AQA Paper 2: Health and the People

Revision Guide- Medieval and Renaissance

Name: **Teacher:**

1000-1450: The Middle Ages: Medicine Stands Still

10 Point Summary:

1. Religion played a massive part in people's lives, so many believed God was responsible for causing and curing disease.
2. Learned ideas about medicine were largely based on Ancient Greek and Roman ideas, particularly two men – Hippocrates and Galen.
3. The Four Humours were the most widely held belief about health. If your humours were out of balance you could get ill. You needed to balance them to be cured.
4. The Four Humours are blood, phlegm, yellow bile and black bile.
5. Doctors were for the wealthy. Ordinary people would visit a barber-surgeon or apothecary.
6. Many cures were herbal, though bleeding was also common to balance your humours.
7. The Church was important in setting up hospitals and caring for the sick.
8. Disease spread quickly in towns which were smelly, dirty and over-crowded.
9. Arab medicine was far more advanced than European at this time. Muslim writers such as Avicenna were responsible for saving the works of Hippocrates and Galen which were later translated back for use in Europe, as well as adding their own work.
10. The biggest health crisis in the Medieval world was the Black Death, 1348-51 in Britain. It is estimated one third of the population was killed.

General Facts about Health and Wellbeing in the Middle Ages

After the fall of Rome, there was a *regression* in medicine in Europe, and a return to a more primitive outlook.

In 1350 the average life expectancy was *30 years*. Infant mortality was high. One in five children died before their first birthday. Many women died in childbirth. People died from injury, diseases such as smallpox, leprosy and various fevers.

Hippocratic and Galenic Ideas

Hippocrates

Hippocrates was a doctor in *ancient Greece*. His approach was based on *natural* rather than supernatural explanations of illness. He developed the idea of *clinical observation* of the *patient*, rather than just of illness itself. He encouraged his trainee doctors to take detailed records of symptoms and progression of the illness. His ideas also resulted in the *Hippocratic Oath*, which became a code of conduct for doctors. His ideas were written down in a collection of medical books known as the Hippocratic Collection, or Hippocratic Corpus. They were used to train doctors for hundreds of years and provided a detailed account of symptoms and treatments that had been discovered.

The *Greeks* developed the idea of the *Four Humours*: blood, yellow bile, phlegm and black bile. It was suggested that any imbalance (for example, too much phlegm) was the cause of illness. This theory was the main theory behind illness until the 1800s.

Galen

Galen was a Greek who was a doctor during the *Roman Empire*. He followed Hippocrates idea of observation and believed in the *Theory of the Four Humours,* but developed this further. He trained as a doctor to gladiators and was able to increase his knowledge of human anatomy while treating wounds.

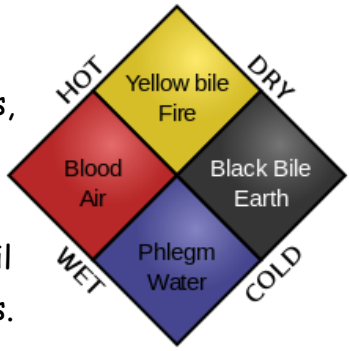
Galen developed the Theory of the Four Humours by creating a *treatment by opposites*. He wrote over *100 books*. Many of his books survived the fall of the Roman Empire so his ideas lasted through the Middle Ages and into the Renaissance. His work formed the basis for *doctors' training* for the next *1400 years*.

Galen *dissected animals* as dissection was banned. He proved in his experiment with a pig (cutting its nerves until it stopped squealing) that the brain controlled the body, not the heart. However, many of his ideas on anatomy were incorrect as human anatomy is not the same as pigs, dogs and apes. For example, he believed that blood was created in the liver and burned by the body like fuel. He thought that the human jaw bone had two bones as in a dog (we only have one) and the positioning of the kidneys.

Despite his mistakes, the Church did not allow anyone to question Galen (as seen with Roger Bacon, who was thrown into prison for heresy). This was because Galen's work supported the design theory, the idea that God designed the human body.

Complete the table with information about:	
Hippocrates	**Galen**

Medieval explanations of disease



Galen's ideas about the cause of disease continued into the Middle Ages, therefore explanations for disease were that the *humours were out of balance*. They also believed the movement of the sun and planets (astrology), invisible poisons in the air (miasma) and God and the Devil caused disease. Also common sense reasons eg *bad smells* from toilets.

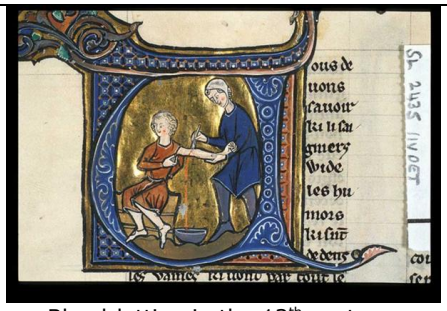
Who treated the sick? What was surgery like?

Match the person/sentence starter to the correct description.

Physicians…
A barber surgeon…
You could also visit an apothecary…
The local wise woman…
To become a surgeon…
Surgeons faced three major problems…
One method used to help to limit these problems was…
John of Arderne was famous for…
To try to stop the spread of infections…
Medieval surgeons could not carry out complex surgery…

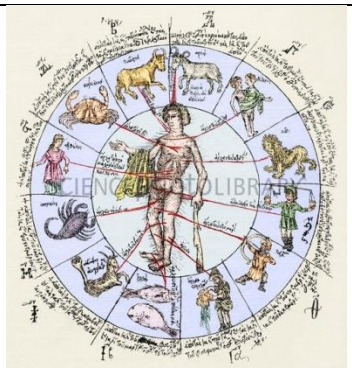
… where the healer would have completed an apprenticeship for 7 years and would sell medicines as well as herbs and spices in their shop. You can buy 'simples' (made of only one herb or plant) or 'compounds', where a specific mixture was made up.
… you would study an apprenticeship as it was not taught at university. There were guilds of surgeons who controlled access to the profession. Master surgeons needed to have a license and often had to pass a lengthy test.
…would be trained at university. They would find what was wrong with a patient by taking urine samples and consulting zodiac charts. They might treat you with blood-letting, purging or even an enema (a mixture of water, wheat bran, salt, honey and soap) that was squirted up your bottom through a greasy pipe!
… developing a pain killing drink made of hemlock, opium and henbane. This would make them drowsy and possibly send them to sleep (although some who copied his ideas accidentally killed people). John was also known as one of the 'fathers of surgery', as he served in the Hundred Years War and became skilled as a battlefield surgeon. He was particularly good at surgery on the anus, as soldiers sat on horses for so long that they developed growths in their bottom. He had a 50% survival rate- amazing in Medieval times! He wrote a famous book called 'The Practice of Surgery' in 1350 to help to teach others.
Firstly, the pain could kill people. Secondly, patients could die from loss of blood. Finally, it was easy for wounds to get dirty and some people were killed by infection.
… would complete an apprenticeship before practising medicine. You could go to him for a haircut, teeth pulled out and even an amputation.
…cauterisation. This meant using a burning hot iron to seal the wound. Sometimes, the patient would die from the pain.
…was also effective at treating illness naturally, and had years of family expertise passed down to her. She often used poppy and willow (as painkillers) and garlic (which kills bacteria). However, many of her techniques would not work.
… surgeons used wine to clean out wounds. Sometimes this would work, as alcohol does kill bacteria. However, it wasn't always successful.
… inside the body, because they did not have strong antiseptics and anaesthetics. It was difficult for these to be developed and for more to be learnt about the body due to the Church's ban on dissection.

What do each of these images tell us about diagnosis and treatments during the Middle Ages?



Blood-letting in the 13th century.

Urine chart used by physicians.



Greek zodiac chart from the 15th century.

How clean were Medieval towns?

Read and colour code the below information. Key:

Positive steps Reasons for poor hygiene

Medieval towns were built near rivers or other bodies of water, because they needed easy access: rivers also provided a means of transport. There were various systems of water supply in Medieval towns. Most people got their water from local springs, wells or rivers. Some towns had elaborate systems built by the Romans to supply water, which still worked well. However, as towns grew, the existing systems could not cope with the increased demand for water. So, Medieval towns such as Exeter and London used new technology with pipes made of wood or lead. Many town dwellers also used rivers and streams to remove their sewage and other waste. Sometimes, however, people just threw their toilet waste onto the street, along with other household rubbish.

Most towns and some private houses had privies, with cesspits underneath where the sewage was collected. In some towns, people left money in their wills so that public privies for the town's citizens could be built and maintained. Cesspits would be dug out annually by gong farmers, and like dung heaps, were a valuable source of manure. If they were not

emptied regularly, the sewage from these cesspits easily seeped into and polluted rivers and wells.

Towns were generally dirty places. There were some paved streets, but in small towns streets became muddy when it rained. In addition, the open drains that ran down the street centres would often overflow. In a downpour, privy cesspits might also overflow, leave excrement spread over the road. Streets outside the houses of wealthier citizens were swept by their servants and were therefore cleaner, but in poorer areas the streets stank and were often littered with waste.

What did the government (key link to factors Qs) do in response?

Colour code the boxes to show whether this will help or hinder public health. Draw an image to show your understanding of each.

Between 1250 and 1530, the number of towns in England grew as the population rose. This put pressure on public health facilities. Mayors and councillors knew that improvements would be expensive, but didn't want to become unpopular by increasing taxes to fund improvements.	
Rivers provided water to businesses such as bakeries and breweries, which also used the river to remove their waste. Town councils tried to stop businesses polluting rivers in this way. Local craft guilds tried to restrict the skilled workers' activities to certain areas of towns and to regulate the problems that their tradesmen caused.	
In Worcester in 1466, a law stated that entrails and blood of butchered animals had to be carried away the same night, so as not to leave it rotting on the streets in the town.	
However, generally this was difficult to monitor and most businesses were side-by-side with residential homes. Leather tanners used dangerous chemicals and smelled awful, while most butchers carved their animals in the streets and dumped the waste into rivers.	

In 1298, the city of York's hygienic conditions were so bad that King Edward I claimed that it was damaging to the health of soldiers there, so ordered the building of public latrines	
In 1330, Glamorgan council passes laws to stop butchers throwing animal remains in the High Street, and orders that no one should throw waste onto the streets or close to the town gates.	
In 1371, London mayors and councillors try to make the city healthier by prohibiting the killing of large animals within the city walls.	
In 1371, the London local council gives up trying to control building and sewage disposal over the Walbrook stream. Instead, they make householders who use the stream pay a fee to have it cleaned each year.	
In 1388, parliament passes a law which fines people £20 for throwing 'dung, garbage and entrails' into ditches, ponds and rivers. However, it is not easy to make people obey the laws or to catch those who disobey them.	
Gong farmers were employed to remove excrement from the streets and were paid considerably more than most ordinary workers. They would empty cess pits annually and remove waste from their designated 'patch' on the streets (although many simply moved it to another person's patch).	

Question to answer below - Do you think the government did enough to deal with public health problems in the Middle Ages? Why?

Why were monasteries so clean?

Simply highlight key words or information below after reading.

- Monasteries were often isolated outside of towns but still near to a river. They would often redirect river water to ensure a reliable water supply to their mills, kitchens, bakeries and brew houses.
- They had elaborate pipe systems to deliver the water to wash basins. Filtering systems were installed to remove impurities, allowing dirt to settle out of the water, making it cleaner and safer to drink.
- Most monasteries had excellent washing facilities. This was done in a room called a lavatorium, where waste water could be emptied into the river. They had privies which contained potties to collect the urine (which was useful to tan leather or bleach cloth). They were then emptied into a pit, from which waste was dug and carted away as manure.
- Monks were ordered to use baths, as cleanliness was a sign of deep devotion to God. Some monks had a bath a month, whilst the Benedictine monks had two a year- one at Christmas and one at Easter. Monasteries had bath houses which were connected to drainage systems.
- Monks were also required to wash their clothes regularly. Their head, feet and face were washed in religious ceremonies twice a week.

How did the Christian Church help medicine in the Middle Ages?

Topic	**Information about this**	**Explain here why this would help or hinder the progression of medicine.**
Hospitals	Between 1000 and 1500, more than 700 hospitals were opened in England. These were mostly centres of rest, where people could recover in calm and clean surroundings. Some were small (with space for 12 patients to equal the number of Jesus' disciples). Hospitals did not provide medical care but were run by monks and nuns and encouraged cleanliness, good diet, rest and prayer. Monasteries had infirmaries to care for the sick and the poor. There were also	

	some larger hospitals like St Leonard's in York. There were special hospitals built for those with leprosy (Lazar Houses). It was highly contagious, so these hospitals were set up outside of towns to stop others from catching it.	
Books	The Church valued and respected the ideas of the Ancient world, so ancient Greek and Roman texts (by Hippocrates and Galen largely) were copied out by hand to preserve their ideas.	
Challenging Galen	The Church banned dissection as they believed it affected the soul's transition to Heaven or Hell and made it possible for people to challenge Galen's idea that God created the perfect body. Anybody who challenged Galen's ideas was thrown into prison.	
Pilgrimages	The Church encouraged the idea of miraculous healing. They sent people on pilgrimages (religious journeys) to sites/shrines of old Saints and Monks, believing that they could have special healing powers. One example of a pilgrimage was to Saint Thomas Becket's shrine in Canterbury Cathedral.	
Training Drs	The Christian Church controlled universities. Medicine was usually the second subject learnt after religion. In Britain, the Church controlled the training of Drs at Oxford and Cambridge, teaching the medical ideas of the Greeks and Romans. They did not encourage new ideas to be made.	

How did Islam affect medicine in the Middle Ages?

The Islamic Empire was a single state ruled by one man, a Caliph. Caliphs provided peace and order, which were needed for medical progress! Caliphs developed libraries to help develop medical understanding, but also general knowledge of the world as encouraged by the Prophet Muhammad. Books that had been lost in the Dark Ages in Britain were kept in the Islamic Empire!

The Crusades were holy wars, where Christian crusaders were sent to take the 'Holy Land' of Bethlehem and Jerusalem from the Muslims that lived there. Crusaders learnt from their 'enemies' during peace time and brought back their ideas to Britain and Europe. Therefore, the impact of Islam fits into both RELIGION and WAR.

There are <u>two main ways</u> that Islam impacted on medicine in Britain.

1. Medical Knowledge

Individual	Impact
Avicenna (also known as Ibn Sina)	Wrote a one million word book called the *Canon of Medicine* Contained all ancient and Muslim medical knowledge at the time Listed the medical properties of 760 different drugs Contained chapters on medical problems such as obesity and anorexia **LONG TERM IMPACT-** This became the standard medical textbook to train doctors in the West until the 17th century!!
Rhazes (also known as Al-Razi)	Stressed the need for careful observation of patients Found the difference between Measles and Smallpox for the first time. He wrote over 150 books Challenged Galen (although he did mostly follow his ideas) in a book called *Doubts About Galen.*

2. Surgery and Treatments

Topic	Impact
Surgery	HINDER- Islam banned dissection, meaning they couldn't learn more about the body

	HELP- Abulcasis was a famous surgeon who wrote a surgical textbook with careful diagrams and drawings to show the reader how to perform them. He encouraged his students to never attempt surgery unless they knew exactly what the problem is and what their plan was. HELP- Islamic surgeons became really good at treatments outside of the body e.g sewing up wounds, setting fractures, removing cataracts and tumours.
Treatments	Used a variety of natural treatments made from animal and plant extracts, and chemicals like copper sulphate (an excellent ointment for infected eyelids!) The first pharmacies were set up. In Baghdad and some other cities, inspectors were employed to check the quality of the drugs. By the 1100s, every large town had a hospital to treat the sick. They provided both prayers and medical treatments. Cleanliness was encouraged.

Use the above information to make a small mindmap of key facts in the space below. You must use each box as a branch (4), a different colour for each, summarise the key information in a brief way.

Black Death – 1348

Causes

In 1348 the Black Death reached England. It is now believed that rats carrying infected fleas were brought to England on boats from trade routes with China and Asian countries.

At the time, *people did not understand what caused the disease*, and they did not know how to stop its spread or cure it. There were both *supernatural* and *natural* explanations for it, for example, some people said that *God* had sent it as a punishment, others that the *planets* were in the wrong conjunction, or that it was caused by *foul air (miasma).* Sometimes groups of people such as the *Jews* (in Europe) or *nobility* were said to be responsible.

Symptoms of the Black Death

The *victims* of the Bubonic Plague suffered a *high temperature, headache* and *vomiting*, followed by *lumps* (*buboes*) in the armpit, neck or groin. It also impacted on their nervous system, making them spasm and sometimes have hallucinations. The victim would bleed under the skin, causing black patches (giving the disease its nickname). This was spread by fleas on rats.

The pneumonic plague was more deadly: it infected the lungs, causing fever and coughing. This was spread by contact with a victim's breath or blood.

Black Death treatments

There were *no effective cures or treatments*. People relied on *prayer* or '*magical cures*' or took *practical steps*. Some attempts included *strong-smelling posies* as a precaution against 'foul air'. They also *ate cool things*, *cut open the buboes and draining the pus*, *lighting a fire in the room*, *tidying the rubbish* from the streets and *not letting people from other places enter the town* (quarantine). Natural treatments were also used such as plastering the plague sores (buboes) in a paste made from cooked onions and yeast, bathing in urine (and some drank it, believing it to have healing qualities) and purging or bleeding to rebalance the humours.

There were also some unusual methods. For example, some drank mercury or arsenic (highly poisonous) and some tried the Vicary Method: shaving the bottom of a live chicken and strapping it to their buboes.

Flagellants were also common. They walked bare foot from town to town, whipping themselves to say sorry to God and to repent their sins. They hoped that this would stop them from getting the Black Death.

What did the Government do to try to stop the plague from spreading? Write a + or – next to each for positive and negative actions.

-They disposed of the bodies. However, this was poorly done and helped to spread the disease further as those who handled the bodies did not protect themselves.

-Graves dug in villages tended to be shallow and therefore wild animals dug them up, spreading the infection.

- They introduced simple laws about keeping the streets clean, but struggled to enforce this.

- There was no regular and effective way to clean the streets.

The Black Death, 1348- Read and bullet point the information from the passages above.

Ideas about causes:	Treatments:
Prevention:	

God is terrible towards the sons of men. He often allows plagues, miserable famines, conflicts, wars and other forms of suffering to arise, and uses them to terrify and torment people and so drive out their sins. And so the people of England are to be oppressed by the plague.

From a monk's letter to the Bishop of London,

Black Death Impact

1. Read through the information below and draw a + or – next to each one- does it show that it was a positive change or a negative one?

The Black Death recurred in Britain over the next 100 years. There were further	In 1348-50, the Black Death killed at least 1/3 of the population in England. Older age

outbreaks in 1361-62, 1369, 1379-83 and throughout the first half of the 15th century. People were terrified of a further outbreak.	groups were more easily affected and had a higher number of deaths.
Towns and cities, as well as rural farmers, faced food shortages, as the nearby villages could not harvest enough food due to the large number who died. Crops were left rotting in the fields, animals were left unattended and whole villages were often wiped out.	Many Lords changed to sheep farming as this required fewer workers. This reduced the supply of basic foods, like bread, resulting in an inflation: the price of food went up, as there was less of it. In some parts of England, food prices quadrupled, making it unaffordable.
Laws at the time stated that peasants could only leave their village if they had their lord's permission. After the Black Death, many lords were desparately short of workers and so they actively encouraged peasants to leave the village they lived in to find work elsewhere.	Some of the peasants who survived thought that God had specially protected them. Therefore, they took the opportunity to improve their lifestyles by demanding higher wages, as they knew the lords were desperate for workers to work on their land.
These changes for peasants upset the idea of the feudal system. As a result, an indirect consequence of the Black Death was that new laws were introduced, which caused angers and revolts. To stop peasants from roaming around the countryside looking for better pay, the Statute of Labourers of 1351 said that no peasant could be paid more than their wages in 1346, and they must stay in the village they belonged to.	People's opinions on the Church began to change: some of the churchmen were criticised for cowardice when they deserted their parishes. While the reputation of the Church was damaged, it also lost a great number of its priests to the disease. It was the first time that people began to question the Church!

2. **Rank order the consequences of the Black Death, showing which you think had the BIGGEST IMPACT on life in the Middle Ages, to the LEAST IMPACT.**

EXTENSION SECTION- EXAM PRACTISE

This section is optional but it is a really good idea to apply your knowledge to the different questions to check your understanding. Remember to check your structure against the success criteria on Show My Homework and in your exercise books.

1. ***Exam Question Practise- How useful is Source A in learning about treatments of the Black Death in England? A-*** *Letter sent by a group of doctors from Oxford to the Lord Mayor of London (c. 1350)*

If an ulcer appears... near the ear or the throat, take blood from the arm on that side, that is, from the vein between the thumb and the first finger... But if you have an ulcer in the groin, then open a vein in the foot between the big toe and its neighbour... At all events, bloodletting should be carried out when the plague first strikes.

2. Exam Question Practise- How useful is source B in learning about the impact of the Black Death in England? Provenance- The Dance of Death, drawn in 1492, based on accounts of the Black Death.

3. Explain the significance of Islam in the development of medicine in the Middle Ages
4. Explain the significance of Christianity in the development of medicine in the Middle Ages
5. Explain the significance of the Black Death in causing change in the Middle Ages
6. Explain the significance of Hippocratic and Galenic ideas on Medieval medicine (June 2018 paper)

1450-1800: The Beginnings of Change

10 Point Summary:

1. The Renaissance (meaning re-birth) was a time of discovery and development in art, culture, religion, literature and science. It began in the mid-fifteenth century in Europe.
2. Two inventions were important for medical developments: the microscope and the printing press.
3. Vesalius (1514-64) challenged the ideas of Galen by studying anatomy and correcting Galen's mistakes.
4. Paré (1510-90) is often known as the 'father of modern surgery'. He experimented widely and wrote a lot to educate others. He used ligatures to seal a wound.
5. Harvey (1578-1657) discovered that blood circulated round the body and used experiments to show the function of the heart and veins.
6. However, changes in knowledge were slow to reach everyday practice. Many people rejected the new ideas and continued with their medieval cures.
7. Doctors and surgeons began to be more qualified and regulated, with an improvement in their status. However, many people continued to use 'quack' doctors.
8. An increasing number of hospitals were set up to treat the sick.
9. Edward Jenner discovered a vaccination for smallpox in 1798. He found that people who were given a dose of cowpox didn't catch smallpox.
10. His ideas were slow to catch on, but smallpox was such a dangerous disease that in 1853 the government made it compulsory for all children to be vaccinated against smallpox.

What does the term 'renaissance' mean?=

The Renaissance describes a period of history that flourished in the late 1400s, bridging the gap between the earlier Middle Ages and consequent Early Modern period. It began in Italy,where many wealthy people were interested in the world of Ancient Greeks and Romans and so paid educated scholars and artists to investigate it and translate it for them. These discoveries inspired people to educate themselves, but also to become critical of many of these old texts. They wanted their knowledge to be based on an accurate, original version. For the first time, it became fashionable to question ideas, find evidence themselves and experiment (not just in medicine, but in Art, Science, Music, Literature etc). There were many important consequences of the Renaissance.

For each consequence, draw an image to show your understanding.

Consequences	Images
New Lands- Explorers, sailors and merchants used more accurate maps. The discovery of the Americas in the 1400s showed the value of making new discoveries. New foods and medicines were brought back.	
New Ideas- The invention of the printing press in 1451 meant that new ideas could be spread around more quickly, meaning that there were more copies of old and new books to read. In addition, the first effective microscope was produced in 1661 (right at the end of the period, although too late for Harvey's discovery!)	
New Art- Artists began to study the body more carefully as they wanted to show the human form in a more realistic way. Leonardo Da Vinci is an excellent example, as he drew a range of images showing the body in depth.	
New Inventions- New technology such as gunpowder meant soldiers got new types of wounds. As a result, doctors had to find new ways of dealing with these.	
New Learning- The scientific methods of observing, hypothesising and then experimenting became popular.	

Task 2- Renaissance Individuals- How significant are they?

There are 3 main individuals who made significant discoveries during the Renaissance:

Andreas Vesalius Ambroise Pare William Harvey

Match the below boxes of information with the individual that studied them. If you are unsure, leave it blank and come back to it. Use your exercise book to help you.

Then, write an S or L in the relevant boxes- did this have a short term impact or long term?

Born in England, alive 1578-1657	Born in France, alive 1510-1590	Born in Belgium, alive 1514-1564
Went on to be surgeon to four French kings, became the most famous surgeon in Europe due to his discoveries.	Studied at Cambridge and Padua, and became doctor to King Charles I in 1632.	Faced much criticism for challenging Galen's work and had to leave his professor role (although later became doctor to Emperor Charles V)
Became Professor of Surgery at the University of Padua, Italy.	Challenged a belief (by Jean de Vigo) that gunshot wounds were poisonous, and that they had to be treated with boiling oil.	Challenged Galen's idea that blood was constantly made in the river and burned up in the body.
Others had already made discoveries about circulation: Realdo Columbo said that blood moved along veins and arteries, Fabricius proved there were valves in the veins. Harvey was influenced by these ideas.	Carried out dissections on the human body himself, rather than leaving it to an assistant. He began to realise that there were many mistakes with Galen's ideas, about the human anatomy.	During a French battle in 1537, he ran out of oil and tried an old Roman treatment of rose oil, egg white and turpentine. The patients slept well and their wounds healed quickly.
Stole a body, boiled the flesh off and put the bones back together like a jigsaw puzzle.	Designed and made false limbs for wounded soldiers, including drawings of them in his writings.	Studied human hearts and the slow-beating hearts of cold-blooded animals to understand how the muscle worked. Theorised that it worked in the same way as a water pump.
Also promoted the use of ligatures- tiny silk threads used to tie off individual blood vessels, rather than cauterising the wound which could cause death through	Experimented by pumping blood the wrong way through valves in the veins, proving that blood could only go through them one way. He also calculated how	Proved that Galen was wrong about the breastbone in a human: it has 3 parts, not 7 as in an ape. Also proved that the kidneys were level and that the

shock. Designed the bec de corbin (or Crow's Beak Clamp) to halt bleeding while the procedure was being carried out.	much blood would have to be produced if it was burned as Galen had said.	jawbone had one bone, not two as in a dog.
Drew a detailed medical textbook called The Fabric of the Human Body (1543), which was startlingly precise. Explained the systems of the body and how they worked (eg skeleton, muscles, nerves, veins etc)	Wrote a number of books, including Anatomie Universelle (1561) and his famous Works on Surgery (1575), including sections of Vesalius's work. Translated Vesalius's writings from Latin to French, meaning more people could read them.	Took 12 years from first having his ideas to publishing it in De Motu Cordis in 1628 (The Motion of the Heart and Blood in Animals). However, there were still things that he did not know, such as why the blood circulated. This caused him to have many critics
Works on Surgery was widely read by the English and an English hand-written translation was given to the library of the Barber-Surgeons of London in 1591. In 16th century England, a number of surgeons followed Pare's approach. The most famous was William Clowes (1544-1604), surgeon to Queen Elizabeth I. He agreed with Pare's ideas, carried a number of healing potions in his medicine chest and, in 1588, published his book Proved Practice which shared knowledge about how to deal with battlefield wounds,	Within two years of the Fabric being published, an Italian printer, Thomas Geminus, published Compendiosa, a book which copied all of Vesalius's drawings as well as other texts at the time. It became a manual for barber-surgeons in London to learn the trade, becoming very popular: three editions were published between 1545 and 1559.	When his findings were published in 1628, his critics said he was mad, as he was challenging the common Theory of the Four Humours treatment of blood-letting. He was called a quack (an unqualified and useless dr) by a French Anatomist. Despite this, many did believe his ideas during his lifetime, but it took 50 years for it to be taught at the University of Paris. His discovery was not immediately useful until knowledge of blood groups was discovered in 1901. However, 4 years after he died, some of his ideas about blood moving in capillaries that connect

including those caused by gunpowder.		veins to arteries was discovered. In 1661, Professor Marcello Malpighi used the first microscope to prove this idea.

Which of these individuals do you believe was most significant? Explain your judgement in your book, using examples from the evidence that we have covered. Remember to consider their short and long term significance.

Why did people still follow Galen?

Throughout the sixteenth century, treatment continued to be based on the **four humours** and **Galen**. This is because **Vesalius** and **Harvey's** findings had **little impact** on the treatment of illness.

Did treatments improve during the Renaissance?

Task 3- Did treatments really improve during the Renaissance?

Draw a plus or minus in each box, showing if improvements/advances in treatments were made or not

On 2nd Feb 1685, King Charles II collapsed. His doctors gave him 58 different drugs to treat him. They also purged his body, bled him, blistered his skin and cauterised him. None of the treatments helped his chronic kidney disease that killed him.	Explorers bought new medicines back from the lands they discovered. One example was the bark of the Cinchona tree from South America contained quinine, which helped treat malaria.	People in the Renaissance still believed that God cured and caused disease. One of the best examples of this is that people would still visit the King if they were suffering from scrofula. An average of 3000 people a year arrived in London to be cured by the king's touch.

The printing press meant that more people could have books in their homes containing advice on herbal remedies. One of the most popular was written by the English doctor Nicholas Culpepper. It was called *The Complete Herbal* in 1653 and recommended a number of simple homegrown remedies.	During the Renaissance there was a huge increase in the number of people pretending to be have 'cure-all' potions. These people were known as 'Quacks'. They claimed their medicines could cure all sorts of illnesses but in reality they would have been useless at treating anything.	During the Renaissance most University trained doctors would still use Hippocrates' and Galen's theories to treat patients. Therefore they continued to use bleeding and purging as treatments.
During the Renaissance it became harder for women to be involved in medicine. Women were not allowed to go to university so could not become doctors but many in the Middle Ages were midwives. However when forceps were invented to free the baby from the womb it was decided that midwives needed university training to be able to use them, so only men could be midwives!	Ambroise Pare proved that the Bezoar Stone was not a cure for all poisons by carrying out a public experiment.	People who could not afford a doctor during the Renaissance could be treated by many different people, such as barber surgeons, apothecaries, wise women and quacks.
The English doctor Thomas Sydenham was very critical of doctors who purely used books to treat their patients. He believed that doctors should carefully observe their patients and record their symptoms before deciding what to do.	Explorers bought tobacco back from North America. People during the Renaissance claimed that tobacco could cure a range of illnesses such as toothache or the Plague. Some schoolboys at Eton were beaten for refusing to smoke tobacco!	In 1665 the Great Plague struck London and killed about 100,000 people. Many people blamed the gods and planets for the Plague and they came up with a whole range of crazy treatments such as strapping pigeons or frogs to the boils to draw out the poison. These treatments would not have cured the Plague.

1665 plague – had medicine changed?

The Great Plague, 1665

Impact-

1348- approximately 30-60% of the population dead

1665-20% of the population dead- 100,000 Londoners dead

The bubonic and pneumonic plagues hit Britain on a number of occasions between the epidemic of 1348 and that of 1665. The symptoms remained exactly the same, and largely what people believed caused the disease did, too.

Task 1: Match up the letters based on the cards below.

You should be able to match at least one card from 1348 to 1665. Tell me why they match to each other.

Source A: A blazing star or comet appeared for several months before the plague. The old women remarked that those two comets passed directly over the city ... and imparted something peculiar... astrologers added stories of the conjunction of planets. **[1665]**

Source B: You should avoid baths which open up the pores, for the pores are the doorways through which poisonous air can enter the body. **[1365]**

Source C: An Abracadabra amulet was worn by people in **1665** to ward off the plague by the power of magic.

Source D: The Government appointed public prayers and days of fasting to make public confession of sin and implore the mercy of God. **[1665]**

Source E: The general cause was the close position of the three great planets, Saturn, Jupiter and Mars ... such a coming together of planets is always a sign of wonderful, terrible or violent things to come. **[1348]**

Source F: Orders of the City of London Council, 1665 People inside infected houses should be supplied with essential food ... watchmen should be appointed to guard the houses to make sure that no-one escapes.

Source G: Others talk of infection being carried on by the air ... into the body with the breath or even at the pores ... and there generate or emit the most acute poisons. **[1665]**

Source H: Terrible is God to the sons of men ... He often allows plagues, miserable famines, conflicts, wars and other forms of suffering to arise, and uses them to terrify and torment men and so drive out their sins. **[1348]**

Source I: Order from King Edward III to the Lord Mayor of London in 1349 Cause the human faeces and other filth lying in the streets and lanes in the city to be removed with all speed to places far distant.

Source J: Apply to the sores a plaster made of yolk of an egg, honey, herb of grace and wheat flour. **[1665]**

Source K: The swellings should be softened with figs and cooked onions. The onions should be mixed with yeast and butter. **[1348]**

Source L: From a website about the Black Death Medical doctors were of little help during the plague. Nobody could understand the causes of infectious diseases or how they spread. Most explanations were based on superstition and magic.

Source M: Orders of the City of London Council, 1665 An infected house should be shut up for a month and no-one go out ... Boarded up houses should be marked with a large cross and the words 'Lord have mercy on us'.

Source N: Orders of the City of London Council, 1665 "Every householder must clean the street in front of his door, and keep it swept all the week long. The sweeping and filth of houses is to be daily carried away by rakers.

Source O: Orders of the City of London Council, 1665 The burial of the dead must be either before sun-rise or after sun-set and that no neighbours nor friends be allowed to accompany the corpse ... All the graves shall be at least six feet deep.

Supernatural causes were mostly believed: a punishment from God, the movement of the planets and evil spirits were common.

However, people also believed in supernatural causes: miasma and the Four Humours mostly.

The Great Plague can be used as a case study to show how little had actually changed between the epidemics. Treatments remained very similar: for example, leeches and bleeding cups were used to rebalance the humours. To stop themselves from inhaling the bad air, people burnt fires, carried around sponges soaked in vinegar or carried sweet smelling herbs. There were also the weird and wonderful treatments: pigeons were strapped to the soles of the feet of a plague victim, and one apothecary owned by William Boghurst recommended that, when close to death, the remedy was to "cut up a puppy dog alive and apply warm to the sores".

For the rich, fleeing the city to the countryside remained a popular option, with King Charles II doing exactly that.

What did the government do to respond to the 1665 Great Plague?

Measure introduced	Image to help your remember this	Why do you think they did this?	Do you think it would be effective in preventing the spread of the plague? (Explain)
Examiners were appointed to find out who was sick. If they found any person sick of the infection, the house be shut up and marked with a red cross. A watchman would also be appointed to make sure no one went into an infected house.			
Women were appointed as searchers in every parish. There job was to search dead bodies and report whether they have died from the Plague or not. Records were kept of how many people had died from the Plague each week.			
The burial of the dead took place either before sun rise or after sun set. All the graves shall be at least six feet deep.			
All plays, bear baitings, games, singing of ballads or other entertainments where large groups of people gathered together were banned.			
Every householder had to keep the street clean in front of their door. The rubbish in the streets was carried away by rakers.			
No hogs, dogs, cats, pigeons or rabbits were to be kept within any part of the city. Stray dogs and cats were killed.			
Ale houses were closed as they were seen as ungodly places and it was believed the Plague spread from these places.			

How did the Great Plague end and what were the consequences?

Some people believe that the Great Fire of London in 1666 was responsible for ending the Great Plague as it burned down the poorer housing and killed thousands of rats, whilst sterilising the streets by burning the waste. However, in reality the poorer houses were outside of the city walls and so they were largely unaffected by the fire. The plague actually stopped for two reasons- firstly, the rats built up an increased resistance to the disease, meaning that they were not dying and

therefore the fleas did not have to move to humans to find a living host. Secondly, an unusually cold winter killed off many of the bacteria (although they did not know this at the time). After 1666, quarantine laws prevented epidemic diseases from coming into the country on ships.

TASK – Look back at the Black Death and decided how much medicine had changed or stayed the same. Include specific evidence from your notes so far.

Similarities	**Differences**

Who was John Hunter and why was he important?

John Hunter was born into a Scottish farming family in 1728. His brother opened an anatomy school in London, which he went to join at the age of 20. Hunter became an army surgeon in 1760, and in 1763 left the army to open a surgical practise. In 1768 he became a surgeon at St George's Hospital. He was appointed as Surgeon to King George III in 1776 and Surgeon-General to the army in 1790. Despite his achievements, he died in debt and poverty in 1793 as he invested all of his money into research. Colour code the below information about Hunter's work, placing them into the 4 categories:

Books Teaching Specimens Scientific Method

Hunter's writings were widely read and a major contribution to medical knowledge. His writings were all based upon observations, his practical skills as a dissector and his willingness to experiment.	Hunter collected a huge selection of anatomical specimens. He preserved 3000 stuffed or dried animals, plants, fossils, diseased organs, embryos and other body parts. A famous item in his collection was the skeleton of a 7 foot 7 'Irish giant', Charles Byrne.	Hunter was admitted to the Company of Surgeons in 1768, after which time he set up a large practise and trained hundreds of other surgeons.
Many of those young surgeons that trained with Hunter became great medical teachers and professors in England and America. For example, Edward Jenner trained with him and became a close friend.	In 1771, he published The Natural History of the Teeth. In 1786 he published On Venereal Disease, based on his own experiences with self-experimentation. It was translated into several European languages and was widely read.	Through dissecting human bodies, he was able to make discoveries about disease, infections, cancer and blood circulation.
In 1785, a patient was admitted to St George's with a throbbing lump (aneurysm) on his knee joint. The usual treatment would be amputation. Hunter's previous dissections had led them to think that if the blood supply was restricted above the aneurysm, then	Hunter was an early promoter of careful observation and surgeries. He experimented on himself in 1767. There was a debate in his time about whether gonorrhoea and syphilis were the same venereal disease. It was	He produced Blood Inflammation and Gunshot Wounds through his experience in the army, finally putting rest to the idea that gunshot

it would encourage new blood vessels to develop and bypass the damaged area. He tested the theory on animals, then conducted surgery. He cut into the leg and at several points tied off the artery to restrict blood flow. Six weeks later the man walked out of hospital- he had saved the man's leg.	thought that the two diseases couldn't exist in the same organ, so he injected himself with pus from the sores of a gonorrhoea patient. Unfortunately, the gonorrhoea patient also had syphilis, and it took him 3 years to recover.	wounds were poisonous and that the wound did not need to be cut out, but should be treated as a normal wound.

Exam Question Practise- Compare the work of Andreas Vesalius and John Hunter. In what ways were they similar? (8 marks- 10 minutes)

Structure- 2 paragraphs with a clear comparison between the two people.

Use your notes in this booklet using specific factual detail (eg names, dates, key terms)

Area of work that is similar	John Hunter	Andreas Vesalius
Books		
Anatomy		

Challenging previous ideas…	Aneurysms… Venereal Disease…	Challenging Galen…
Long term impact	Teaching…	Impact on other individuals… Compendiosa…

Edward Jenner and Vaccinations

Jenner was an apprentice to a country surgeon from age 13-19, then went on to study in London with John Hunter. Hunter encouraged him to conduct experiments and test theories. He returned to Gloucester to become a country surgeon in 1772 and, in 1798, he published a book on vaccination. He was honoured to be appointed physician extraordinary to King George IV in 1821.

Read the below cards and number them to put them into order:

Jenner's findings were read by many important people. Parliament gave Jenner £30,000 to open a vaccination clinic.

By **1803**, doctors were using Jenner's technique in America. In France, Napoleon had all his soldiers vaccinated! In 1852, the British government made smallpox vaccination compulsory. In 1871, the British government started fining people who didn't get their children vaccinated and the number of deaths from smallpox dropped dramatically.

1700: In parts of China, people had been using a basic form of inoculation for many years.
They scratched pus from a smallpox victim into their skin.

They didn't realise it but this gave them a small dose of the disease and allowed their body to build up a resistance to future attacks.

Innoculation was being used in Turkey too. In **1717**, Lady Mary Wortley Montague was living in Turkey with her family. She wrote to her friend in Britain telling them of how the local Turkish people inoculated themselves against smallpox.

After just surviving a smallpox attack herself she decided to get her own children inoculated.
In **1721**, her children survived a dreadful smallpox outbreak.
News spread fast – even King George I had his grandchildren inoculated.

Smallpox inoculations became big business. Robert Sutton and his son Daniel were two of the best-known 'inoculators'.

They inoculated nearly 14000 people in **1764** . . . and made a fortune. But only the rich could afford it.

Despite the success of the Sutton's in **1764**, there were many problems with inoculation, aside from its cost.

Sometimes its gave people a strong (instead of a small) dose of smallpox – which killed them! And any inoculated person could continue to spread it to others.

The inoculation theory of avoiding smallpox was well known when Edward Jenner became a doctor in the **1770s**. Jenner studied in London with John Hunter, the greatest surgeon of the time.

Hunter encouraged his students to use their powers of observation to carry out new experiments.

During the **1790s**, Jenner heard that milkmaids who caught cowpox (a similar, but milder version of smallpox) from cows never seemed to catch the deadly smallpox.

The inoculation theory of avoiding smallpox was well known when Edward Jenner became a doctor in the **1770s**. Jenner studied in London with John Hunter, the greatest surgeon of the time. Hunter encouraged his students to use their powers of observation to carry out new experiments.

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In **1796**, Jenner decided to carry out an experiment. He used a poor local boy and gave him a dose of cowpox germs.
Six weeks later, he gave the boy some smallpox germs – 'but no disease followed'.

After his successful test in **1796**, Jenner carried out the experiment another 23 times. Only then did he conclude that 'cowpox protects the human from the infection of smallpox.'
His findings were rejected by the Royal Society so he published his research himself. He called his technique 'vaccination' because the Latin word *vaccines* means 'from a cow'.

So how significant was Edward Jenner?

Write an S (for short term) or an L (for long term) in each box to show when it had an impact.

Then, write a + if it was a positive factor, or a – if it was a negative.

Overall, how confident would you be to answer the below question:

Explain the significance of Jenner in the development of medicine.

What future vaccinations were discovered by Koch and Pasteur?

In 1798, Jenner published his own account of his discovery, spreading the details of his method worldwide. By 1803 vaccination was being used in the USA and in 1805 Napoleon had the whole of the French Army vaccinated.	Jenner had used the scientific method to test the idea that cowpox could be a vaccination and proved it worked.
Most people believe a country doctor called Benjamin Jesty was actually the first person to use cowpox as a vaccination (twenty years before Jenner). But he did not publicise his findings.	Many people opposed Jenner's work. An Anti-Vaccine League was formed in 1866. They particularly disliked the fact that the government made vaccinations compulsory in 1852 and felt that people should have the freedom to choose whether they wanted it or not.
Other vaccinations would eventually be developed thanks to Jenner's work. (Once people discovered how his vaccine worked!)	Jenner's work eventually led to the eradication of smallpox and millions of lives being saved. In 1980 the World Health Organisation declared that smallpox had been eradicated from the world.
Jenner didn't understand and couldn't explain how his vaccination worked. He could not develop new vaccines himself. Because he could not explain how it worked many people refused to be vaccinated and believed the rumours spread by the Anti-Vaccine society	It took a long time for the British government to decide that vaccinations would be compulsory. Jenner published his findings in 1798 but the government did not make vaccination compulsory until 1852.
In 1798 Jenner published his own account of his discovery spreading the details of his method worldwide. By 1803, vaccination was being used in the USA and in 1805 Napoleon had the whole of the French army vaccinated.	In 1802 and 1807, Parliament gave Jenner £30,000 to develop his work on vaccination. Fifty years later, in 1852, the British government made vaccination compulsory this helped cause a huge drop in smallpox cases.
Despite making smallpox vaccinations compulsory in 1852, it wasn't until after a French scientist called Louis Pasteur discovered germs that the British government strictly enforced compulsory vaccination. From 1871, parents who did not get their children vaccinated were fined.	

The Growth of Hospitals in the 18th century

Read and highlight key information below.

The charitable gifts of private people were used to found and support hospitals. In London, the Westminster Hospital (1719) was founded by a private bank and Guy's Hospital (1724) was founded by a merchant named Thomas Guy. They also were built based on private subscription, where local people clubbed together to pay for the building and running of a hospital.

In these new hospitals, the sick were cared for and doctors received training as there were often medical schools attached to them. Doctors received a wage from the hospital as the private patients paid fees.

Hospital treatments were still largely based on the Four Humours treatments of bleeding and purging. Towards the end of the 18th century, hospitals added dispensaries where the poor would be given medicine for free. An example is the public dispensary of Edinburgh, started in 1776.

Hospitals were built for different purposes. For example, Bethlem focused on treating the mentally ill. London's Lock Hospital treated venereal (sexually transmitted) diseases, opening in 1746. Middlesex Hospital for pregnant women opened in 1748 and what became known as the British Hospital for Mothers and Babies was set up in 1749.

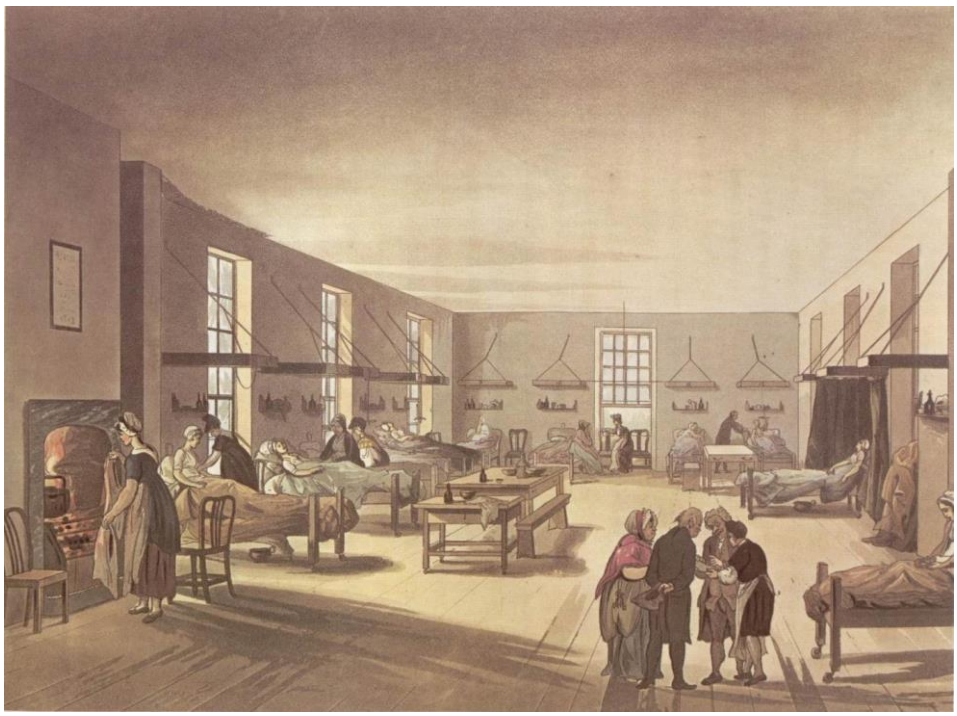
High child mortality rates became a well-known problem in the 18th centuries. There were severe epidemics of diseases such as typhus and influenza, and there were poor provisions for babies and children to be given medical treatments. The Foundling Hospital (named after sickly or poor children that were 'found' abandoned on the streets) was set up in 1741: it cared for orphaned children, giving them a clean environment, clothing and simple education until they were 15. This became one of London's most popular charities.

As well as building specific types of hospital, many hospitals were build. Between 1720 and 1750, five new general hospitals were built in London and a further nine throughout the country. By 1800, London's hospitals alone were treating over 20,000 patients a year.

EXTENSION SECTION- EXAM PRACTISE

This section is optional but it is a really good idea to apply your knowledge to the different questions to check your understanding. Remember to check your structure against the success criteria on Show My Homework and in your exercise books.

1. Study Source A. How useful is Source A to a historian studying the development of hospitals in the Renaissance period? Explain your answer using Source A and your contextual knowledge. [8 marks]



Source A: A representation of a hospital in 18th Century England. This painting was made in the 1940s

3. Explain the significance of Hunter in the development of medicine. [8 marks]
4. Explain the significance of Vesalius in the development of medicine [8 marks]
5. Explain the significance of Harvey in the development of medicine. [8 marks]
6. Explain the significance of vaccination in the development of Early Modern medicine. [8 marks]
7. Compare Medieval surgery with the work of Ambroise Pare. In what ways are they similar? [8 marks]
8. Compare the Black Death of 1348 and the Great Plague of 1665. In what ways are they similar? [8 marks]