Knowledge organiser Paper 1: section b medicine Through Time c1250-present

Enquiry 1: Why was there no medical progress in medieval Britain?

The medieval period c1250-c1500: The medieval period was a tough time to live. Most people had to work in the fields, growing and harvesting crops for the land-owners. Sickness was frequently caused by famine and malnutrition and it wasn't any better in the towns where dirty, crowded streets and no proper sewage meant that disease spread quickly.

The Catholic Church was incredibly powerful during this period as most people were devoutly religious and the Church was their only source of education. This meant most people thought sickness and disease was God's punishment so there was very little scientific enquiry during this period. The Church chose to promote the work of ancient physicians Hippocrates and Galen but no new ideas about medicine came out of this period.

1. Thinking around causes of illness in Medieval period

Religion	The Catholic Church taught that illness was a punishment from God or a test of faith.
Miasma	A belief that disease was caused by foul smelling or 'bad' air
Four Humours	An ancient Greek doctor, **Hippocrates**, created a theory that the body contained four fluids; blood, phlegm, yellow bile, & black bile, and all 4 must be in balance to be healthy. This theory was developed further by the Roman doctor, **Galen**.
Astrology	A belief that that the alignment of the planets and stars could cause illness.

2. Treatments in the Medieval Period

Religious	Praying, pilgrimages, fasting, self-flagellation
Miasma	Herbs burnt and fires lit to ward-off bad smells Keeping clean (regimen sanitatis)
Humoral	Bloodletting - leeches, cupping & cutting the veins Purging – make the patient vomit or use a laxative to make them go to the toilet Remedies and bathing – herbal remedies, steam baths
Astrological	Star charts consulted before treating. Treatments depended on alignment of the planets Herbs, bleeding, purging, cutting hair and nails at right time
Barber surgeon	Barbers who carried out simple operations. Teeth pulling and amputations. Had no formal training.

3. Prevention of illness

Hospitals	30% of hospitals were owned by the Church. Run by monks & nuns Other hospitals funded by charitable donations. Mainly places to rest and recover. No treatment other than prayers Most care was provided by women at home.
Physicians	Diagnosed illness, recommended treatment. Diagnosis based on the work of Galen and Hippocrates Studied at university for 7 years. Did not treat patients.
Apothecaries	Mixed herbal remedies. Had no formal training, mainly apprenticeships.

4. Case study: The Black Death, 1348

Symptoms included buboes in the armpit, fever and chills, headaches, vomiting	**Prevention** methods included praying and fasting, clearing up rubbish in the streets, carrying herbs and spices.
Causes included God, the position of the planets, miasma, an imbalance in the Four Humours.	**Treatments** included praying, cutting open buboes to drain the pus, eating cool food and cold baths.

Enquiry 1 keywords:

Apothecary mixed and sold herbal remedies and poisons.	**Factors** Something that can affect change	**Progress** Positive change
Barber surgeons someone who provided haircuts and carried out some medical treatments	**Four Humours** Theory about balance of the four liquids within the body	**Purging** Getting rid of any food left in the patient's system through vomiting and laxatives
Bloodletting Drawing blood out of the body to balance the humours	**Miasma** Bad air that could transmit disease	**Quarantine** Separating the sick from the healthy to stop the spread of disease.
Bubonic plague The disease that caused the Black Death	**Physician** Diagnosed illness and recommended a treatment	**Surgeon** Performs surgical treatments
Diagnosis Physician's suggestion of what a patient is suffering with based on observation of symptoms	**Posy** A bunch of flowers or herbs	**Trend** When there is a number of similar and related changes over a period of time

What changed?

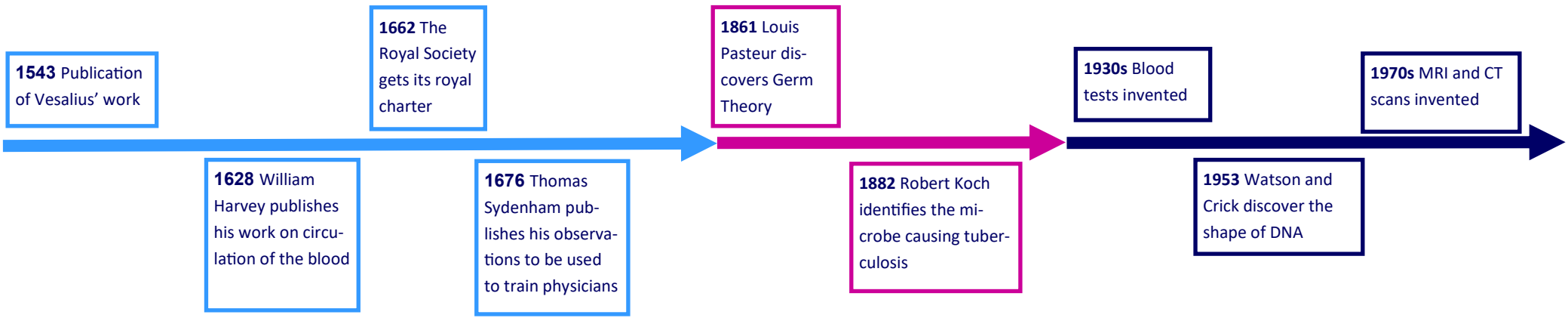
Overall, this was a period of **continuity** with no new thinking or understanding across causes, treatment or prevention of illness and disease because of this there is no need to consider pace or extent of change but instead understand why things failed to change.

Organisations	The Church controlled most aspects of society including medicine and the Church was very interested in maintaining the status quo (*keeping things the same)* and holding on to its power and influence. The Church controlled medical learning and chose which books were copied and distributed The Church liked the Theory of Four Humours because it fitted with their teachings, so it promoted the theory and strongly discouraged any criticism. Local authorities and government stepped up to take some action during the Black Death but did not yet shape how disease was treated or prevented.
Individuals	Hippocrates and Galen were important individuals even though they had lived and died many years before. Galen in particular was popular with the Church, which meant his work was widely promoted.
Science and technology	There were no scientific innovations in this period. A lack of scientific understanding meant that new knowledge was limited. However, there was one important piece of technology invented in the later part of this period, and that was the printing press in 1440. This allowed for faster and easier sharing of medical texts rather than relying on monks selecting and hand copying them. However, the impact of the printing press was not really felt in this period.
Attitudes in society	People were devoutly religious and in general were not educated outside of the Church. People who might have thought differently, did not dare criticise the Church and risk going to hell. This also meant that doctors who did not practise the Four Humours, were not hired, even though the ideas of Hippocrates and Galen were outdated. It was not until the Black Death in 1348 that people started to look for answers beyond the teachings of the Church and question its authority

Have you mastered the medieval period? Make sure you can answer the questions below:	
1. Is change the same as progress?	11. Why did medieval people use sweet smelling herbs to prevent the spread of disease?
2. What is a turning point?	12. What was a phlebotomy chart used for?
3. How do you define continuity?	13. What were two humoral cures for disease?
4. Where did the Theory of Four Humours come from?	14. What was the Regimen Sanitatis?
5. What were the four humours?	15. What was the main role of a physician?
6. Why was Galen so popular in the medieval period?	16. In what ways did women care for the sick at home?
7. What is miasma	17. How were hospitals used in the medieval period?
8. How did astrology cause disease?	18. What did local authorities do to try and chase the plague away?
9. Who controlled medieval attitudes about sickness and disease?	19. Why were there so few treatments for the plague?
10. What were three ways you could appease God if you wanted to cure your sickness?	20. What did the government put in place to prevent the plague from spreading?

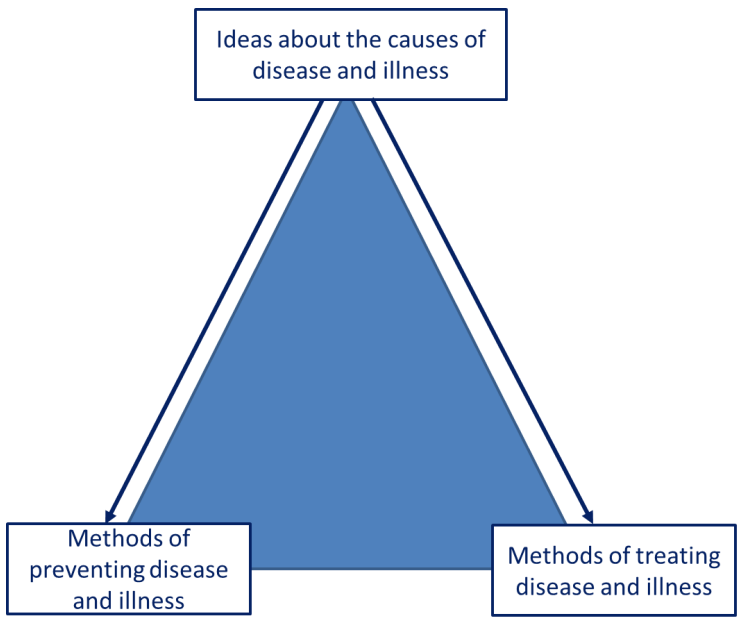
Knowledge organiser Paper 1: section b medicine Through Time c1250-present

Enquiry 2: How quickly did ideas about what caused disease change?



Thinking around the causes of disease: The key to this enquiry is 'how quickly' did change happen. So be aware, not just of what changed, but at what **pace** and the extent of change within each period. Ideas about the causes of disease are important because they determine how disease is treated and methods of prevention. That's why 'ideas about causes of illness and disease' is at the top of the triangle—arguably it is the most important aspect of the practice of medicine. If you understand why change occurred in the thinking around causes of disease and how they changed you will understand why and how treatment and prevention changed.

This enquiry begins in the **Renaissance period**, c1500. In this period, while the practice of medicine did not change much at all, ideas were stating to change. The Reformation had ended the dominance of the Church and scientific thinking was beginning to emerge. By the end of the 17th century very few doctors believed in the Four Humours. By the **industrial period** between c1700 and c1900, the Church had lost its authority over everyday life and medicine. The great medical breakthrough was germ theory, so although the period begins with apothecaries, herbal remedies and bleeding and purging still happening, by 1900 germs had been discovered. However, people were not quite ready for germ theory and it took scientific proof of its effectiveness for it to become accepted. By the **modern period**, beginning in 1900, change was moving rapidly with major advances in science and technology. Scientists discovered how DNA worked and that led to an understanding of genetic causes of disease. Lifestyle factors were also investigated as another potential cause of disease.



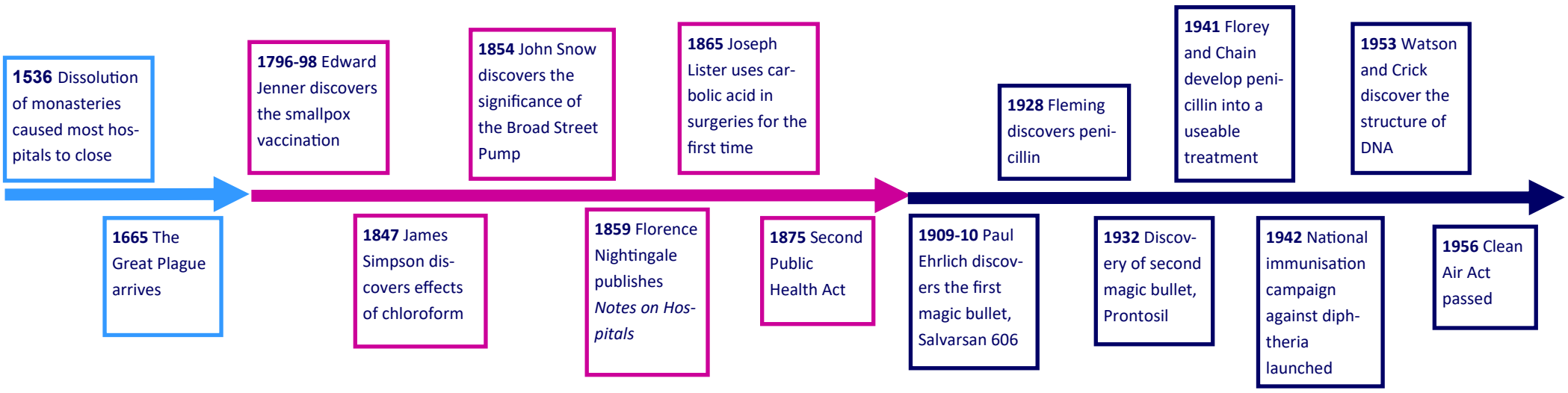
1. Thinking around causes of illness c1500-present day	
Religion	The Catholic Church taught that illness was a punishment from God or a test of faith.
Miasma	A belief that disease was caused by foul smelling or 'bad' air
Four Humours	An ancient Greek doctor, **Hippocrates**, created a theory that the body contained four fluids; blood, phlegm, yellow bile, & black bile, and all 4 must be in balance to be healthy. This theory was developed further by the Roman doctor, **Galen**.
Astrology	A belief that that the alignment of the planets and stars could cause illness.
Spontaneous generation	A theory that claimed rotting matter created microbes that spread through miasma.
Germ theory	Louis Pasteur's theory that stated there were microbes in the air and that these microbes caused decay. Robert Koch went onto prove that microbes caused specific diseases.
Genetics	By 1900, it was clear the microbes did not cause all diseases. The discovery of the structure of DNA and the mapping of the human genome led doctors to be able to identify mistakes or mismatches in DNA leading to diseases being inherited by children from their parents.
Lifestyle	In the 20th century a better understanding as gained as to the impact of lifestyle choices in causing disease, such as smoking, alcohol consumption and unhealthy diets. These could be causes of disease like cancer, which became a major problem in the modern period.
New technology	From 1900 onwards, there was rapid development in diagnostic technology that helped doctors to understand why a patient was unwell. These included X-rays, blood tests, MRI and CT scans, ultrasounds and ECGs.

Enquiry 2 keywords:		
Anatomy Knowledge of the structure of the body and how it works, inside and out	**Enlightenment** an intellectual movement from the 17th and 18th centuries emphasizing reason and science rather than tradition	**Humanism** A belief in the importance of science to help understand how the world works
Dissection Cutting up a dead body in order to study how it works	**Gene** A selection of your DNA containing information inherited from your parents	**Microbe** Any living organism too small to see without a microscope
DNA Carries genetic information and decides characteristics like eye colour	**Genome** The complete set of DNA containing all the information to build a particular organism.	**Microscope** An instrument used for viewing very small objects like microbes
Empiricism The concept of using observation and experience to form rational beliefs	**Hereditary** When genes (including those that lead to disease) are inherited by a child	**Organic** Something that is living or has once been alive

What changed?			
	The Renaissance Period c1500-c1700	**The industrial period c1700-c1900**	**The modern period c1900-present day**
Organisations	The reformation meant the Church was no longer so dominant especially within scientific circles. Scientists were turning to humanism, not religion.	The Church lost all influence in medicine but the government was beginning to get more involved , less so in the thinking around causes of disease.	The government established the NHS in 1948 and this led to free access to care—people could access high tech diagnostic machinery.
Individuals	Andreas Vesalius used anatomy to change understanding of the human body, identifying 300 of Galen's mistakes. Thomas Sydenham championed observation of a patient's specific symptoms moving on from treating humours. William Harvey discovered that the heart pumped blood around the body.	Louis Pasteur discovered Germ Theory. Understanding of what caused disease moved on from humours to germs. Robert Koch used germ theory to identify disease causing microbes, which would lead to vaccines and better treatments.	Watson and Crick discovered the shape of DNA and took us closer to understanding how genetics could cause disease, as well as germs.
Science and technology	The Royal Society made it possible for physicians and scientists to access and study each others' research. It was therefore, very important in the development of new medical ideas. A more powerful microscope was invented in 1683 that allowed for the observation of 'animalcules' This was important for discoveries to come.	This period was the second wave of the Scientific Revolution. Scientists shared their work and read each others' ideas. Germ Theory inspired a number of other important developments. The microscope was still the most important piece of technology as higher magnification made it possible to see microbes.	High-tech diagnostic machinery and equipment meant that understanding why someone might be ill became a lot easier. It has made the practice of medicine unrecognisable from earlier periods. A better understanding of DNA has helped scientists to recognise genetic disorders, which could in the future lead to treatment.
Attitudes in society	In this period there was a fight between traditional attitudes and change. But for ordinary people tradition won out. New ideas were not yet accepted and traditional ideas were clung too, despite them seeming outdated and ineffective.	People were more determined to discover what caused illness and disease, they were horrified by the sights they saw on the street and the impact of bad health on the poor. However, people were reluctant to open their minds to new ideas which slowed the spread of germ theory.	In general, with the advent of WWI and WWI public attitudes about the rapid developments in diagnosing medicine were positive. People felt more informed and could make better choices or access more appropriate treatment. This means changes can have an immediate impct.
Extent of change	No real change in the practice of medicine but a better understanding of the human body emerged because of the practice of anatomy.	Important progress made that would effect future health.	Significant change is made in this period. However genetic medicine has not resulted in any new treatments.
Pace of change	Very gradual. It might seem that in the practice of medicine there was almost continuity with the medieval period but change was happening that would bear results in the future.	There was definitely progress from the 19th century but this did not start to have effects until the end of the century.	Rapid. Change continues today at an astounding rate, with new ideas and discoveries made all the time.

Have you mastered ideas about what caused disease? Make sure you can answer the questions below:	
1. How did the education of doctor's change with the decline in authority of the Church?	11. Why did spontaneous generation turn out to be incorrect?
2. which medieval invention allowed for new ideas to spread quickly across Europe?	12. Who published the idea of Germ Theory?
3. What was humanism?	13. How did Koch prove the usefulness of Germ Theory?
4. Why was Thomas Sydenham known as the English Hippocrates?	14. What technology enabled Koch to make his discovery?
5. What was the scientific journal published by the Royal Society?	15. Who identified the shape of DNA?
6. Who discovered 'animalcules'?	16. What did the Huma Genome Project identify?
7. What were two errors made by Galen as identified by Vesalius?	17. Why are the discoveries about DNA so important for the development of medicine?
8. How did Vesalius make his discoveries?	18. Can you identify three lifestyle factors that can cause disease?
9. What did William Harvey discover about the heart?	19. Can you identify three high-tech pieces of diagnostic equipment?
10. What did William Harvey discoveries correct Galen's ideas?	20. How have public attitudes shifted from c1500 to the present day?

Enquiry 3: Why did ideas about prevention and treatment change over time?



Treatment and prevention of disease: The pattern of change and continuity in treatment followed that of ideas about the causes of illness and disease. But treatments did not always immediately change after those discoveries. There is a similar time lag with prevention methods

This enquiry begins in the **Renaissance period**, c1500The discoveries of Vesalius and Harvey did not equate to new treatments and prevention was avoiding miasma. In the **industrial period** from 1700, surgeries improved with the use of chloroform as an anaesthetic and carbolic acid as an antiseptic. Inoculation and government involvement in public health moved prevention methods forward as germ theory led to abetter understanding. By the **modern period** chemical cures such as antibiotics and penicillin were used for illness and there were great improvement in surgery allowing for more complicated surgeries. High tech methods of treatment like radiation and chemotherapy were pioneered. The government founded the NHS to provide all of the public with free access to medical care. The government also became more involved in prevention by passing legislation and with lifestyle campaigns.

1. Treatments c1500-present day

Religious	Praying, pilgrimages, fasting, self-flagellation
Miasma	Herbs burnt and fires lit to ward-off bad smells Keeping your body clean (regimen sanitatis) and keeping the streets clean.
Humoral	Bloodletting - leeches, cupping & cutting the veins Purging – make the patient vomit or use a laxative to make them go to the toilet Remedies and bathing – herbal remedies, steam baths
Transference	The belief that you could transfer an illness from the patient to something else.
Physicians, apothecaries and barber surgeons	Improved training from 1500. Physicians attended university and were now learnt about anatomy through dissection. Surgeons completed basic operations and were cheap, it was now necessary to hold a licence. Apothecaries had an improved medical education and had to hold a licence.
Hospitals	Hospitals in 1500 were treating sick people and used less by travellers and pilgrims, they were now run by physicians. Pest Houses also appeared for those suffering with infectious diseases. In the 19th century Florence Nightingale introduced the Pavilion Style to hospital and improved the training of nurses. She also ensured hospitals became cleaner places.
Anaesthetics	James Simpson discovered chloroform could be used as an effective anaesthetic in 1847.
Antiseptics	Joseph Lister began using carbolic acid during surgeries to kill infections from 1865. Eventually all surgical instruments were steam cleaned before surgeries leading to aseptic surgery.
Magic bullets and penicillin	In the 20th century chemical cures were discovered to kill germs. The first magic bullet was Salvarsan 606.This work led to Fleming's discovery of Penicillin and its development into a useable treatment by Florey and Chain.
High-tech medical equipment	Radiotherapy and chemotherapy became common treatment in the modern period to treat and shrink tumours. Robotics led to better prosthetic limbs and computer controlled surgeries. Machines became smaller and cheaper impacting processes like dialysis.

2. Prevention of illness c1500-present day

Quarantine	During the Great Plague the government tried to quarantine the infected within their home
Inoculation and vaccination	Initially smallpox was treated by inoculation. Edward Jenner invented a vaccine for smallpox which led to its eradication. Louis Pasteur created vaccinations for different diseases. In the modern period, the government made vaccinations for preventable diseases compulsory.
Aseptic surgery	Surgical instruments were sterilised with steam, operating theatres were scrubbed spotless, rubber gloves and surgical gowns were introduced and surgeons used face masks.
Public Health	The government became more involved in preventing disease from the 19th century once it was understood what caused it. The government stepped in to improve living conditions through legislation.
Lifestyle campaigns	In the 20th century, lifestyle factors were identified as causing certain diseases and the government launched campaigns to persuade people to live healthier lives in order to prevent getting these diseases.

3. Case study: The Great Plague, 1665

Treatments included transference, herbal remedies and quack doctors.	**Prevention** methods included quarantining anyone who had the plague, large public meetings were banned, prayer and repentance, carrying a pomander, cleaning streets and killing stray animals.
Most people now recognised that the plague was spread from person to person.	The local government in London took a lot more action than in previous outbreaks.

4. Case study: Cholera and Public Health

Government policy	In the early 1800s believed in a 'laissez-faire' approach. Which meant they did not intervene in people's health. This changed during the 1800s to try and solve cholera epidemics
John Snow	In 1854 he proved that cholera was caused by dirty water (however he could not explain the science until Germ Theory was developed) Snow made his discovery by studying infections around the Broad Street water pump
Public Health Acts	1848 The first act encouraged clean water supplies 1875 The second act forced councils to provide clean water, sewage and monitor disease outbreaks

5. Case Study: Penicillin

Alexander Fleming	Researched infections in wounded soldiers during WW1 In 1928 he discovered that a mould (penicillin) could kill bacteria. He did not develop this into a usable medication
Florey and Chain	In 1939 these 2 men used Fleming's research to produce penicillin to successfully treat blood infections but they struggled to produce enough of medication
Factors that helped development	US government helped fund mass production of penicillin during WW2 By end of the war 2.3 million doses had been produced.

6. Case Study: Lung Cancer

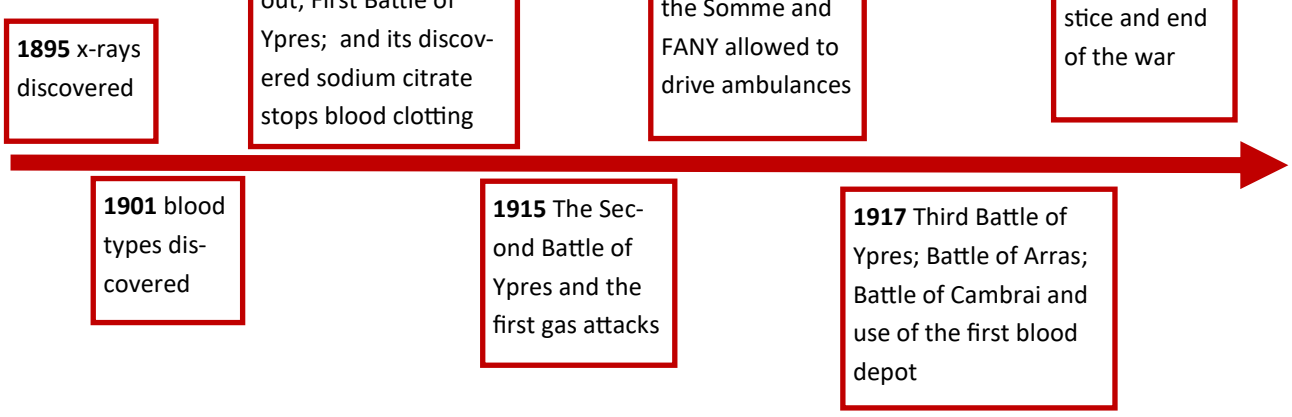
Diagnosis	Lung cancer 2nd most common cancer in the UK Scans allow for early detection
Treatment	Lung transplants Radiotherapy and chemotherapy can limit growth of cancerous cells
Preventions	Raised awareness of symptoms Stop smoking adverts Laws on the sale of tobacco products

Enquiry 3 keywords:		
Anaesthetic A substance taken before surgery to prevent a patient feeling pain	**Hypodermic needle** Used to inject medicine directly into the bloodstream	**Pest house** A type of hospital for people suffering from plague or pox
Aseptic surgery Surgery where germs are prevented from getting into a wound in the first place	**Inoculation** Deliberately infecting yourself with a disease, in order to avoid a more severe case later	**Pomander** A large locket containing perfumed substances
Antibodies Proteins created by the immune system to fight a specific bacteria	**Laissez-faire** means 'leave be' and describes governments that do not get involved in the lives of the people they govern	**Quack Doctor** Somebody who did not have any medical qualifications
Antibiotics Any treatment that destroys or limits the growth of bacteria in the human body	**Legislation** A law that has been passed by the government	**Radiation** A type of energy that can damage the body's cells if a person is exposed to it too much.
Antiseptic surgery Using substances that kill germs to dress wounds after surgery or to kill them during	**Magic bullet** describe a chemical cure that would target and attack the disease causing microbes in the body, while leaving	**Smallpox** A disease causing fever, vomiting and blisters on the skin.
Campaign Organised activities for a specific purpose	**Medical chemistry** Using science to find chemical cures for diseases	**Transference** A belief that illness could be transferred from a person to an object
Contaminated When something is added to a clean substance making it dirty	**NHS** National Health Service	**Tumour** A lump made up of abnormal cells
Fasting Not taking any food or drink	**Pavilion style** A hospital designed with large windows for ventilation, easy clean surfaces, larger rooms and separate	**Vaccination** A weakened form of a disease put into a health person to give them immunity

What changed?			
	The Renaissance Period c1500-c1700	**The industrial period c1700-c1900**	**The modern period c1900-present day**
Organisations	The government pioneered quarantine during the Great Plague and fined individuals who didn't clean the street outside their home.	The government changed its laissez-faire policy on public health and passed two Public Health Acts making cities cleaner and safer.	The government established the NHS in 1948. The government continued public health duties with lifestyle campaigns and compulsory vaccinations.
Individuals	Andreas Vesalius and William Harvey would impact how scientists and doctors looked at and understood the human body in the industrial period.	John Snow discovered the link between dirty water and cholera leading to changed in public health. Edward Jenner discovered vaccinations which led to infectious disease becoming preventable. Joseph Lister and James Simpson overcame two of the big three problems of surgery making it safer. Florence Nightingale made hospitals cleaner and safer and	Fleming discovered penicillin and Florey and Chain developed it into a useable treatment for infectious diseases.
Science and technology	Barometers and thermostats began to be used as people saw that understanding the weather might help to prevent illness. Scientific investigation focused on how the body worked rather than treatment.	Germ Theory led to scientists working to identify different microbes. It also led to improvements in surgical treatments because of anaesthetics and antiseptic surgery.	Scientists worked to develop new chemical medicines and to map the human genome with the Human Genome Project. Technology continued to exponentially improve leading to high-tech surgical and medical treatments.
Attitudes in society	There was more interest in science leading to a 'medical renaissance'. People still practiced	By the end of this period people believed that germs spread disease and were open to new types of treatments and pre-	With science and technology advancing every aspect of life, people continued to accept innovation in medicine.
Extent of change	Physicians continued to bleed and purge. Some new herbal remedies emerged from the New	Public health emerged as a key tool in preventing disease. Hospital care and treatment greatly improved.	Revolutionary changes to treatment and prevention means people live longer and have better quality of life.
Pace of change	Very gradual. Physician training improved but no new treatments or ideas about prevention	Quicker. Surgery was now safer and hospitals were cleaner and more effective by the end of this period.	Rapid. Change in modern medicine happens almost continuously.

Have you mastered ideas about how disease was treated and prevented? Make sure you can answer the questions below:	
1. How did hospitals change from 1500?	15. What did pavilion plan hospitals look like?
2. what was the King's Touch?	16. What impact did Florence Nightingale have on the nursing profession?
3. How did training for physicians change in the Renaissance period?	17. How did the discovery of chloroform improve surgery in the 19th century?
4. What actions did the government take to prevent the spread of the Great Plague?	18. How did Joseph Lister's discovery change how surgery was practiced?
5. Why were government orders so hard to enforce?	19. Which of surgeries big 3 problems remained unresolved at the end of the 19th century?
6. How did people attempt to protect themselves from Smallpox?	20. Who did the NHS provide free care to that had previously been excluded?
7. Which groups opposed the vaccination and why?	21. Why did the NHS not have an immediate impact with its founding in 1948?
8. When was compulsory vaccination enforced?	22. How did the NHS change where sick people were treated?
9. Where did John Snow track the 1854 cholera outbreak to?	23. Can you list 3 compulsory vaccination programmes and when they were implemented?
10. How did scientists and government respond to Snow's findings in the short term?	24. Can you nae 3 ways the government sought to prevent disease in the 20th century?
11. What approach did the government take to public health before the 19th century?	25. Who invented the first magic bullet and what was it called?
12. Can you list 3 things the government had to provide under the Public Health Act 1875?	26. How did antibiotics change the way infectious disease was treated?
13. How did Pasteur advance vaccinations in 1878?	27. How did Florey and Chain ensure penicillin was developed into a useable treatment?
14. Can you identify 3 issues with hospitals at the beginning of the industrial period?	28. Can you name at least 3 ways the government has sought to prevent lung cancer?

Enquiry: What impact did the Western Front have on medical developments?



WWI 1914-1918: British soldiers fought in trenches along the Western Front and were in danger from many different things. Whilst fighting, soldiers faced danger from shelling, grenades, machine gun fire and gas. Disease was another threat, arising from the unhygienic conditions of the trenches. Of course, mental health was severely impacted and some soldiers developed shell shock.

There were 2.7 million British casualties on the Western Front and approximately 2 million of these men received medical care. About 150,000 of those men who received medical care died but the vast majority survived. This shows that medical care during the war was more often very successful, particularly in responding to unknown or little understood injuries and illnesses. New areas of medicine were developed in response, like plastic surgery or neurosurgery and recent ideas, like blood transfusions, were improved upon.

1. Medicine at the beginning of the 20th century	
X-rays	Invented by William Roentgen in 1895. These were large, fragile and slow and the health risks were not yet fully understood.
Aseptic surgery	The steam sterilisation of surgical instruments and all doctors and nurses washing hands, arms and faces as well as wearing masks and rubber gloves. The air was also sterilised in operating theatres to kill germs.
Blood transfusions	Blood transfusions were successful but blood could not yet be stored and blood clotted as soon as it left the body. Blood groups were discovered in 1901 which meant transfusions were less likely to fail because the donor's blood was rejected by the patient.

2. Trenches and key battles	
Trenches	Dug to a depth of about 2.5 m and were easier to defend than attack. Made up of a frontline, support trench, the reserve trench and the communications trench. Protected by machine guns and barbed wire. The soldiers stood on a duckboard to avoid the mud, behind the parapet.
The First Battle of Ypres	The British blew up Hill-60 by tunnelling underneath it and reclaimed the high ground from the Germans. The British held onto control of the English Channel ports, so that supplies and reinforcements could reach them.
The Second Battle of Ypres	The Germans used chlorine gas on the Western Front, the first use of gas in the war.
Battle of the Somme	The first use of tanks in warfare, however there were many technical problems and they were not very successful. Huge number of British casualties, around 400,000.
Battle of Arras	The British dug tunnels, linking existing caves and quarries to act as shelters against German attacks. The tunnels contained a light railway system and a fully functioning hospital.
The Third Battle of Ypres	Rain caused the terrain to become waterlogged. Men fell in shell holes and drowned.
Battle of Cambrai	The first use of stored blood to treat wounded soldiers. The first large-scale use of tanks which were now able to move easily across the terrain and barbed wire.

3. Conditions requiring medical treatment	
Wounds	High explosive shells and shrapnel were responsible for 58% of wounds. Bullets were responsible for 39% of wounds. Head wounds were very common on the Western Front and were mostly caused by shrapnel.
Wound infection	The soil on the Western Front contained all sorts of bacteria. From late 1914, tetanus injections were given but there was nothing to prevent gas gangrene.
Illness	Caused by lice, Trench fever produced flu like symptom which could last for months and kept reoccurring. Trench foot was caused by standing in waterlogged trenches. It could lead to gangrene and was treated with amputation
Mental health	Shell shock was thought to be caused by heavy exposure to constant bombardment, but it was little understood and sufferers were sometimes accused of cowardice.
Gas attacks	These were greatly feared but not a major cause of death.

4. New techniques in medical care	
Carrel-Dakin method	Washing the wound out with a sterilised salt solution and using a system of tubes to keep the solution flowing through the wound to fight infection.
Thomas splint	Pulled the leg lengthways and kept it rigid, stopping the bones from grinding against one another and so greatly reduced blood loss
Storage of blood	Before the Battle of Cambrai in 1917, 22 units of type O donor blood was stored in glass bottles. During the battle, 20 Canadian soldiers were treated with the blood which was collected 26 days earlier, these men were not expected to survive, in fact 11 of the 20 wounded men did survive .
Mobile x-rays	There were six mobile x-ray units operating in the British sector of the Western Front. The x-ray machine was inside a van and linked to its engine.
Brain surgery	**Harvey Cushing**, an American neurosurgeon, developed new techniques on the Western Front. He used magnets to remove metal fragments from the brain. He also used a local anaesthetic when operating .The survival rate was 71% up from 50%.
Plastic surgery	Head injuries that did not kill, could cause severe disfigurement and this led the doctor Harold Gillies to become interested in facial reconstruction.. He devised new operations to deal with problems as he saw them .

5. Stages of treatment	
RAMC	All medical officers were members of the Royal Army Medical Corps
FANY	Female volunteers, driving ambulances from 1916
RAP	Took care of the walking wounded, 200m from the frontline
Dressing Stations	Treated men too seriously injured for the RAP, 400 m from the frontline
CCS	Staffed by trained doctors and nurses, located further from frontline for protection from attack. Triaged the wounded and carried out life-saving operations.
Base Hospital	Based on the French and Belgian coast and accessed by rail. Had more resources, including laboratories and x-ray departments.

Enquiry 4 keywords:		
Amputate To cut off a body part	**Lice** Small insects that lived on the body and in clothes, feeding on blood and creating itchy bites	**Shrapnel** Bits of metal from explosions
Blood transfusion Blood taken from a healthy person and given to someone who has lost a lot of blood	**Neurosurgery** surgery carried out on the nervous system, in particular the brain and spine	**Splint** Used to stop an injured limb moving
Disfigurement A wound that changes how a body looks	**RAMC** Royal Army Medical Corps, the branch of the army responsible for medical care. All medical officers belonged to the RAMC	**The Ypres Salient** An area of the battlefield that extends into enemy territory and is surrounded on three sides by the enemy
FANY First Aid Nursing Yeomanry	**Shelling** Firing large artillery shells through the air towards the enemy	**Triage** To split the wounded into groups according to who needed the most urgent care
Gangrene When body tissue is full of bacteria and starts to rot	**Shock** When the body starts to shut down from loss of blood	**Universal Blood Group** A blood group that can be used in a transfusion to a recipient with any other blood type.

Sources that can be used to follow up information from other sources:	
Type of source	**What can be learnt from this source?**
National Army records for individual soldiers	Dates of service; where soldiers fought; record of wounds; treatments and hospitals admitted to; discharge record, record of death.
National newspaper reports	Battles and number of injuries and deaths , etc; eye-witness reports; government statistics; propaganda recoded as fact (be careful but remember censorship relaxed during the war as well).
Government reports on aspects of the war	Statistics and details on spending on munitions, numbers of casualties, problems with transportation.
Medical journals/articles by doctors and nurses who took part in the war e.g. British Medical Journal	Journals are produced for medical practitioners and experts but provide insight into treatment of soldiers and new techniques developed—there were articles on head wounds and trench fever. Includes personal recollection of treatment on soldiers; details on chain of evacuation and treatment carried out at different stages; and new medical technology.
Personal accounts by doctors or other medical practitioners about conditions and treatments including diaries or personal letters	Detail thoughts, feelings and emotions as well as facts, highly personal. Only provide one person's point of view, often without broader context provided.
Photographs	An image of what was happening at one specific moment without any context or often, explanation. The photograph could be taken by an official government photographer, or someone working for a paper or it could be a personal photograph. Depending on who took it, the photograph could be staged and not necessarily typical.
Hospital/RAMC records	Date of admittance; record of injuries and care given; discharge notes; record of death; new techniques attempted.
Army statistics	Numbers fighting in each battle; number of casualties; number of deaths.

How to evaluate the utility of a source:	
Nature (provenance)	The form a source takes, such as a photograph, letter, official record or diary entry.
Origin (provenance)	The person who wrote or created the source, where and when they did it (normally found in the caption).
Purpose (provenance)	The reason a source was created, such as to inform, to persuade, or to entertain.
Provenance	The background details of the source (NOP as above).
Objectivity	How far does the perspective and purpose of the author of the source affect the view it gives on the enquiry?
Reliability	How far can the author of the source be trusted to tell us about the enquiry?
Typicality	How far does the nature of the source give us a representative view of the enquiry topic?
Authoritative	How far does the person who wrote this source have the knowledge, or experience, to tell us about the enquiry?
Limitations	What doesn't the source tell you? What information is missing? Is the information unreliable?
Utility/usefulness	The ways in which a historian could make use of this source for a particular enquiry.
Context	What do you know about the provenance and/or the content of the source from your own knowledge? How does this affect the strength of the source? Can you support or challenge the source based on what you know?
Remember: It is unlikely you will be able to discuss all these elements in the exam, as you will run out of time. Read/look at the source thoroughly and decide what would be the most suitable aspects to evaluate. For example, if you have a lot of own knowledge, you may want to discuss the limitations of the source, its typicality and objectivity. If the source looks like it may be propaganda or in some way unreliable, look at the purpose and then evaluate the reliability and objectivity of the author and the content.	

Have you mastered illness and injury on the Western Front? Make sure you can answer the questions below:	
1. Can you name 3 problems with the x-ray?	11. What caused trench foot?
2. How was rejection of donor blood overcome before the war?	12. Why was wound infection a major problem on the Western Front?
3. Which of the 3 major problems in surgery did aseptic surgery overcome?	13. How did x-ray units help prevent infection?
4. What were the main features of a trench?	14. Where and when was stored blood first used in blood transfusions?
5. What were the downsides to motorised ambulances?	15. Who developed new neurosurgical techniques during the war?
6. How did the conditions of the trenches and No Man's Land affect the work of stretcher bearers??	16. Who pioneered plastic surgery to treat facial disfigurement?
7. What weapon was first used by the Germans at the Second Battle of Ypres?	17. What was the order of the chain of evacuation?
8. What was the reserve trench used for?	18. Where did men who needed immediate surgical care go to be treated?
9. How was trench fever prevented?	19. How many men could a Dressing Station treat at a time?
10. Why were soldiers given tetanus injections?	20. What was the main purpose of the FANY?