.
5. Dementia can impact the respiratory system by increasing the risk of choking or aspiration due to difficulties swallowing or coughing. It can also affect the muscles involved in breathing.

6. Dementia can affect language skills, making it difficult to find the right words, understand conversations, or follow complex instructions.

p. 108

Practice questions

1.

- Narrowing of the airways can make it difficult to clear mucus and pathogens from the lungs (1)
- Pathogens remaining in airways increases the risk of infection (2).

2.

Respiratory (3):

- pneumonia.
- respiratory failure.
- explains the risks associated with each condition.

Cardiovascular (3):

- high blood pressure.
- atherosclerosis.
- explains the increased risk of heart attack and stroke associated with atherosclerosis.

3.

Peripheral neuropathy:

- High blood sugar can damage nerves throughout the body. This can lead to neuropathy, causing symptoms like numbness, tingling, and pain. (1 mark)
- Neuropathy can affect the feet, hands, and other parts of the body. In severe cases, it can lead to foot ulcers and infections. (1 mark)

Autonomic neuropathy: This type of nerve damage affects the nerves that control involuntary bodily functions, such as those related to the heart, bladder, digestive system, and sex organs. Since these nerves regulate critical internal processes, their damage can lead to a wide range of issues: (2)

- High blood sugar can damage nerves in the digestive system. This can lead to gastroparesis, where the stomach empties slowly. (1 mark)
- Urinary problems: It can damage the nerves controlling the bladder (1 mark), leading to urinary incontinence (leaking) or the inability to fully empty the bladder, which increases the risk of urinary tract infections (1 mark).
- Cardiovascular problems**:** can damage nerves controlling the heart rate (1 mark) This can include an increased heart rate at rest and a sudden drop in blood pressure when standing up (1 mark)
  [1 mark for any of the bullets]

4.

- Endocrine: Disrupts the pancreas's ability to produce insulin (1) or the body's ability to use insulin effectively. (1 mark)

- Immune: Weakens the immune system, making individuals more susceptible to infections. (1 mark) Impairs the function of white blood cells and hinders the ability of immune cells to reach infection sites. (1 mark)
- Digestive: Slows down digestion, can lead to constipation. (1 mark) Can cause gastroparesis, leading to nausea, vomiting, and bloating. (1 mark)

5. Impact of dementia on the cardiovascular system:

- Increased risk of heart disease and stroke. (1 mark)
- Factors contributing to cardiovascular risk: high blood pressure, high cholesterol, diabetes. (2 marks)
- These conditions can further damage the brain and accelerate cognitive decline. (1 mark)
- Explain the link between cardiovascular conditions and brain health. (2 marks)

6.

Two cognitive symptoms of dementia:

- Memory loss: Difficulty remembering recent events, names, or faces.
- Difficulty with problem-solving: Struggling to solve problems or complete tasks.
- Language difficulties: Difficulty finding the right words, understanding conversations.
- Changes in mood and behaviour: Irritability, anxiety, depression, agitation.
- Disorientation: Confusion about time, place, or person.
- Slowness of thought and confusion: Difficulty processing information.
- Problems concentrating: Difficulty focusing on tasks.

7.

- Physical: Motor problems (difficulty walking, balance issues, tremors), bladder and bowel problems, swallowing difficulties (aspiration risk), respiratory issues, incontinence. (3 marks)
- Emotional: Anxiety, depression, agitation, withdrawal, personality changes, loss of interest in activities, feelings of isolation. (3 marks)

p. 110

Recap questions

1. The two main causes of acquired brain injury are traumatic and non-traumatic.
2. Traumatic brain injury (TBI) occurs when the head is hit hard, such as in a road traffic accident, during an assault, or as a result of a fall.
3. Non-traumatic brain injuries can occur due to:

- Stroke
- Infections (e.g., meningitis)
- Lack of oxygen (e.g., during drowning or suffocation)
- Disease (e.g., tumours)

4. The brain is particularly vulnerable to oxygen deprivation because it uses about 20% of the body's total oxygen supply.
5. Common primary effects of acquired brain injury include:

- Concussion
- Unconsciousness
- Coma
- Amnesia
- Damage to blood vessels in the brain

6. Amnesia is a partial or complete loss of memory. It can affect short-term memory, long-term memory, or both. Amnesia may be temporary or permanent.

p. 111

Recap questions

1. Inflammation and swelling in the brain, as well as increased intracranial pressure, can cause headaches and dizziness.
2. Fatigue can be a secondary effect of a traumatic brain injury due to a combination of physical, cognitive, and emotional factors, including disrupted sleep cycles, physical impairments, and the brain's increased energy expenditure in coping with the injury.
3. An acquired brain injury can result in nerve damage, muscle weakness, coordination difficulties, and paralysis, which can limit mobility and affect a person's ability to perform daily activities.

p. 113

Recap questions

1. The two main components of the nervous system are the central nervous system (brain and spinal cord) and the peripheral nervous system.
2. Brain injury can contribute to cardiovascular disease, particularly stroke.
3.

- Ischemic stroke: Occurs when a blood clot blocks blood flow to part of the brain, often due to atherosclerosis.
- Haemorrhagic stroke: Occurs when a blood vessel bursts within the brain, often due to high blood pressure.

4. Damage to the brainstem can affect breathing patterns, and brain injury can cause paralysis of the breathing muscles.
5. The neuromuscular junction is the point where a nerve fibre connects with a muscle fibre.
6. Brain injury can damage motor areas of the brain, leading to muscle weakness or paralysis and difficulties with movement control.

p. 114

Recap questions

1. The BRCA genes are cancer-risk genes. Women with mutations in these genes have a significantly higher risk of developing breast cancer.
2. Two lifestyle factors that can increase the risk of breast cancer are excessive alcohol consumption and being overweight or obese after menopause.
3. Metastasis is the spread of cancer cells from the breast to other parts of the body. It can have a devastating impact on a person's health, potentially leading to organ failure and death.
4. Two common symptoms of breast cancer include changes in the size or shape of one or both breasts and discharge from the nipples.
5. Oestrogen is a hormone that can stimulate breast cell growth. Prolonged exposure to high levels of oestrogen can increase the risk of breast cancer.
6. One environmental factor that can increase the risk of breast cancer is exposure to ionising radiation.

p. 115

Recap questions

1. Smoking, consumption of red and processed meat, excessive alcohol consumption
2. Changes in faeces (consistency, frequency)
3. Anaemia is a condition where there is a decrease in the number of red blood cells. It can occur as a secondary effect of bowel cancer due to internal bleeding, leading to symptoms like fatigue, weakness, and shortness of breath.
4. Metastasis is the spread of cancer cells from the bowel to other parts of the body. Two organs that bowel cancer can spread to are the liver and lungs.
5. Two secondary effects of bowel cancer on the musculoskeletal system are loss of bone and muscle mass and an increased risk of fractures.

p. 117

Recap questions

1. Genetic, lifestyle, and environmental factors.
2. Smoking cigarettes and tobacco use.
3. A persistent cough.
4. Lung cancer can increase the risk of blood clots, leading to stroke or pulmonary embolism, and can cause anaemia, which can weaken the heart.
5. Metastasis is the spread of cancer cells from the lungs to other parts of the body. This can lead to organ failure and death.
6. Passive smoking and exposure to certain chemicals and substances such as arsenic and asbestos.

p. 117

Apply your understanding

Mark Scheme (Level of Response)

Level 1 (1-4 marks):

- Basic understanding of Type 1 diabetes.
- May mention that it involves the pancreas.
- May identify the importance of monitoring and treatment in general terms.
- May list some potential consequences like feeling unwell.
- Indicative Content:
- Type 1 diabetes is an autoimmune condition.
- The body's immune system mistakenly attacks the cells in the pancreas that produce insulin.

- Insulin is a hormone that regulates blood sugar levels.
- Without insulin, glucose cannot enter the body's cells for energy.

Level 2 (5-7 marks):

- Clear understanding of the autoimmune nature of Type 1 diabetes.
- Explains the role of insulin in regulating blood sugar.
- Discusses the importance of regular blood glucose monitoring for making adjustments to insulin doses and identifying potential complications.
- Identifies potential short-term and long-term consequences of poorly controlled blood sugar.
- Indicative Content:
- Explains how the lack of insulin leads to high blood sugar (hyperglycaemia).
- Discusses the importance of monitoring blood sugar before meals, after meals, and before exercise.
- Explains how insulin injections help regulate blood sugar levels.
- Identifies potential short-term consequences such as hypoglycaemia (low blood sugar), hyperglycaemia, and diabetic ketoacidosis.
- Identifies potential long-term consequences such as eye problems, kidney disease, and nerve damage.

Level 3 (8-9 marks):

- Shows in-depth understanding of the autoimmune nature of Type 1 diabetes.
- Explains the role of insulin in detail, including its impact on glucose metabolism.
- Discusses the importance of a holistic approach to diabetes management, including diet, exercise, and stress management.
- Explains the potential long-term consequences of poorly controlled blood sugar in detail, linking them to specific physiological systems.
- Indicative Content:
- Explains how the lack of insulin affects the body's ability to use glucose for energy, leading to the breakdown of fats for fuel, which produces ketones.
- Discusses the importance of adjusting insulin doses based on factors such as diet, exercise, and stress levels.
- Explains how hypoglycaemia can cause symptoms like dizziness, confusion, and seizures.

- Explains how hyperglycaemia can damage blood vessels over time, leading to complications such as heart disease, stroke, and kidney disease.
- Explains how poorly controlled blood sugar can damage nerves, leading to numbness, tingling, and pain.

p. 117

Practice questions

1. **Describe two possible secondary effects of breast cancer. [4 marks]**
   Breast cancer can also have significant secondary effects on other body systems. One the most serious complications is metastasis, which occurs when cancer cells spread from the breast to other parts of the body. In metastasis, the cancer cells break away from the primary tumour, they then enter the bloodstream or lymphatic system, and travel to other organs. If breast cancer spreads to the lungs, it can interfere with breathing and lead to respiratory failure. If it spreads to the liver, it can damage the liver and impair its ability to filter toxins from the blood. This can lead to liver failure. If it spreads to the brain, it can cause neurological problems such as seizures, headaches, and cognitive decline

2. **Discuss the role of both genetic and environmental factors in the development of breastcancer. [6 marks]**
   Breast cancer is the uncontrolled growth of abnormal cells in the breast tissue. A combination of genetic, lifestyle, and environmental factors all play a role in the development of this disease.
   •Genetic factors: Some women may have a genetic predisposition to breast cancer. This means that they inherit genes that increase their risk of developing the disease. Thes egenes (BRCA genes) are known as cancer-risk genes. Women with mutations in these BRCA genes have a significantly higher risko f developing breast cancer.
   - Environmental factors: Exposure to certain environmental factors may also contribute to the development of breast cancer. These include:
     *Radiation: Exposure to ionising radiation, such as from X-rays or radiation therapy for other cancers, can increase the risk of breast cancer.
     *Oestrogen: Oestrogen is a hormone that is essential for female development and reproduction. However, prolonged exposure to high levels of oestrogen can increase the risk of breast cancer. Women who have undergone menopause and use hormone replacement therapy may have a slightly increased risk of breast cancer due to oestrogen in the medication.

3. Explain how lifestyle factors can contribute to the development of breast cancer. [4 marks]
•Lifestyle factors: Certain lifestyle factors can also increase the risk of breast cancer. These include:
*Alcohol consumption: Women who drink more than two alcoholic beverages per day are at greater risk.

*Overweight and obesity: Being overweight or obese after menopause can increase the risk of breast cancer. This is thought to be due to the production of excess oestrogen, a hormone that can stimulate breast cell growth.

4.

- 1 mark for stating that excessive alcohol consumption is a risk factor for bowel cancer.
- 1 mark for damage to DNA,
- 1 mark for weakened immune system
- 1 mark for providing evidence or supporting information (e.g., studies linking alcohol to cancer risk).

5.

- Smoking
- Diet (red/processed meat)
- Alcohol consumption
- Overweight/Obesity
- Physical inactivity

1 mark for explaining how each of the chosen factors increases risk.
1 mark for discussing how these factors can be modified to reduce risk.

6.

Genetic factors:

- Some individuals inherit genes that increase their susceptibility to lung cancer.
- These genetic predispositions can make them more likely to develop the disease.

Environmental factors:

- Exposure to environmental toxins like asbestos and arsenic can increase the risk.
- Exposure to second-hand smoke is a significant environmental risk factor.

7. Early detection:
   - Allows for earlier treatment options.
   - May increase the chances of successful treatment and recovery.
   - Can help prevent the spread of cancer (metastasis).

   Early treatment:
   - Can improve overall survival rates.
   - May help preserve lung function and quality of life.
   - Can reduce the risk of complications.

Unit 3: Principles of health and social care practice

p. 122

Recap questions

1. Holistic approach.
2. The Equality Act 2010.
3. Dignity can be promoted by ensuring patients and their families are involved in the care process and provide choices in regard to their care.
4. A professional can adapt the care being given by listening to the patient and respecting their individual needs and preferences. This means a professional must also communicate in a patients preferred method and ensure that communication uses clear and simple language.
5. Compassion

p. 123

Recap questions

1. Learning and reflection.
2. Dignity and respect.
3.
    - Adaptability
    - Communication
4. Continuous professional development.
5. Continuing professional development shows a professional is committed to their job and wants to improve the care being provided.

p. 123

Activity

1.

- Identify the value. E.g. improving lives.
- Explain why this value is the most important for providing high quality care.

2.

- Choose a value. E.g. dignity and respect.
- Explain why mastering this value will help Eva in her job as a nurse.

p. 125

Recap questions

1. Communication.
2. Courage.
3. Compassion can be demonstrated by actively listening to patients and displaying empathy through the acknowledgement of their feelings.
4. Care.
5. Competence can be demonstrated by professionals showing they are UpToDate with the relevant knowledge and skills needed to successfully complete their job.

p. 125

Activity

1.

- Briefly define each of the 6C's.
- Give a reason for why each of the 6C's are important when delivering care.

2.

A. Competence. Because they are ensuring they have the skills to move a person safely and effectively.
B. Compassion and commitment. Because they are not allowing the feelings of anger of the patient to interfere with their caregiving; and are using compassion to understand and empathise with the patient rather than becoming angry or frustrated with them in return.

3.

- Use clear and simple language
- Active listening
- Adapt communication methods
- Eye contact and positive body language

p. 125

Apply your understanding

1.

- Active listening
- Empathy
- Person-centred care

2.

- Competence
- Compassion

p. 127

Recap questions

1. Rights.
2. Independence.
3. Food choices.
4. By accepting an individuals personal characteristics and preferences.
5. Independent is having the ability to complete tasks alone whereas being dependent means to rely on another to help an individual with a task.

p. 127

Activity

1.

- Patient safety
- Trust between professionals and patients
- Legal responsibilities

2.

- Harm to patients

- Legal consequences
- Health inequalities

p. 129

Activity

1.
    - Chose a people skill. E.g. empathy
    - Give reasons for why this is important when giving care.
2.
    - Delivering bad news
    - When a patient is distressed
    - End of life care settings
    - Dealing with conflict

p. 129

Recap questions

1. Honesty refers to being truthful when communicating whereas trust is having confidence in another person that they are reliable and dependable.
2. To negotiate means to discuss an idea or issue to come to a mutual agreement.
3. Flexibility.
4.
    - Active listening
    - Display understanding
    - Provide support through reassurance
5. Patience.

p. 131

Activity

1.
    - Medical errors such as with dosages of medication
    - Delayed care
    - Legal consequences
2.
    - Promotes person-centred care
    - Encourages independence
    - Supports collaboration on decisions

p. 131

Recap questions

1.
    - Actions to be taken
    - Timeline for achieving actions
2.
    - Medical history
    - Medications
3. Concerned about abuse or neglect.
4. A care plan is a personalised document that outline specific healthcare needs and goals whereas an EHR is a digital system that stores a patient's medical detail such as test results.
5.
    - Ensures accurate diagnosis and treatment
    - Improves communication amongst professionals
    - Supports emergency care

p. 134

Recap questions

1.
    - Facial expression
    - Body language
2.
    - All individuals have a good understanding of the information provided.
    - Allows good coordination of responsibilities amongst staff.
3.
    - Misdiagnosis
    - Medication errors
4.
    - Avoid jargon
    - Positive body language
    - Eye contact
    - Hand gestures or visual aids
5.
    - Ensures a patient is provided with safe care which is coordinated well between colleagues.

p. 134

Activity

1. State a reason for why non-verbal communication is effective and then say why this is effective. Possible reasons:

- Complements verbal communication, as it reinforces messages
- Beneficial method for those with communication barriers
- Enhance trust and builds a rapport

2.

A. Misunderstandings
   Increased anxiety or frustration
B. Clear communication
   Improved patient satisfaction

p. 136

Activity

1. Because text can be translated into their native language. New technology is being introduced that can even translate speech as it is being spoken.
2.
    - Electronic Health Records (EHR) with alerts
    - Mobile health apps

p. 136

Recap questions

1. Virtual wards.
2. It supports patients making decisions about the types of communication methods and digital tools used within their care.
3.
    - Less time consuming for professionals.
    - Improves independence in their own care.
4. Confidentiality.
5. The ability to understand how to use digital communication methods.

p. 138

Recap questions

1. ensures and personal information of patients or staff remains private and is only read on a need-to-know basis.
2. Individuals must give consent for their information to be used or read by others, otherwise it must remain confidential.
3. Criminal charges.
4. Information that clearly identifies who it belongs to.
5. On a computer that has software that is access only to staff and is password protected or in files that are locked away in cabinets

p. 138

Activity

1. Benefits include:
    - Protects service users and staff
    - Ensures an ethical workplace
    - Improves service quality

    Limitation includes:

    - Emotional and psychological stress
    - Damage to workplace relationships and reputation
2.
    - Creates a safe environment
    - Reduces anxiety
    - Encourages honest communication

p. 141

Activity

1.

- Patient safety
- Effective communication
- Confidentiality

2.

- Maintains public trust
- Maintain professionalism
- Maintains legal and ethical standards

p. 141

Recap questions

1. A legal obligation to always act in the best interests of an individual.
2.
    - Following policies and procedures
    - Conducting mental capacity assessments
3. An individual has a good feeling of self-worth.
4. Human Rights Act.
5. A set of standards for behaviour.

p. 143

Activity

1.

- Legal consequences
- Loss of reputation or professional registration

2.

- Delayed care
- Miscommunication or confusion

p. 143

Recap questions

1. An individual is deemed in needs of care, support or protection because of their age or disability.
2. legal obligation to protect vulnerable individuals from the risk of harm.
3. The collaboration of professionals a range of specialties to support one individual.
4. Applying All Our Health (2022)
5. Age

p. 146

Recap questions

1. Care Quality Commission (CQC).
2. NICE is responsible for developing and updating guidance on best practices in health and social care services.
3. Social Care Institute for Excellence (SCIE).

p. 153

Recap questions

1. Nursing and Midwifery Council (NMC).
2. Skills for care is supporting staff development in the adult social care sector whereas skills for health are developing the role of staff in the health care sector.
3. GMC is responsible for registering and regulating doctors. They will oversee the medical training and education doctors receive to ensure they are qualified to practice in the UK.
4. Care Quality Commission (CQC)
5. The department of health and social care is responsible for governing overall practice in health and social care services. They also set the policies and legislations that services should follow.
6. General Data Protection Regulations (GDPR).
7. Equality Act (2010).
8.
    - Sexual orientation
    - Marriage and civil partnership
9. An organisation is a structured body that provides services and ensures regulations are maintained through inspections. Whereas a legislation is a set of laws passed by government. For example, the care act is an example of a legislation that sets obligations to be met by staff in the adult social care sector.

10. The PSA is responsible for protecting individuals by improving the registration and regulation of professionals in health and social care services. They have a role in supporting other regulators like the GMC to carry out performance reviews annually to assess if standards are being met.

p. 153

Activity

1.
    - Risk of abuse or neglect
    - Loss of dignity
    - Reduced quality of care
2.
    - To ensure laws are relevant
    - Adapts to new societal norms or technological advances
    - Addresses new emerging issues

p. 157

Recap questions

1.
    - General practice surgery
    - Dentist
    - Accident and emergency
2. Tertiary care.
3. Domiciliary care.
4. To provide early health intervention to newborns and infants during their visits to the family home. They can also provide information and advice to parents and families.
5. A virtual ward is when a patient can receive care in their own home but digital technology reports back to professionals so that they can monitor them from a distance or daily in the home. Whereas a virtual hospital is where professionals are connected to a patient totally online.

p. 157

Activity

1.
    - Improves accessibility
    - Reduces overcrowding
    - Not suitable for all patients
    - Lack of immediate hands-on care
2.
    - Ensures a patients dignity and comfort remains intact
    - Respects patient's wishes

- Provides family support

p. 159

Activity

p. 159

Recap questions

1. One responsibility of an integrated care system is to provide joined up care for different services to work together.
2.
    - NHS organisations
    - Community organisations
3. Integrated care board (ICB).
4.
    - Improve population health
    - Reduce inequalities
5.
    - To ensure digital methods such as electronic patient records are used in services and are reviewed regularly to then be improved upon.

p. 159

Activity

1.
    - Promotes holistic care
    - Improves patient experience
    - Reduces health inequalities
2.
    - Longer waiting times
    - Reduced availability of services
    - Strain on NHS
    - Higher emergency admissions

p. 166

Recap questions

1. How healthy or unhealthy a person or population is.
2. Physical activity
3. Religion
   Economic status
4. An asylum seeker is a person or group that had to leave their home country because of violence. Whereas a refugee is a person or group that has under law been told they are unable to return to their home country because of unsafe conditions.
5. Poor housing can influence an individual being unhealthy because it could mean they are living in overcrowded, damp or cold conditions. This can then increase the spread of illness and infection or cause conditions such as asthma or COPD.

p. 166

Activity

1.

- Education levels
- Access to healthcare
- Living conditions

2.

- Reduces health inequalities
- Encourages inclusivity

p. 169

Recap questions

1. Diversity
2. Builds trust and rapport between staff and patients
3. Improves health outcomes
4. Care Quality Commission (CQC).
5. Person-centred approach
6. It encourages patients to adhere to the advice given to them by professionals which then in turn supports the improvement of their health.

p. 169

Activity

1.

- Understanding diversity
- Effective communication

2.

- Protects vulnerable groups
- Reduces health inequalities for key groups of people

p. 174

Recap questions

1. Othering.
2. Mistreating individuals because they are viewed as deviant because they have gone against societal norms.
3.
    - Promoting inclusion in information provided to service users
    - Report discrimination
4. A pandemic is the outbreak of an infectious disease that spreads across a wide geographical area. For example, COVID-19
5. Allows government to put appropriate measures in place to prevent the spread of the disease.

p. 174

Activity

1.

- Legal protections as it provides justice, but this can be a slow process that is costly.
- An alternative method could be to use restorative methods by the victim and offender discussing the discrimination to promote understanding on both sides.

2.
    - Prevent the spread of the disease
    - Protect vulnerable populations

Unit 4: Health, policy and wellbeing

p. 179

Recap questions

1. Want, ignorance, idleness, squalor, disease

2. The Office for Health Improvement and Disparities aims to reduce differences in health between different socio-economic groups in the UK

3. Regulation of healthcare assistance, minimum staffing ratios on wards, duty of candour, NHS 6Cs)

p. 179

Activity

Different ways of planning care: Renaming and reorganising departments, Personalisation of care

Increased monitoring of H&SC teams and services: Regulation of healthcare assistants, Duty of candour

Restrictions on type of care available for free: Privatisation of services

p. 183

Recap questions

1. They carry out research, train and lobby people to promote health and prevent disease.
2. A pressure group's role is to influence government policy and public opinion on specific issues without seeking political power themselves. Mind is an example of a pressure group relevant to health and social care.
3.
    - Contribute to funding to agencies such as the WHO
    - Influence policies in relation to disease prevention, maternal and child health, clean water and sanitation
    - Set long term international strategies

p. 190

Recap questions

1. Cervical cancer

2. Misinformation about links to autism,

3. Economic recession

p. 193

Recap questions

1.people living in poverty have worse health outcomes

2. Soft drinks with added sugar

3. Offering a British Sign Language interpreter

p. 197

Activity

B – this actually measures what the SDIL set out to achieve

p. 197

Recap questions

1. HIA, EHIA,

2. Air quality, extreme temperatures and flooding,

3. To ensure that the policy is achieving what it set out to do.

p. 199

Recap questions

1. Care, compassion competence, communication, courage, commitment,

2. Calories on menus, restrictions on food advertising, the soft drinks industry levy (sugar tax).

p. 201

Apply your understanding

1. Openness, trust and honesty, agreed shared goals and values, regular communication

2. WHO, EHA, International Initiative for Mental Health Leadership

p. 201

Unit 5: Promoting health education

p. 204

Recap questions

1.
    - Reduce the cause of ill health
    - To help others understand health risks
2. To reduce the cause of ill health means to education individuals on factors that contribute towards illness such as smoking or high alcohol consumption. This education is to help prevent ill health associated with key factors.
3. Protect against environmental hazards
4. Reduce the cause and incidence of ill health
5. Drug abuse
6. Poverty
7. Preventative measure during the COVID-19 pandemic was to wear masks and socially distance from others.

p. 204

Activity

1. Health education is important as it empowers people with knowledge to make better informed decisions about their health behaviours and lifestyle.
2. Without health education individuals will lack the knowledge needed to make positive decisions regarding their health behaviours. This can then lead to poor lifestyle choices such as unbalanced diets, lack of exercise and smoking. This then increases the amount of ill health related to these behaviours such as lung cancer and obesity. A lack of health education can also cause misinformation about preventative measures such as vaccinations causing individuals to decline vaccines, again increasing ill health.
3. To reduce exposure of illness and disease allows public health to be protected which then improves quality of life and reduces the strain upon NHS staff and resources. A way to reduce exposure to illness and disease is through vaccination programmes, promotion of good hygiene practices, health education campaigns, policies and procedures and by allowing individuals adequate access to services.
4. Different healthcare professionals and public health authorities have key roles within the deliverance of health education. For example, doctors and nurses in primary care services provide direct patient education on disease prevention and healthy living.

p. 206

Activity

1. It is important for organisations to work together to ensure consistency and effectiveness of health education campaigns. Organisations must ensure that campaigns implemented are relevant to individuals on a global, national and local level.
2.
    - One consequence of organisations failing to communicate is that it causes misunderstandings or conflicting messages. Which can result in contradictory advice.
    - Another consequence is a delay in responses to health crises, this leads to health outbreaks increasing before any action has been taken to reduce or minimise spread of illness.
    - A final consequence is it can produce unequal access to healthcare and education as resources may not be deployed appropriately and therefore particular areas may suffer from rises in ill health.

p. 207

Recap questions

1. World Health Organisation (WHO)
2. NHS England
3. Local organisations are responsible for assessing the needs and priorities of their local area for the correct implementation of health education to take place.
4. NHS England can help support local authorities with their health education campaigns by providing LA's with research-based findings that support the implementation of key health education campaigns such as smoking cessation methods. It is important for LA's to take the lead from national organisations to that they address their local populations specific needs but that also align with national goals.

p. 208

Activity

1.

- Protects public health.
- Encourages preventative care.
- If legislation is not involved it could cause confusion, limit access to health education and weaken public health protection.

p. 208

Recap questions

1. To ensure health lives and promote wellbeing for all at all ages.
2. Promoted person-centred care.
3. Care Act 2014.
4. Health and Social Care Act.

p. 210

Activity

1.
    - Ineffective health policies.
    - Increase in health inequalities.
2.
    - Epidemiological
    - Regional and local reports
    - Demographic data

p. 210

Recap questions

1.
    - Local reports
    - Demographic data
2. Epidemiological is a method of studying data distribution and patterns of health and disease within a population. For example, the UKHSA closely monitors cancer rates across populations.
3. Data collected based on ethnicity.
4. Data gathered from epidemiological methods such as cancer rates can help support practitioners in understanding the rates of cancer across a population to then be able to understand its cause. If for example, rates of throat cancer are on the rise it may indicate an issue with smoking within that population and health education needs to be implemented such as smoking cessation groups.

p. 213

Recap questions

1. Chronic obstructive pulmonary disease (COPD)
2. Extreme measures have been taken to reduce the prevalence of smoking to tackle the illness associated with smoking tobacco-based products. For example, the 2007 smoking ban in public spaces has been beneficial in reducing the amount of people smoking publicly and therefore the number of individuals passively smoking.
3. Drinkaware

p. 215

Activity

1.
    - NHS staff and resources strained
    - Increased crime and public disorder
    - Loss of productivity in the workplace

2. Consider the physical, intellectual, emotional and social health of an individual.

p. 215

Recap questions

1. Mental health has become a priority in a bid to tackle the stigma surrounding mental health.
2. Supports pregnant women and young children ensuring they receive healthy foods and vitamins to support growth and development.
3. Gonorrhoea.
4. Obesity

p. 219

Recap questions

1.
    - Postcode lottery
    - Substandard housing
    - Noise pollution
2. An economic factor such as having a high or low income can impact health and wellbeing as this is a determinant of whether individual can afford resources to benefit health. For example, a good income means individuals can afford heating, good quality food and opportunities for leisure such as gym memberships.
3. If an individual is more compliant, they are more likely to abide by the education provided to them about positive health behaviours. For example, education on the risks of alcohol consumption may cause a compliant person to manage their alcohol intake better.
4. A lack of education can affect a person's ability to make healthy decisions. For example, not understanding the benefits of a healthy diet or being educated about food can lead to physical health issues such as malnourishment and obesity.

p. 221

Recap questions

1. Behavioural factors.
2.
    - Race
    - Age
3. A social factor such as relationships with others can influence the extent an individual misuses substances such as drugs and alcohol. For example, negative influences from peers such as peer pressure may lead to unhealthy relationships with substances. This can then lead to health issues such as addiction and kidney damage.
4. Individuals living on a low income or in poverty may need the support of healthy start to support 'better start in life' to ensure that children are provided with nutritious foods to support them meeting the developmental milestones.

p. 221

Activity

1.
   Socioeconomic status:
   - Stress and anxiety due to financial difficulties.
   - Worsening mental ill health due to limited access to services.
2.
   - Raise awareness about the forms of discrimination.
   - Train healthcare professionals in recognising and avoiding discrimination

p. 224

Recap questions

1. An international health education campaign aims to raise awareness worldwide about specific health conditions with the main goal of raising the profile of positive health behaviours to reduce health conditions. Their primary aim is to improve health outcomes for all populations and its inhabitants.
2. FAST – educates individuals on the signs of stroke.
3. Know your numbers based in Liverpool to raise awareness about blood pressure.

p. 224

Activity

2.

- Accuracy and avoids misinformation.
- Builds trust amongst populations.
- Targets the right audience.

p. 227

Recap questions

1. Social cognitive theory
2. Theory of reasoned action.
3. Transtheoretical model/stages of change.

p. 229

Recap questions

1. individuals are provided with a relevant level of education surrounding a health issue.
2. To have the ability to make independent decisions over our own behaviours and health and wellbeing.
3.
   - Health statistics
   - Monitoring the amount of people utilising a service such as vaccine centres.

p. 229

Activity

1.
    - More effective when individuals believe they are at personal risk.
    - Understanding the severity of a health issue can lead to permanent change.
2.
    - Community and family support enhances change.
    - Reduces health inequalities if communities are targeted.
    - Creates a culture of health as healthy behaviours become the social norm.

Unit 6: Safe environments in health and social care

p. 234

Recap questions

1. Residential care is provided in a service where 24 hour care is provided, whereas domiciliary care is when treatment is given to individuals in their own home.
2. Community health services include getting dresses, taking care of personal hygiene, taking medication, completing household chores, cooking meals, changing dressings on wounds.
3. Community care services are important as they allow individuals to continue to live in their own home and gives them confidence. It also prevents the need for travel to appointments.

p. 234

Activity

1. Positives of community include allowing individuals to maintain their independence and live at home.
2. Positives of residential care includes that an individual gets 24 hour care and that the focus of their care will be widely understood.
3. Professionals involved in residential care include care workers and nurses.
4. Professionals involved in community care includes care assistants.
5. Community care would be best as they already support at home and have good cognitive function. They will need help at intervals throughout the day which is much better cared for in their own home.

p. 235

Recap questions

1. A virtual ward is when a ward-like room is set up in an individual's own home so they can get personalised care and get to stay at home with loved ones.
2. Benefits of using hospice care is that professionals can support with medication, treatment and mental wellbeing. These are often local so family and friends can visit and the room can be made very personal to the individual.

p. 236

Apply your understanding

1. The argument for Leo to stay at home and use a virtual ward could include that he can be close to all of his family, he can be there to support his wife and their mental wellbeing will be positive.

2. The argument for Leo to move to a residential home could include that he will get 24 hour care if the confusion increases, that it could reduce the stress on his adult children who have their own responsibilities and that it will reduce responsibility for his wife who has her own health concerns.

3. The outcomes need to be related to the arguments made above.

p. 237

Apply your understanding

1. Betty would feel like she had her dignity taken away, embarrassed, confused and upset at not being able to have her own opinion.

2. Betty might not want to work with these professionals in the future as they treated her badly and didn't ask her opinion.

3. Professionals could use a person-centred approach by asking her opinion about what she wanted and giving her an advocate to ensure she can understand what the professionals are telling her.

4. 'Lived experience' can contribute here as Betty is the one dealing with the situation on a daily basis and this could support Betty and the professionals to agree on their care together so that her experiences can be taken into consideration to reduce professionals wasting their time.

p. 238

Recap questions

1. Lived experience is when it is recognised that the individuals dealing with the health problems are first hand are knowledgeable and can make decisions. This could then lead to individuals feeling more positive about the care so changes can be made.

2. In order to use a person-centred approach, a holistic approach may be needed.

3. Some individuals might struggle with managing risk as they may have a lack of understanding or barriers such as financial barriers.

4. A cause of distress might include the shock of an accident, their prognosis or the impact on their friends and family.

p. 238

Activity

Examples could include:

Risk	Barriers	Overcome
An individual has lost the support of their informal carer	Lack of understanding, financial barriers,	Assessment of needs, introduction of formal care
An individual needs to attend hospital in a different city, but	Financial barriers, physical barriers, Cognitive understanding	Transport provided by services/local authority, financial support

they do not drive and struggle to use public transport		
An individual has suffered serious side effects of a medication and needs to move onto another, but they are reluctant to do so	Lack of understanding, lack of confidence in services, worry about new side effects.	Person-centred care meeting, multi-agency meeting
An individual has made the decision~~s~~ that they want to stay in their own home and not move to a residential home after suffering a stroke	Lack of informal support, poor home environment, financial barriers.	Assessment of needs, formal support in place, multi-agency meeting.

p. 240

Apply your understanding

1.

- He could worry about whether he can continue with his sports and exercise
- He could feel frustrated that his future ambitions/university course may be affected
- He might feel angry that he can't spend as much time with his friends so he could feel upset and left out
- He might fear that he will get behind with his uni work if he cant attend lectures or prepare for exams
- He may feel anxious that he may have to quit his part time job if he needs a lot of time off for medical reasons

p. 241

Recap questions

1. Social exclusion is when individuals are excluded for activities due to a specific condition.
2. One organisational role of professionals could be the management of staff.
3. 2 emotional impacts of having a long term health conditions could be fear, learned helplessness, frustration, anger, depression, anxiety, confusion.

p. 241

Activity

	Why it may be an issue	How it could be overcome
Isolation	Individuals might feel on their own, so they may struggle with their health and have no where to turn,	Moving to a residential home where they have 24 hr care, financial support could help to take part in activities.
Discrimination	Individuals could have low self-esteem and feel unable to accept the help they need due to fear.	Having support to boost their self-esteem, training given to staff members to promote anti-discriminatory practice.

Social exclusion	Individuals could feel left out, have a lack of confidence and resent other people.	Having support to continue to take part in activities, adaptations made to activities.

p. 242

Apply your understanding

Some of the things they can do to show cultural competence include:

- Use a multi-agency approach
- Use a person-centred approach to ensure Abigail can be involved in decisions about her care
- Understanding her religious routine to enable this to continue
- Ensuring they find a home that can meet her holistic needs, including her prayer routine and where there are also younger residents.

p. 243

Recap questions

1. Some decisions individuals needing support might make decisions such as financial decisions, decisions about what professionals to use, where they want to live, the medication or treatment they want.
2. Examples of policies are safeguarding, equal opportunities, record keeping, confidentiality, first aid, complaints/whistleblowing, administration of medicines, health and safety.
3. An individuals culture may impact on them accepting help as they may feel discrimination, there may be a language barrier, they may not be confident, they may be restricted on treatment available.
4. Professionals can show cultural competence by taking time understand their culture, ethnic origin, nationality, gender, age, religion, beliefs, sexual orientation and ability so that agreements can be made regarding their support.

p. 243

Activity

Use research to complete the table, remembering that inclusivity is providing equal opportunities for individuals and dignity is helping individuals to feel worthy and proud of themselves.

p. 244

Apply your understanding

1. Finn will be less likely to attend the appointment due to having to take the day off work, not being able to afford to take the day off or afford public transport, and not wanting to waste the whole day on one appointment.

2. The long-term consequences of this could be that the skin condition gets worse, that it becomes too late to treat it easily or that he needs to waste more time by going to see the GP again to have another referral being made.
3. The services could help to overcome the barriers by making the appointments closer to home, such as at the GP surgery where he can reach it easily or they could provide transport for Finn that is free and gets him there directly.

p. 246

Recap questions

1. One adaptation that could be helpful to improve accessibility to buildings include th use of signage or the use of ramps and lifts.
2. One cost that individuals might face when accessing services could be public transport costs or parking costs.
3. Mental wellbeing can be improved around buildings through the use of windows and light and having accessibility to outside space.

p. 246

Activity

The answers to this will be based on your own views, preferences and ideas.

p. 247

Recap questions

1. The use of signs is important in health and social care as ir reduces confusion and workload for staff.
2. The geographical location of a service affects an individuals ability to access it as if it easy to reach, service users would be more likely to attend appointments and get the support they need. If it isn't accessible, it could lead to professional's time being wasted and health conditions deteriorating. This could also lead to undue worry and stress.
3. It would be positive to include a service users in making decisions about their own care as they will feel like the space is personalised to them and will feel happier and included in decisions.
4. When scheduling activities, professionals need to consider the time and place these are being held. This is to ensure the service users are able to take part. Accessibility to the activity is also important, such as using enough space and having accessible equipment.

p. 247

Activity

Noise complaint	How it affects daily life	How it could be overcome
A residential home is on a busy road where there is constant traffic noise.	This could lead to individuals struggling to sleep and this could make health conditions worse. There may also be	Windows and doors could be updated to reduce the noise coming into the building. Specific parking spaces could

	issues with visitors parking and so this could limit contact with family. Residents may be upset that they have no outdoor space.	be allocated to the visitors. Staff could make time to take residents on outings to outdoor spaces, such as a park.
A hospital is undergoing building works. There is constant noise from diggers and machinery from 6am to 6pm right next to the children's ward.	This could cause frustration to families and lead to individuals struggling to sleep or settle. They may be unable to hear what professionals are telling them and children might struggle to concentrate on activities. This noise could cause pain for some children, leading to upset and it might restrict the amount of space outside due to building works.	The hospital could restrict the times the workers are able to make noise outside and could hold activities in different spaces, away from the side of the building where work is taking place. The ward staff could enable families and children to go to outdoor spaces in a different area so that can still go outside to boost mental wellbeing.

p. 249

Apply your understanding

Difficulties finding residential care for John could be due to his age, as there are many residential homes that only support people in later adulthood, whereas John is in middle adulthood. This will affect the activities individuals take part in and the level of care. Also, John will need a home with nursing care as his condition is likely to continue to deteriorate, so health care is needed.

Difficulties in finding appropriate care for Noah could be due to his age as he will have the same needs as any other teenager, and this can be hard to meet in residential care. He will need to continue with his education as well as his social and emotional needs being supported, which will also continue to change as he ages. There will also be difficulties in understanding the progression of the disease, and so his care will need to change regularly, meaning that the care that meets his needs now, might not meet his needs long term.

p. 251

Activity

The answers to this will depend on your local area and the research you are able to undertake.

p. 251

Recap questions

1. ICS = Integrated Care System
2. The role of the ICP includes to develop a long term strategy to support in improving housing, education and employment to improve health and wellbeing.
3. It can be difficult to find an appropriate care environment for a very young child because of their vulnerability and becasue they need constant care.

p. 254

Activity

This would depend on the standards chosen. And example might be:

Person-centred care -

A good way for professionals to show this would be for them to make time to listen to service users and their family and take their views into consideration.

Poor practice might include them not giving the service users a voice and taking over when it comes to decision making.

Professionals and managers have a responsibility to ensure time is given for staff to do meet with service users and their family. They also have a responsibility to make sure staff are trained on how to lead successful meetings and how to meet the needs of individuals.

p. 254

Recap questions

1. Principles of safeguarding include empowerment, prevention, proportionality, protection, partnership and accountability.
2. There are 14 fundamental standards of the CQC.
3. The Children and Families Act 2014 was introduced to protect and safeguard the rights of children under the age of 18 years old.

p. 255

Recap questions

1. COSHH stands for control of Substances Hazardous to Health regulations.
2. Three of the CQC standards are person centred care, visiting and accompanying and dignity and respect – but you could choose form any of the 14 standards.
3. Manual handling might be needed to lift and individual, to sit an individual up in bed, to lift an individual who has fallen, to put a mobility aid into a vehicle and to move equipment needed to support an individual.

p. 257

Recap questions

1. Professionals can control the risks by identifying what the risk is, deciding whether the activity needs completing and whether there are alternative ways to complete the task.
2. The HASAWA 1974 supports employers as it helps to ensure they know what their responsibilities are and supports them to create policies, give training and maintain the building.

p. 258

Recap questions

1. RIDDOR stands for Reporting of injuries, diseases and dangerous occurrences regulations (2013)
2. To 'identify the hazards' means to look around areas to see whether there are any risks to harm, including the size of the space, the state of the area and whether any hazardous substances are used in the space.
3. The HASAWA 1974 protects everyone who enters health and social care settings. This helps employers and employees to understand their own responsibilities so they can be carried out safely.

p. 258

Apply your understanding

Some of the hazards could include:

- The building is old so there may be increased risk of trips and falls if damage occurs,
- There is a risk of slips from the leaks on the roof,
- There is a risk of burns/scalds from the kitchen,
- There is a risk of residents accessing sharp cooking utensils,
- There are stairs which some service users may not be able to manage,
- The stair lift will need to be regularly maintained to ensure it doesn't cause harm,
- There is a risk of physical and emotional harm due to some having to share a bathroom,
- There are not enough staff for the 24 vulnerable residents,
- There is a risk of residents accessing the main road outside.

For each chosen, ensure you complete the rest of the table using what you have learnt and your own knowledge.

p. 261

Recap questions

1. The Mental Capacity Act 2017 supports individuals from age 16 years and over.
2. The protected characteristics include age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, races, religion or belief, sex, sexual orientation.
3. The Mental Health Act 2017 says that individuals can be admitted, detained and treated against their will.

p. 261

Activity

Research on the Mental Capacity Act 2017 will ensure you have the answers to these questions.

p. 263

Recap questions

1. Multi agency team working is when professionals from different services work together to support an individual.
2. We know whether an incident is a notifiable incident if the result was unexpected or unintended, it occurs during a CQC regulated activity, it has resulted in death or serious or moderate harm.
3. Professionals can show a duty of candour by being open and honest with staff members, service users and their families.

p. 263

Apply your understanding

1. This is not a notifiable incident as the outcome was expected so it doesnt meet all of the criteria.
2. This is a notifiable incident as the result was unexpected as the dental surgeon was unaware of the allergy, it has occurred during a CQC regulated activity and it has resulted in serious harm.

p. 265

Recap questions

1. If standards of care are not maintained, it could affect the relationships between service users and professionals, it can impact on the service users understanding of their care, it can affect professional's understanding of their role, and it could lead to an increase in complaints.
2. It is important that services uphold the CQC standard of 'display ratings' as it will give individuals looking for services the information they need to make informed decisions

p. 266

Recap questions

1. Good standards of care can lead to positive relationships being built, a positive culture around the service, individuals and their family understanding the care they can expect and services being held accountable for their actions.
2. The act that supports the CQC standards of care is the Health and Social Care Act 2008.
3. There are 15 standards in the Care Certificate.
4. Standard 3 is so important to individuals using services as it helps professionals to understand their expectations clearly how to work in an inclusive way.

p. 266

Activity

An example of this activity could be:

Safety -

This could be shown in a hospital by professionals monitoring and dealing with risks and hazards associated with the building. It could also be shown in a residential home by asking visitors to sign into the building to ensure vulnerable individuals are kept safe.

If this standard is not upheld, it could lead to undue harm coming to service users and lead to health conditions worsening. It could also lead to confusion among professionals and between professionals and service users as there may be no policies or procedures in place to follow and there may be replication of work being done.

The role of managers would be to implement policies and procedures as well as give training to all employees about how to monitor and avoid risks. Employees also would need to follow their training and ask for advice and guidance when needed.

p. 268

Recap questions

1. Disclosure and Barring Service Regulations
2. It is important that individuals are empowered to make decisions as they will then have their rights upheld and this will give them confidence to take up new opportunities.
3. Some examples of effective communication include Makaton, British Sign Language, facial signals and gestures, using shorter sentences, speaking in a quiet space, using the help of an advocate.

p. 268

Activity

1. The dangers could be that the children are at risk from staff who may not be safe to work with children.
2. The volunteers could make trained staff feel as if their work is being undermined and the volunteers may create more work for the trained staff if they do nothing wrong.
3. Parents might not be happy about the children being with volunteers as they might worry about them not being trained in first aid or fire evacuation, which will put their children at risk of harm.
4. The reputation of the day centre might be negative as parents complain and trained staff voice their negative views. Also, if injury occurs with any children this could be shared around the community, leading to families not wanting to access the day centre.
5. The manager should have prepared for a shortage of staff by having more staff on hand. Now, the manager needs to advertise for and hire more appropriate staff, ensuring they are all DBS checked and undergo all of the training necessary.

p. 270

Recap questions

1. Protective factors include having a stable family, good problem solving skills, emotional intelligence, having a caring family, good communication skills, having a positive relationship, financial security, having consistent parenting, living in a safe environment, having good housing, having access to resources for hobbies, having a sense of belonging.
2. Risk factors include going through trauma, genetic conditions, learning disabilities, alcohol or substance misuse, low income, poor parenting, family size, abuse, neglect, family violence, living in unsafe communities, poor social mobility, living in a deprived area, discrimination, difficulties accessing services.
3. All Our Health guidance was created in 2022.

p. 270

Apply your understanding

1. Risk factors Jeremy faces could be:

- Genetic conditions
- Low income due to losing his job
- Difficulties accessing services

p. 272

Recap questions

1. Policies and procedures that can help support vulnerable individuals include safeguarding, health and safety, equal opportunities, record keeping, confidentiality, first aid.
2. Whistleblowing is when professionals report wrongdoing that they see or feel like they need to be part of.
3. Professionals should expand their own cultural awareness as it will lead to them having a deeper understanding of the individuals they are caring for, helping them to meet their needs.

p. 272

Activity

Your answers to these will vary according to your research and the local service you choose.

p. 275

Recap questions

1. Regulatory bodies include the GMC, the HCPC, the NMC and SWE.
2. The CQC has 14 fundamental standards.

3. A code of practice is good for employers as it will give them confidence that their employees that are aware of their role and their duty of care.

p. 275

Activity

Your answers here will depend on the research you complete and the regulatory body you choose.

p. 277

Activity

1. The best way for employers to share with employees their responsibilities includes through training, meetings and policies and procedures.
2. Employers might check that employees are following their responsibilities by ensuring procedures are being followed, monitoring complaints and carrying out observations and further training if needed.
3. Knowing responsibilities could be used for holding professionals accountable for their actions as managers can use it to show where errors have occurred and service users can use it to make complaints against what should happen.
4. If employees feel their employers are not upholding their responsibilities, they should report this through whistleblowing or complaints procedures.

p. 277

Recap questions

1. Employers and employees following their responsibilities ensure a safe environment is created as they will then do their job well and ensure service users are protected from harm.
2. Employees can report poor practice by following the complaints policy of the service or following whistleblowing procedures, which may include reporting incidents to the local authority or emergency services.
3. A policy that should be created by employers could be a health and safety policy.

p. 278

Recap questions

1. There are 6 data protection principles
2. These are that information is used fairly, lawfully and transparently, used for a specific purpose, used in a way that is adequate, accurate and up to date, kept for no longer than necessary and handled in a way that ensures appropriate security.
3. It is important that storage used for data is appropriately sized as it reduces duplicate folders of information and ensures if can be stored as safely.

p. 279

Apply your understanding

1. Zara is not following the obligations for record keeping as she is not storing the information in a way that can protect confidentiality and is not doing anything to prevent unauthorised access. She is not following GDPR regulations or the Data Protection Act 2018 as she is not handling data appropriately and is not using it fairly or lawfully. She also has not followed the Health and Social Care Act 2008 as she is not securely maintaining the records.
2. Katrina should whistleblow to the commissioning organisation, such as the local authority, and the CQC.

p. 280

Recap questions

1. Things that could be classed as 'identifying information' include name, address, telephone number, date of birth, NHS number, email address, images.
2. It is important that letters between GPs and other professionals are recorded as they may be needed as a reference point later on. This can also ensure that the most appropriate care is given.
3. It is important that observations regarding an individuals nutrition intake are recorded to make sure enough food is being eaten, the diet is positive for their health or that changes can be made if needed.

p. 282

Recap questions

1. Telehealth enables individuals to communicate and have consultations with many different professionals in clinical and non clinical roles. This could include the use of remote patient monitoring too. Telemedicine is a branch of telehealth but is only used by clinical professionals.
2. Electronic records include name, date of birth, NHS number, investigations completed by professionals, test results, information given to individuals, treatment, prescribed medication, decisions made.

p. 283

Recap questions

1. An electronic patient record is an electronic version of an individual's medical record.
2. Benefits of services having digital record include having instant access to up to date information, the ability to share information quickly, changes in health status noticed, chances of errors being missed minimised, easy prioritisation of tasks.

p. 284

Activity

1. The service users in the area might be scared and worried about what information might now be available to others. They might also be angry about what the spokesperson has said.
2. They might be worried about what others might think of them or being discriminated against.
3. They might refuse to use local services again, which could lead to a decline in their health, physical and mental.

p. 285

Recap questions

1. Service users being reluctant to accept help could lead to their health condition worsening and this having a bigger impact on their daily life and the life of their family.
2. Poor staff wellbeing can affect other workers as it could lead to low morale and increase work load for others if there are many staff members off sick.
3. Poor ratings by the CQC could lead to potential closure or prosecution.

Unit 7: Health science

p. 289

Recap questions

1. Genetic material (DNA or RNA) and a protein coat (capsid)
2. To protect the viral genetic material
3. Reverse transcriptase
4. A virus that infects bacteria
5. Attachment, Penetration, Replication, Assembly, Release
6. Lysis (bursting of the host cell)

p. 291

Recap questions

1. Single-celled organisms that lack a nucleus and other membrane-bound organelles.
2. Cell wall, cell membrane, cytoplasm, ribosomes, and genetic material (DNA and RNA) (Accept any two)
3. To provide structural support and protect the bacterial cell
4. Slime capsule, flagellum (or flagella), pili (Accept any three)
5. Spherical
6. Binary fission

p. 293

Recap questions

1. Eukaryotic
2. Heterotrophs (or by obtaining nutrients from other organisms)
3. Budding
4. Hyphae
5. Eukaryotic
6. Cilia and flagella
7. Malaria
8. The tsetse fly acts as the vector (transmitter) of the trypanosome.
9. Photosynthesis
10. Merozoites

p. 294

Apply your understanding

1. Protozoa
2. Malaria
3. By the bite of an infected Anopheles mosquito
4. Possible preventative measures include:

- Insect repellent use
- Sleeping under mosquito nets
- Insecticide spraying
- Improving sanitation and drainage to reduce mosquito breeding sites

p. 294

Activity

1. Prokaryotic cells lack a true nucleus, while eukaryotic cells have a well-defined nucleus enclosed by a nuclear membrane.
   Prokaryotes lack membrane-bound organelles (such as mitochondria, chloroplasts, endoplasmic reticulum), while eukaryotes possess these organelles.
   Prokaryotes typically have a single, circular chromosome, while eukaryotes have multiple linear chromosomes.
   Prokaryotes are generally smaller and simpler in structure than eukaryotic cells.
2. Attachment: The virus binds to specific receptor proteins on the surface of the host cell.
   Penetration: The virus enters the host cell, either by fusing with the cell membrane or through endocytosis.

p. 294

Recap questions

1. Carbohydrates, proteins, lipids (any order)
2. Vitamins and minerals
3. Around 37°C
4. For their metabolic processes and growth
5. Moist environments, such as mucous membranes, skin folds, and bodily fluids (any order)

p. 295

Recap questions

1. To prevent the growth and spread of microorganisms.
2. Refrigeration, Freezing, Autoclaving, Radiation, Drying (Accept any two)
3. By reducing the metabolic rate of microorganisms.
4. Disinfectants are used on inanimate objects, while antiseptics are used on living tissue.
5. By using high temperature and pressure to kill microorganisms.
6. By removing moisture, which is essential for microbial growth.

p. 298

Apply your understanding

1. Isolation: Isolate infected patients in single rooms with dedicated bathrooms whenever possible.
   Enhanced cleaning and disinfection: Intensify cleaning and disinfection procedures throughout the ward, with a focus on high-touch surfaces.
2. Gloves: Worn for all patient contact and during cleaning procedures.
   Gown: Worn to protect clothing from contamination.
   Mask: Worn to prevent the inhalation of respiratory droplets.
3. Cleaning and disinfection help to eliminate norovirus from surfaces and prevent its spread.
   Proper waste management ensures contaminated materials (e.g., linens, disposable items) are handled and disposed of safely to prevent further contamination.
4. Strict adherence to PPE guidelines minimises the risk of healthcare workers carrying the virus between patients and to other areas of the hospital.
   Thorough hand hygiene before and after patient contact is crucial to prevent the spread of the virus.

p. 298

Recap questions

1. Disease-carrying organisms, such as insects and animals.
2. Malaria, Dengue fever, sleeping sickness, Lyme disease (Accept any two)
3. By eliminating or modifying breeding grounds for mosquitoes, such as stagnant water.
4. To kill mosquito larvae before they mature into adults.
5. By reducing the number of livestock in an area, which can serve as hosts for tsetse flies.
6. To prevent and control the spread of infections within healthcare settings.
7. Healthcare workers are required to wear gloves, aprons, and masks for all patient interactions, regardless of the patient's diagnosis.
8. For patients with known or suspected infections.
9. To prevent the spread of pathogens from infected patients to others.
10. Gloves, gowns, masks, respirators, eye protection (Accept any two)
11. By disrupting the lipid bilayer (cell membrane) of the microorganism.
12. Soap can physically remove microorganisms from the skin surface through scrubbing.
13. Proper handwashing with soap is one of the most effective ways to prevent the spread of infectious diseases.

p. 299

Activity

1. Physical
2. Chemical
3. Physical
4. Metabolic rate
5. Autoclaving
6. DNA

7. Chemical
8. Inanimate
9. Antiseptics
10. Bacteria

p. 302

Recap questions

1. Skin
2. Physical barrier, slightly acidic environment
3. Respiratory, digestive, urinary, and reproductive tracts
4. White blood cells that engulf and destroy foreign particles (including microorganisms)

p. 305

Recap questions

1. Humoral immunity and cell-mediated immunity
2. Antibody-mediated immune system
3. B cells
4. Rapidly produce large amounts of antibodies upon subsequent exposure to the same pathogen
5. Helper T cells and Cytotoxic (killer) T cells
6. Cell-mediated immunity
7. A process that occurs in response to tissue damage or infection.
8. The widening of blood vessels, increasing blood flow to the injured or infected area to deliver oxygen, nutrients, and immune cells.
9. Increased permeability of capillaries allows fluid to leak into the surrounding tissues.
10. The movement of cells towards a chemical stimulus, in this case, immune cells moving towards the site of inflammation.
11. Redness, swelling, pain, heat
12. Increased blood flow and metabolic activity raise the temperature of the affected area.
13. White blood cells
14. Large, specialised white blood cells that engulf and destroy foreign particles
15. The process of engulfing and destroying foreign particles by cells such as macrophages
16. Cell-mediated immunity
17. Helper T cells and Cytotoxic T cells
18. Directly kill cells infected with viruses or other intracellular pathogens
19. A concept in epidemiology where a significant portion of a population is immune to a contagious disease.
20. Through vaccination or natural infection.

p. 307

Recap questions

1. To stimulate the body's immune system to develop immunity against a specific disease.
2. Weakened or inactive forms of pathogens, or part of the pathogen.
3. To review clinical trial data and approve the vaccine for use.
4. To stimulate the immune system to produce antibodies that can fight off a disease.
5. Contain live, but weakened, forms of the pathogen.
6. Generally considered safer for immunocompromised individuals.

p. 308

Recap questions

1. A concept where a significant portion of a population is immune to an infectious disease.
2. Through vaccination or natural infection.
3. By significantly reducing the number of susceptible individuals in a population.
4. Smallpox
5. Dr Edward Jenner
6. It serves as a powerful reminder of the potential of vaccines to eliminate infectious diseases.

p. 308

Activity

1. 1. B cells are specialised white blood cells that produce antibodies.
   Antibodies are Y-shaped proteins that specifically bind to antigens on pathogens.
   B cells differentiate into plasma cells, which produce large amounts of antibodies.
   Memory B cells provide long-lasting immunity by rapidly producing antibodies upon re-exposure to the same pathogen.
2. Inflammation is a localised response to injury or infection.
   Key features include redness, swelling, heat, and pain.
   Vasodilation increases blood flow to the affected area.
3. Herd immunity occurs when a significant portion of a population is immune to a disease.
   It reduces the spread of the disease, protecting even those who are not immune (e.g., the very young, the elderly, immunocompromised individuals).
   Vaccination is an important tool for achieving herd immunity.
   Vaccines stimulate the immune system to produce antibodies, making individuals immune to the disease.
   When a high percentage of the population is vaccinated, it becomes difficult for the disease to spread.
   Examples of diseases where herd immunity has been effective can be mentioned (e.g., measles, polio).
4. Research and Development: Pathogen identification, understanding, and antigen identification.
   Vaccine Design: Selection of a suitable vaccine platform (live attenuated, inactivated, subunit, mRNA).
   Preclinical Testing: Animal testing for safety and immunogenicity.
   Clinical Trials: Phase I (safety in healthy volunteers), Phase II (efficacy and safety in different populations), Phase III (large-scale trials to confirm efficacy and safety).

Regulatory Approval: Submission to regulatory agencies (e.g., MHRA), review and approval.
Manufacturing and Distribution: Large-scale production and distribution.

p. 308

Apply your understanding

1. Measles is a highly contagious viral infection that can cause a rash, fever, cough, runny nose, and watery eyes. Potential complications include pneumonia, encephalitis, and death.
2. Vaccination is the most effective way to prevent measles. The measles vaccine is safe and effective and is typically given to children in two doses.
3. Low vaccination rates can create pockets of susceptible individuals in a community, making it easier for the measles virus to spread.
4. Health officials can take steps to contain the outbreak by isolating infected individuals, identifying and vaccinating close contacts, and conducting public health campaigns to educate the community about the importance of vaccination.
5. The community can increase vaccination rates by promoting the benefits of vaccination, addressing vaccine hesitancy, and making vaccines more accessible.

p. 311

Activity

1. Pathogens can survive on surfaces for varying periods. When a susceptible person touches a contaminated surface and then touches their mouth, nose, or eyes, they can become infected.
   Examples: Staphylococcus aureus, Salmonella, Influenza virus, COVID-19.
2. Vectors are organisms (like insects and animals) that transmit pathogens from one host to another.
   Example: Mosquitoes transmit malaria.
3. Hygiene practices and education are crucial for preventing the spread of infectious diseases.
   Examples:
   Frequent handwashing with soap and water.
   Covering coughs and sneezes with a tissue or elbow.
   Avoiding touching the face.
   Regular cleaning and disinfection of surfaces.
   Educational campaigns on hygiene and disease prevention.

p. 311

Recap questions

1. Person-to-person contact
2. Scabies, Impetigo, Ringworm
3. Droplet transmission
4. Rabies, Cat scratch disease

5. Through the placenta or during delivery
6. Transmission of pathogens through a medium or vector.
7. By touching a contaminated surface and then touching the mouth, nose, or eyes.
8. Smaller particles that remain suspended in the air for long periods; they can transmit diseases like tuberculosis.
9. Malaria, Dengue fever

p. 311

Apply your understanding

1. Respiratory droplets: Coughing and sneezing can spread respiratory droplets containing the virus that causes the illness. This is a common mode of transmission for many respiratory infections, including influenza and COVID-19.
   Surface contamination: The virus might be able to survive on surfaces like doorknobs, desks, or shared objects. If an infected person touches these surfaces and then another person touches the same surfaces and then touches their mouth, nose, or eyes, they could become infected.
2. Closely monitor the situation: Keep track of the number of reported cases and communicate with local health authorities.
   Implement hygiene measures: Encourage frequent handwashing with soap and water, provide hand sanitiser, and promote respiratory etiquette (covering coughs and sneezes).
   Clean and disinfect surfaces: Regularly clean and disinfect frequently touched surfaces, such as doorknobs, desks, and shared equipment.
   Isolate infected students: Send home any students who show symptoms and keep them isolated until they recover.
   Educate students and staff: Provide information about the illness, how it spreads, and preventative measures.
   Consider temporary closures: If the outbreak becomes severe, consider temporarily closing the school to allow for thorough cleaning and disinfection.
3. Monitoring for symptoms: Keep an eye out for students who show symptoms of the illness.
   Temperature checks: Consider taking temperature checks at the school entrance.
   Communicating with parents: Ask parents to keep their children home if they show any symptoms.
   Working with healthcare providers: Collaborate with local healthcare providers to identify and isolate infected students.
4. Increasing awareness: Educating students and staff about the illness, how it spreads, and preventive measures can help change behaviours and reduce transmission.
   Promoting good hygiene: Encouraging frequent handwashing, covering coughs and sneezes, and avoiding touching the face can significantly reduce the spread of germs.
5. Chronic health problems: Some illnesses can lead to chronic health problems, such as heart or lung problems.
   Missed school: Students who are sick may miss school, which can impact their education.
   Social and emotional impact: Being sick can be stressful and isolating, which can have a negative impact on a student's social and emotional well-being.

p. 313

Recap questions

1. Three types of viruses that can cause disease in humans are: Colds (rhinovirus), Influenza, and HIV.
2. Viruses cannot replicate on their own and require a host cell to reproduce.
3. Viral infections can be transmitted through various routes, including: direct contact with infected droplets or contaminated surfaces, respiratory droplets, and bodily fluids.
4. HIV targets and infects immune cells, specifically Helper T cells. Over time, HIV weakens the immune system, making individuals susceptible to opportunistic infections and cancers.
5. Tuberculosis (TB) bacteria are rod-shaped, have a waxy outer coating, are slow-growing, and require oxygen to survive.
6. Salmonella food poisoning is often transmitted through contaminated food, such as poultry, eggs, and raw vegetables.
7. Common symptoms of Streptococcal Sore Throat include sore throat, fever, and swollen lymph nodes.
8. Meningococcal Meningitis is a serious infection caused by the Neisseria meningitidis bacteria. It is spread through respiratory droplets

p. 314

Recap questions

1. Yeasts are single-celled fungi that reproduce by budding.
2. Common sites of infection for Candida include the skin, mouth, and vagina.
3. Dermatophytes are a type of fungus that feeds on keratin, a protein found in skin, hair, and nails.
4. Tinea infections can spread through direct contact with infected individuals or contaminated objects, such as towels and clothing.
5. Protozoa are single-celled eukaryotic organisms that can cause a variety of infectious diseases in humans. They are classified as parasites because they live within or on a host organism and obtain nutrients from the host.
6. The life cycle of malaria parasites requires specific conditions, such as temperature and humidity, to be completed. The parasites have a complex life cycle involving both human and mosquito hosts.

p. 314

Activity

1. High rates of transmission due to respiratory droplets.
   Potential for rapid mutation of the virus (leading to new strains).
   Difficulty in developing long-lasting immunity.
   Challenges in developing effective vaccines for rapidly evolving viruses.
2. Spherical shape (cocci)

Can form chains
Aerobic (require oxygen to grow)
Spread through respiratory droplets

3. HIV targets and destroys Helper T cells, which are crucial for immune function.
   This leads to a decline in immune system activity.
   Individuals with weakened immune systems become more susceptible to infections caused by other microorganisms (opportunistic infections).
   Examples of opportunistic infections (e.g., pneumonia, tuberculosis)
4. Weakened immune system (e.g., due to HIV/AIDS, chemotherapy)
   Use of antibiotics (disrupting normal bacterial flora)
   Pregnancy and hormonal changes
   Diabetes
   Oral thrush in infants
   Complications: spread to other organs, systemic infections

p. 314

Apply your understanding

1. Joh's symptoms, including fever, headache, stiff neck, nausea, vomiting, and altered mental status, are highly suggestive of meningitis. Meningitis is a serious infection of the meninges, the membranes that surround the brain and spinal cord. It can be caused by various pathogens, including bacteria, viruses, and fungi. Bacterial meningitis is particularly life-threatening and requires prompt treatment.
2. To confirm the diagnosis of meningitis, several diagnostic tests would be recommended for Jo:
   Lumbar puncture (spinal tap): This procedure involves collecting a sample of cerebrospinal fluid (CSF) from the lower back. The CSF will be analysed for the presence of bacteria, white blood cells, and other abnormalities.
   Blood tests: Blood tests can help identify the specific type of bacteria causing the infection and assess the patient's overall health status.
   Imaging tests: Imaging tests such as CT scan or MRI may be performed to rule out other conditions, such as brain abscess or tumour.
3. The treatment of bacterial meningitis typically involves:
   Antibiotics: High doses of antibiotics are administered intravenously to kill the bacteria causing the infection. The specific antibiotic will depend on the type of bacteria identified.
   Supportive care: Supportive care measures include maintaining adequate hydration, managing fever, and monitoring for complications.
4. Meningitis can have serious complications, including:
   Sepsis: A life-threatening condition in which the body's immune system overreacts to an infection, leading to widespread inflammation.
   Hearing loss: Damage to the auditory nerve can result in hearing loss.
   Seizures: Inflammation of the brain can trigger seizures.
   Cognitive impairment: Meningitis can cause long-term cognitive problems, such as learning disabilities and memory difficulties.
   Death: In severe cases, meningitis can be fatal.
   To prevent meningitis, it is important to:

Get vaccinated: Vaccines are available for some types of meningitis, such as meningococcal meningitis and pneumococcal meningitis.
Practice good hygiene: Wash hands frequently, especially after being in contact with sick people.
Avoid close contact with people who are sick: If you are sick, stay home and avoid contact with others.

p. 317

Recap questions

1. Plasma, red blood cells, white blood cells, and platelets.
2. Red blood cells.
3. Red blood cells transport oxygen from the lungs to the body's tissues.
4. White blood cells fight infection.
5. Platelets help blood clot.
6. Plasma.
7. Erythrocytic diseases are a group of disorders that affect red blood cells.
8. In sickle cell anaemia, red blood cells become misshapen and rigid.
9. Thalassaemia is an inherited blood disorder that affects the production of haemoglobin.
10. HDN is caused by blood group incompatibility between the mother and her baby.

p. 319

Recap questions

1. Leukocytes defend the body against infections and diseases.
2. Lymphocytosis is a condition in which there are too many lymphocytes in the blood.
3. CD4 Helper T cells.
4. AIDS.
5. Leukaemia is a type of cancer that affects the blood and bone marrow.
6. In AML, the bone marrow starts producing abnormal white blood cells called myeloid cells.
7. Myeloid and monocyte cells.
8. Bone marrow produces blood cells.
9. Hodgkin Lymphoma and Non-Hodgkin Lymphoma.
10. a. Haemostasis is the process by which the body stops bleeding.
    b. Thrombosis is the formation of a blood clot inside a blood vessel.
11. An embolism occurs when part of a thrombus breaks off and travels through the bloodstream.
12. Age/Smoking/Obesity/Inherited blood clotting disorders/Sedentary lifestyle/Certain medical conditions (e.g., heart disease, diabetes)/Certain medications (e.g., birth control pills, hormone replacement therapy)

p. 319

Recap questions

1. A blood transfusion is the transfer of blood or blood products from one person to another.
2. Surgery, Intensive Care, Cancer Treatment
3. To minimise the risk of transmitting infections.

4. HIV, Hepatitis B, Hepatitis C, Human Parvovirus B19, Malaria

p. 319

Apply your understanding

1. Rhesus disease is a condition that affects unborn babies when their mother is Rh-negative and the baby is Rh-positive.
   If the mother's blood comes into contact with the baby's Rh-positive blood during pregnancy or delivery, her body may produce antibodies against the Rh factor.
   These antibodies can then cross the placenta and attack the baby's red blood cells.
2. The baby is at risk because Takunda is Rh-negative, and her partner is Rh-positive. There's a chance their baby could inherit the Rh-positive factor from the father.
3. Anti-D injections contain antibodies that destroy any foetal Rh-positive blood cells that may have entered the mother's bloodstream.
   This prevents the mother's immune system from producing its own antibodies against the Rh factor.

Potential consequences include jaundice, anaemia, brain damage, and in severe cases, even death.

p. 319

Activity

The info students need is on the previous textbook pages. The skill they are developing is being able to select info and summarise it.

p. 324

Recap questions

1. micronutrients and macronutrients.
2. Fatigue/ Weakened immunity /Organ damage
3. Some examples of micronutrients include vitamins and minerals.
4. Some examples of macronutrients include proteins and carbohydrates.
5. The potential long-term effects of nutrient deficiencies include rickets / Osteomalacia / anaemia / nerve damage / cognitive impairment/ birth defects / increased risk of certain cancers / muscle wasting / oedema / stunted growth / weakened immunity/ dehydration / kidney failure
6. Many nutritional deficiencies can be reversed. Needs timely diagnosis and appropriate dietary intervention. However, the extent to which a deficiency can be reversed depends on the severity and duration of the nutrient deficiency, as well as the individual's overall health.

p. 324

Activity

1. vitamin D is essential for calcium absorption.
   role of calcium in bone health (e.g., bone mineralisation).
   consequences of vitamin D deficiency on bone health (e.g., rickets, osteomalacia).
2. discusses the role of the severity and duration of the deficiency.
   mentions the impact of the individual's overall health status.
   discusses the potential for irreversible damage in severe cases.

p. 324

Apply your understanding

1. Potential causes of iron-deficiency anaemia in pregnancy:
   Increased iron demands due to foetal growth and increased blood volume.
   Inadequate dietary iron intake.
   Poor iron absorption.
2. Iron is crucial for foetal development, particularly for the formation of red blood cells.
   Anaemia in pregnancy can increase the risk of preterm birth/low birth weight/postpartum haemorrhage/increased risk of complications for the mother (e.g., increased risk of infections).
3. Potential consequences of untreated iron-deficiency anaemia in pregnancy:
   For the mother: fatigue/shortness of breath/weakness/increased risk of infections/postpartum complications (e.g., haemorrhage).
   For the foetus: preterm birth/low birth weight/impaired foetal growth and development/increased risk of developmental delays
4. Dietary interventions:
   Increase intake of iron-rich foods (e.g., red meat, leafy green vegetables, fortified cereals).
   Combine iron-rich foods with vitamin C sources (e.g., citrus fruits) to enhance iron absorption.
   Iron supplements: oral iron supplements (ferrous sulphate is commonly used). In some cases, intravenous iron therapy may be necessary.
   Regular monitoring: regular blood tests to monitor haemoglobin levels and assess treatment response.

p. 326

Recap questions

1. Diets high in sugar can contribute to weight gain by providing excess calories that are easily stored as fat.
2. Refined carbohydrates are carbohydrates that have been processed to remove their bran and germ, such as white bread and pasta.
3. Saturated fats raise levels of LDL cholesterol, also known as "bad" cholesterol.
4. Insulin is a hormone produced by the pancreas that helps move glucose from your blood into your cells for energy.
5. Two lifestyle factors that can contribute to the development of type 2 diabetes are being overweight or obese and lack of physical activity.

6. One potential long-term complication of uncontrolled type 2 diabetes is heart disease.
7. Crohn's disease and ulcerative colitis.
8. Crohn's disease can affect any part of the digestive tract, from the mouth to the anus.
9. Ulcerative colitis affects the colon and rectum.
10. A diet rich in fruits, vegetables, and fibre is recommended for people with IBD.
11. Heart disease and stroke.
12. Obesity.

p. 326

Activity

1. increased risk of heart disease.
   increased risk of type 2 diabetes.
   increased risk of certain cancers.
   increased risk of stroke.
2. discusses the importance of a balanced diet.
   discusses the role of carbohydrate control.
   discusses the importance of maintaining a healthy weight through dietary modifications.
3. discusses the impact of saturated and trans fats.
   discusses the impact of high sodium intake.
   discusses the impact of high sugar intake.

p. 327

Apply your understanding

1. Sedentary lifestyle: Lack of physical activity increases the risk of insulin resistance.
   Processed foods: Often high in sugar, refined carbohydrates, and unhealthy fats, contributing to weight gain, insulin resistance, and elevated cholesterol levels.
   Sugary drinks: High sugar content leads to weight gain, insulin spikes, and increased risk of type 2 diabetes.
   Red meat: Can contribute to high cholesterol levels, especially saturated and unhealthy fats.
2. Heart disease and stroke
   Kidney disease
   Nerve damage (neuropathy)
   Eye problems (retinopathy)
   Foot problems
   Increased risk of certain cancers
   Amputations
   Blindness
3. Regular physical activity: Aim for at least 150 minutes of moderate-intensity exercise per week.
   Healthy diet:
   a. Focus on whole, unprocessed foods (fruits, vegetables, whole grains).
   b. Limit processed foods, sugary drinks, and unhealthy fats.
   c. Incorporate lean protein sources (fish, poultry, beans).

d. Weight management: Aim for and maintain a healthy weight.

4. Helps track the effectiveness of treatment and lifestyle changes.
   Allows for adjustments to medication or diet as needed.
   Enables early detection of potential blood sugar complications.
5. Reduce saturated and trans fats: Limit red meat, full-fat dairy, and processed foods.
   Increase intake of unsaturated fats: Consume more fish, nuts, seeds, and plant-based oils.
   Consume soluble fibre: Found in oats, beans, and fruits, which can help lower cholesterol.

p. 327

Recap questions

1. Particulate Matter: can lead to respiratory infections, lung inflammation, and heart disease.
   Nitrogen Dioxide (NO2): can irritate the respiratory tract, leading to respiratory infections and asthma.
2. Bacteria and Viruses: can lead to the transmission of waterborne diseases, such as cholera, typhoid fever, and hepatitis A.
   Heavy Metals: can lead to neurological disorders, kidney damage, and cancer.
   Pesticides and Herbicides: can pose risks to human health, including cancer, reproductive problems, and neurological disorders.
3. cholera, typhoid fever, and hepatitis A.

p. 328

Recap questions

1. Ionising radiation can damage DNA by stripping electrons from atoms.
2. Radon gas
3. UV-B radiation
4. UV radiation can damage DNA, leading to uncontrolled cell growth and skin cancer.

p. 329

Recap questions

1. Inadequate sanitation facilities, such as poor sewage disposal and contaminated water sources.
2. Cholera
3. Acute pesticide poisoning can cause a range of symptoms, such as nausea, vomiting, and respiratory problems.

p. 329

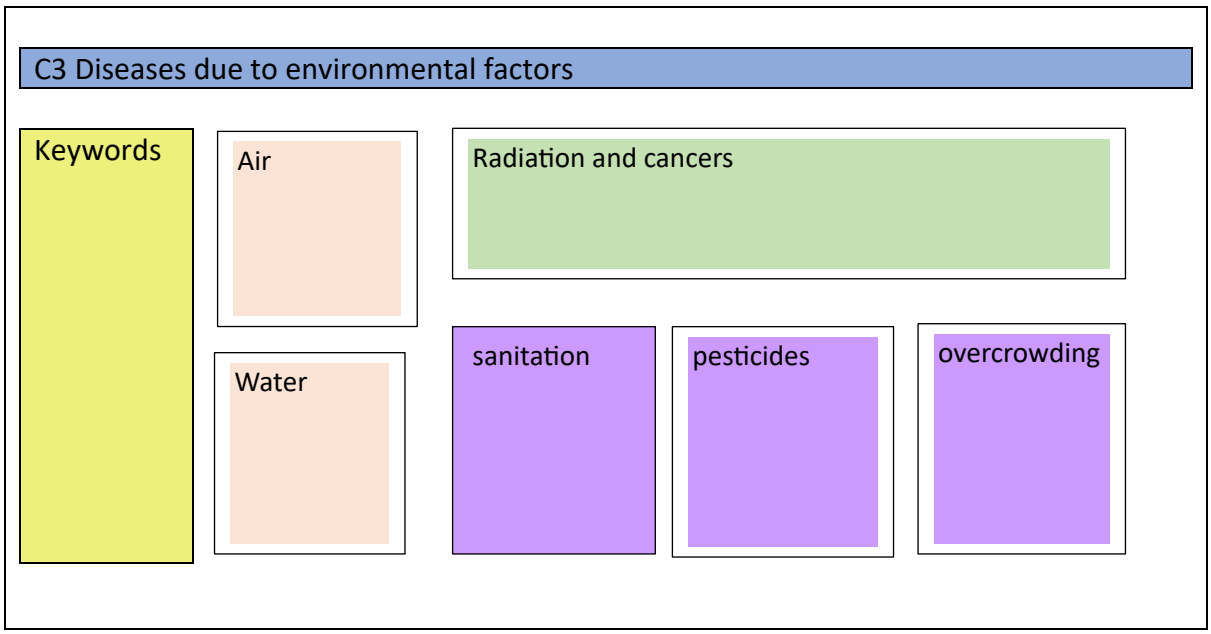
Apply your understanding

1. Crowded living conditions
   Poor ventilation
   Close contact with infected individuals (family members)
   Travel to a region with a high prevalence of TB (like India)
2. Discussion of how factors like close contact, shared airspaces, and limited ventilation contribute to the spread of airborne diseases.
3. Discussion of how adequate ventilation can help dilute and disperse airborne bacteria.
4. Discussion of the importance of assessing potential exposure in regions with disease prevalence.

p. 330

Activity

Please see Section C3 and try to summarise the info into an organiser.



p. 330

Activity

1. Overcrowding increases the concentration of airborne pathogens in enclosed spaces, increasing the likelihood of transmission from infected individuals to others. Examples: Increased contact, limited ventilation, and reduced personal space.
2. Contaminated water sources: Can lead to the transmission of waterborne diseases like cholera and typhoid.
   Inadequate sewage disposal: Allows for the spread of pathogens through contaminated water and soil.
   Poor hygiene practices: In the absence of adequate sanitation, proper handwashing may not be possible, increasing the risk of faecal-oral transmission of diseases.
3. UV radiation from the sun damages DNA, increasing the risk of skin cancer.
   UV-A: Contributes to premature aging and may increase skin cancer risk.

UV-B: Primary cause of sunburn, directly damages DNA, and is a major risk factor for skin cancer, including melanoma.
UV radiation can cause mutations in DNA, leading to uncontrolled cell growth.
Other factors: Sun exposure, skin type, and family history also influence skin cancer risk.

4. Overcrowding: Increases the concentration of airborne pathogens, facilitating the spread of respiratory infections.
   Poor sanitation: Contributes to the transmission of waterborne and other infectious diseases.
   Pesticide use: Can lead to acute and chronic health effects, including cancer and neurological disorders.
   Climate change: Can alter disease patterns and increase the spread of vector-borne diseases.

p.334

Recap questions

1. Epidemiology is the study of how often diseases occur in different groups of people and why.
2. Endemic diseases are those that are constantly present at a low level in a particular geographic area.
3. Epidemic diseases occur when a disease spreads rapidly and affects a significant number of people in a specific geographic area within a short period.
4. A pandemic is an epidemic that has spread over multiple countries or continents, affecting a large number of people.
5. Symptoms of chickenpox include fever, headache, loss of appetite, and a rash of itchy, fluid-filled blisters.
6. The spread of infectious diseases can be classified into different categories based on their geographic scope and impact (e.g., endemic, epidemic, pandemic).
7. Factors that can lead to changes in the classification of a disease include changes in public health measures, the emergence of new strains, and increased global travel.
8. Public health measures that can be used to prevent the spread of disease include vaccination, improved sanitation, and the control of disease vectors (e.g., mosquitoes).

p. 334

Activity

1. Lower vaccination rates lead to increased susceptibility in the population.
   Reduced herd immunity makes it easier for the virus to spread.
   Outbreaks can occur more easily and affect more people.
2. Vaccination campaigns to ensure high immunisation rate.
   Isolation of infected individuals to prevent further transmission.
   Improved hygiene and sanitation practices within the school.
   Education campaigns to raise awareness about the importance of handwashing.
3. Epidemiology helps identify patterns and trends in disease occurrence.
   Enables the identification of risk factors and vulnerable populations.
   Informs public health interventions such as vaccination programs, contact tracing, and outbreak control measures.
   Examples: Investigation of the COVID-19 pandemic, surveillance of influenza outbreaks.

p.334

Apply your understanding

1. Measles is a highly contagious and potentially serious disease, especially in young children. Outbreaks can occur quickly in settings like nurseries where children are in close contact. Complications of measles can include pneumonia, encephalitis, and even death.
2. High fever/ cough / runny nose/ watery eyes/ distinctive red rash
3. Temporary closure and disinfection of the nursery
   Exclusion of unvaccinated children
   Immunisation campaign to increase vaccination rates
4. High vaccination rates among children are vital in preventing measles outbreaks.
   Early identification and isolation of suspected cases can help to prevent further spread.

p.336

Recap questions

1. The WHO provides leadership, coordinates international response efforts, and shares information and expertise across countries.
   It provides guidance to countries, allocates resources (including financial assistance and medical supplies), and monitors the situation to prevent the spread of disease.
   The WHO also develops and maintains global surveillance systems to detect and report any outbreaks promptly.
2. Implementing public health measures, such as quarantine, isolation, and social distancing.
   allocating resources (money, personnel, equipment and facilities) for research, vaccine development, and healthcare infrastructure.
   providing clear and timely information to the public about the outbreak, its risks, and recommended precautions.
3. Scientists, particularly epidemiologists, are essential for tracking the spread of the disease, identifying risk factors, and developing effective control strategies. They also contribute to the development of vaccines and treatments.
4. The financial cost of an outbreak can be substantial, including expenses for healthcare, research, and public health measures. During COVID-19 hospitals desperately needed to buy more PPE, money was needed for vaccine research and rolling out the vaccine programme, there was also the cost of COVID testing kits.
5. A sufficient number of healthcare workers, such as doctors and nurses, are essential to provide care to infected individuals and manage the outbreak. During the COVID-19 pandemic many retired doctors and nurses returned to the profession to ensure there was sufficient healthcare workers. Army medical personnel also contributed to caring for patients.
6. Cultural beliefs and practices can influence people's attitudes towards disease and their willingness to adopt preventative measures. It is important to consider these factors when designing public health interventions.

p.336

p.337

Recap questions

1. Fever, cough, respiratory distress, etc.
2. The fear and uncertainty associated with a disease outbreak can lead to anxiety, depression, and other mental health issues. Individuals may be required to isolate themselves to prevent the spread of the disease, leading to feelings of loneliness and social isolation.
3.
   - Medical expenses
   - Lost wages
   - Increased costs of living can put a significant financial strain on families.
4.
   - A surge in cases can overwhelm healthcare systems, leading to delays in treatment and increased mortality rates.
   - Disease outbreaks can disrupt businesses, supply chains, and tourism, leading to economic losses.
5. In a crisis, experimental drugs may offer the only hope for survival. Drugs will often bypass the usual stages in approval if there is sufficient evidence that they might be lifesaving.
6. Using untested drugs raises concerns about potential side effects and long-term consequences. Informed consent is vital but may be difficult to obtain in emergency situations.

p.339

Activity

1. Antibiotic resistance occurs when bacteria evolve and become resistant to the effects of antibiotics, making infections harder to treat.
2. Vaccine hesitancy describes a reluctance or unwillingness to receive recommended vaccinations despite their availability.
3. Cultural beliefs can influence acceptance of medical interventions (e.g., vaccination, quarantine).
   Religious beliefs may have concerns about certain vaccine components.
   Cultural norms may impact willingness to adhere to public health guidelines – mistrust of authorities.
4. Difficult decisions regarding who receives limited resources (e.g., ventilators, ICU beds).
   Potential for bias and discrimination in resource allocation decisions.
5. Community engagement is essential for successful disease control efforts - building trust and addressing community concerns are crucial.
   Community involvement in decision-making processes can improve acceptance of public health measures.
   Examples of community engagement: public health campaigns, community forums, partnerships with local organisations.

p.339

Activity

Please see section D2 for help with this. The skill you need to practise is selecting relevant info.

p.339

Recap questions

1. Some religious beliefs may have concerns about certain vaccine components, leading to refusal or hesitancy. For example, some vaccines may contain traces of animal products, which can be a concern for individuals with dietary restrictions or religious objections to consuming certain animal products.
2. Misinformation and distrust of authorities can limit public health efforts and lead to non-compliance with preventive measures.
   The rise in the spread of misinformation and conspiracy theories about vaccines through social media and other channels can lead to vaccine hesitancy.
3. Language barriers can prevent communication and understanding of health information, leading to non-compliance with treatment programmes.
4. Governments should ensure the information is widely available in a variety of languages.
5. Antibiotics are drugs used to kill bacteria and stop bacterial infections.
6. Overuse and misuse of antibiotics.
7. Overuse of antibiotics in animal agriculture can lead to the development of antibiotic-resistant bacteria in animals, which can then spread to humans.
8. Antibiotic resistance can lead to serious infections that are difficult or impossible to treat, potentially increasing mortality rates.

p.339

Apply your understanding

1. Misinformation: The spread of false or misleading information about vaccine safety, such as the link between vaccines and autism, can create fear and distrust among parents.
   Distrust in Authorities: A lack of trust in government institutions and pharmaceutical companies can make people hesitant to accept recommendations for vaccination.
   Cultural Beliefs: Certain cultural or religious beliefs may oppose vaccination for various reasons, leading to resistance within specific communities.
   Lack of Access: Limited access to healthcare providers, particularly in rural or underserved areas, can create barriers to vaccination.
2. Misinformation and distrust in authorities can significantly increase vaccine hesitancy.
   False or misleading information online or through social media, can create fear and anxiety about vaccine safety.
3. Engaging with Community Leaders: Collaborating with respected community leaders, such as religious figures or elders, to understand and address specific cultural concerns.
   Culturally Sensitive Communication: Tailoring communication strategies in line with specific cultural values and beliefs.
   Community-Based Programs: Developing and implementing culturally appropriate educational information that addresses vaccine safety and dispels myths in a respectful and culturally sensitive manner.

4. Mobile Vaccination Clinics: Setting up mobile vaccination clinics in underserved areas to increase accessibility.
   Extended Clinic Hours: Offering flexible clinic hours to accommodate the schedules of working parents.
   Community-Based Vaccination Programs: Partnering with community organisations to host vaccination events in familiar and accessible locations.