

History

Britain and the Health of its people. C.1000 to present day – Thematic Study

Pupil Name:



Paper 2 – (First Section- questions on Elizabethan England are the second section)

4 exam questions worth 40 marks (plus 4 SPAG)

1. Study Source X. **How useful is this source for...?** (8 marks)
Use PRAT (Purpose, reliability, accuracy, typicality) compared to your contextual knowledge

2. **Explain the significance of ...** (8 marks) (Consequences / Impact question)

3. **Compare** (topic) during (time period) to a later time period- in what ways are they similar/different? (8 marks)

4. **Has** (factor of change) **been the main factor in** (development in medicine? (16 marks) plus 4 SPAG
(Discuss the factor given but add 2 other factors that had an impact.)

1a) An Introduction

This course wants you to be able to understand the pace of change and what led to change in the health of the people of Britain over time. It covers the early Middle Ages to the present day so keep watching the news and pay attention to new medical developments.

Learn these key words

- 1) Progress- things improve over time
- 2) Regress- things get worse over time
- 3) Continuity things stay the same over time.

Different Factors Affect change at different times- they work in combination to bring about change or even hold change back. Learn this acronym for different factors that affect medicine.

W= War
I= Ideas
S= Science and Technology
E= economy (money and trade)

P= people
I= individuals
G= governments
S= superstition and religion

Communicate by Chance



Learn these time periods in chronological order

Early Middle Ages, Later Middle Ages, The Renaissance, the 18th century, the 19th century, 20th century.

1. What word means things stayed the same?
2. What word means things got worse?
3. Write out what Wise Pigs stand for 3 times or until you can do it without looking.
4. What time periods do these dates fit into?

1348 outbreak of the Black Death

1543 Vesalius produces a detailed book on human anatomy;

1861- Pasteur discovers germs

1955- DNA is discovered.

5. In what time period do you suppose medicine improved the most? Explain your answer.

1b) Medicine Stands Still: The Middle Ages- An Overview

1. Religion played a massive part in people's lives, so many people believed God was responsible for causing and curing disease.
2. Ideas about medicine were largely based on Ancient Greek and Roman ideas, particularly two men – **Hippocrates and Galen**.
3. **The Theory of the Four Humours (an ancient Greek belief)** was 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 were **blood, phlegm, yellow bile and black bile**.
5. Doctors were expensive and so only for the wealthy. Ordinary people would visit a **barber-surgeon**, a **wise-woman (herbal-healer)** or an **apothecary**.
6. Many cures were a mixture of practical ideas like **herbal medicine** and bleeding or purging excess humours combined with supernatural ideas like prayers, charms and magic.
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 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.



Hippocrates was an ancient Greek doctor from the 5th century BC whose approach to medicine had been to look entirely for natural causes of illness. He supported the theory of the four humours believing these needed to be in balance for someone to be well. He advocated a healthy lifestyle encouraging his patients to sleep well, exercise regularly and have a healthy diet. He wrote many books on medicine and to this day doctors swear the Hippocratic Oath which states they will treat any patient who needs their help. Hippocrates is sometimes called the Father of Medicine and all medieval doctors had to study his books at university.



Galen was an ancient Roman doctor from the 1st century AD. He followed in the tradition of Hippocrates but also studied anatomy although he may never have actually dissected human bodies just those of animals. Even though Galen made mistakes about the human body the Christian church which set up the first medical schools revered him because he had spoken of a divine creator. The church said that Galen could not be challenged. This held back medical learning throughout the Middle Ages.

1c) Medicine Stands Still: The Middle Ages – regress from the ancient world

Most medieval ideas about the human body and disease came from the Ancient Greek and Roman worlds. In the first century AD the Romans had conquered Britain and established a very advanced way of living in the province. The houses of the rich had central heating; coins helped trade; libraries in cities helped **preserve medical knowledge** and their public health system provided clean running water and **sewers** for citizens living in the cities.

But the Roman Empire grew until it could no longer control its borders successfully. Barbarian tribes overran the western parts of the empire, and by AD 500 Europe consisted of many small, feuding tribal kingdoms. These kingdoms were often at war with each other. England itself was divided into 7 different Anglo-Saxon kingdoms and there was no central government until the 10th century.

Amidst the wars and destruction of early medieval Europe, examples of Roman civilisation were lost. For medicine this meant that many ancient medical texts and knowledge about how to treat the sick was lost to the medieval world and medical advances were held back.

During this time Britain experienced many invasions by different peoples, including the Saxons and Vikings. Some invaders took what they wanted and destroyed things they didn't; many settled in Britain.

The wars meant that many of the Roman developments were lost.



Roman buildings,



public health systems,



libraries and medical books were destroyed.

It was now dangerous to travel, so communications were limited, and there were far fewer opportunities for doctors to learn or train.

Discussion Questions

1. In what ways could it be argued that the collapse of the Roman empire was a disaster for western Europe?
2. Why are sewers so important?
3. Books were rare and expensive at this time. Why do you think this was the case?

1d) Medicine Stands Still: The Influence of Ancient learning

Physicians (qualified doctors) in the middle ages had to train at one of Europe's medical schools like those at **Salerno, Padua and Montpellier**. Here they studied copies of ancient texts in **Greek and Latin by Hippocrates and Galen**. **Dissection was forbidden by the church until 1300** and even then students of medicine were not allowed to dissect bodies for themselves but watched on as a local butcher performed the dissections whilst a lecturer read from books by Galen. **Challenging Galen was not possible** and even dangerous as the church might call you a **heretic** (going against the teachings of the Church- the crime of **heresy**) and have you punished. The churches devotion to Galen was because he had stated that the human body was so perfect that it provided evidence of a **divine creator**.

Hippocrates and Galen both promoted the belief in the **four humours** and as a result treatments based on this theory of medicine **dominated Europe for two thousand years** only dying out in modern times when bacteria and hereditary disease were better understood.

Discussion Questions

1. What were the four humours?
2. How long did this theory of disease last?
3. When did Hippocrates and Galen live?
4. Where did medieval physicians study?
5. What books did medieval physicians study?
6. Most people in the middle ages could not afford a doctor – who did they get to treat them?
7. Name a famous Arab doctor from the Middle Ages.
8. What was the biggest killer disease in the Middle Ages?
9. What crime could you be accused of if you challenged Galen?
10. Why did the Medieval church follow the teachings of Galen?

Exam Practise Question 2 of 4

Explain the significance of Hippocrates and Galen in the history of medicine? (8 marks)

This is an impact and consequences question. Aim to write 3 paragraphs about the influence and impact of these men, their work and their beliefs. You have 10 mins of writing time.

1e) Medicine Stands Still: The power of the Christian Church

The Christian church dominated Europe and medical learning in the Middle Ages. It was the most powerful organisation in the world; owning more money and land and having more influence over people's lives than even medieval kings. The Pope was the voice of God on earth. However the influence of the church on medicine was far reaching and includes positive as well as negative examples.

The Christian Church copied ancient manuscripts including medical texts into Latin

Few people could read or write in the Middle Ages. Monks were usually the main scholars.

The Christian Church set up the first Medical schools in Europe like those at Salerno, Montpellier and Padua.

Monasteries and abbeys often refused help to the un-baptised or un-married pregnant women.

The Christian Church set up the first hospitals like the Hotel Dieu in Paris. These hospitals were often overcrowded and dirty.

The Christian Church was the most powerful organisation in Europe. If you challenged the teaching of the church you could be burnt at the stake as a heretic.

The Christian Church said that Galen had understood that God was divine and had made man in his own image therefore all that Galen had said about the human body was correct. If you challenged the teachings of Galen you challenged the Church.

The Christian Church had many monasteries and Abbeys across Europe. Here monks and nuns were often skilled herbal healers.

Monasteries and Abbeys often had clean running water and sewer systems

- Study the boxes above and use them to complete this table on the influence of the Church choosing your top 4 examples.

Positive	Negative

1f) Medicine Stands Still: Medieval Doctors

A licensed physician in the Middle Ages (only ever men) were usually fairly wealthy and well-educated. They had to study for 7 years at a medical school. They studied ancient texts by Hippocrates and Galen in Latin and Greek.



Medieval doctors were trained in the theory of the Four Humours therefore bleeding their patients or **purging** them with an **emetic** was the most common form of treatment.



Medieval doctors carried a reference book with them to help them diagnose and treat patients. This was called the **Vademecum** (Latin for carry with me) It sometimes dangled from a chain around their waist and included a **urine chart** a **zodiac man** and a **wound man** these were diagrams that helped guide the doctor.

The zodiac man was a chart that reflected the commonly held belief in **astrology**. The idea that the stars and planets could affect your life on earth. Most doctors studied astrology very carefully.



Medieval doctors also consulted urine charts to diagnose illness and smelt or even tasted their patients' urine.

1. What was the Vademecum?
2. What charts were included in the Vademecum?
3. If doctors were so well trained why was disease such a problem in the Middle Ages and why was life expectancy so low? Write your answer below.

1g) Medicine Stands Still: Medieval Healers

Few people would have been able to afford doctors in the Middle Ages. In the towns and cities poorer families might be treated by a **barber-surgeon**. His shop would be shown with a red and white striped sign to symbolise blood and bandages. Here you might get a haircut or a shave but you might also have an infected tooth or nail pulled, a wart removed or some example of minor, external surgery.



Barber-surgeons were looked down on by physicians because they had not been to medical school but they provided a valuable and cheap service to people in need. **Barber-surgeons were usually apprenticed for 7 years** before they could set up their own shop so they were often very experienced.



People could purchase medicines from an **apothecary** – their shops contained a wide range of medicines; some of them herbal and some far more fanciful like powdered unicorn horn! **Simples** were a medicine made from one ingredient and were usually quite cheap to buy. A **complex** was made from a range of more expensive ingredients. Apothecaries often became quite wealthy. It is doubtful that many of the medicines sold were very effective.

Women in the middle ages were expected to have a knowledge of **healing herbs** and this knowledge was probably passed on from mother to daughter. The most skilled healers were regarded as **wise-women**- they often acted as **midwives** and provided a range of natural and supernatural medicines for people to try for a small price. Later in the Renaissance some of these women would be accused of witchcraft.



Discussion Questions

1. What was a barber-surgeon?
2. What was a wise-woman? What is a midwife?
3. What was an apothecary?
4. Why do you think some apothecaries became rich?
5. Why do you think women weren't allowed to be proper doctors in the Middle Ages?
6. What herbal remedies do you know of?

1h) Medicine Stands Still: Supernatural and Natural beliefs and practices

Medieval doctors and healers combined natural and supernatural approaches to medicine. The Christian church taught that disease was a punishment from God and this is an example of a superstition that was believed by nearly everyone. People also carried lucky charms like a rabbit's foot to ward off evil spirits. Prayers and charms would be said to protect people from harm at the same time as being given herbal medicines. Although the theory of four humours was inaccurate it was still a natural belief about the causes of disease and not a magical one.

 Supernatural		 Natural	
Astrology	✓	Theory of the Four Humours	✓
Religion	✓	Herbal remedies	✓
Charms and spells	✓		



Discussion Questions

1. This source from the 14th century shows a medieval king being bled using leeches. Is this a natural or supernatural approach to medicine?
2. If this image were to also show supernatural approaches to medicine what else might it show?

1i) Medicine Stands Still: Medieval Medicine

Common Medieval diseases

- Dysentery
- Typhoid
- Smallpox
- measles

Common causes of death

- Famine
- Childbirth
- War

Common cures and remedies

- Bleeding for balancing the humours
- Wearing a donkey skin for rheumatism
- Swallowing young frogs for asthma
- Washing hair in urine for ringworm
- Rubbing pigeons bottoms on the soles of the feet for fever.

Herbal cures like those found in Bald's Leechbook

- Garlic, honey, wine- all antiseptics
- Henbane and foxglove and willow bark for pain relief
- (Modern scientists think that about 25% of the herbal remedies in Bald's Leechbook worked.)

Discussion Questions

1. Name three diseases that affected people in the Middle Ages.
2. Antiseptics can prevent infection. Name an antiseptic used in the Middle Ages.
3. What was used to prevent pain?
4. What percentage of herbal remedies would have worked?
5. Average life expectancy in the 14th century was 32 years. Why did people die so young in the Middle Ages? Write your answer below.

1j) Medicine Stands Still: The Black Death

In **1348** the Black Death, a terrible plague, swept across England killing 1/3 of the population. In the previous years it had already devastated Europe. No one at the time properly understood what was causing it or how to cure it although there were many different theories and beliefs. Now historians think that the **pestilence** was probably caused by at least 2 different diseases **Bubonic and Pneumonic plague** both of which can be treated with antibiotics today. These diseases were probably spread by rats and fleas but in the Middle Ages they did not yet know anything about germs or antibiotics.

Most people in Christian Europe believed that the plague was a punishment from God for sins they had committed. To try and prevent the plague they would go on **pilgrimages**, make generous donations to the church or perform **penances**. Some religious extremists even joined a cult movement known as the **Flagellants**. These people processed through the streets, stripped naked to the waist whipping themselves as a **penance** to God. Also to prevent the plague fires were often lit to “purify” the air.



Most scientists and doctors in the Middle Ages believed in **Astrology**- the belief that the movement of stars and planets could effect your life on earth. They studied the stars carefully to see what had caused the plague. Some believed it had been brought by a comet seen in the sky.

What did people believe caused the plague?

The central illustration shows a dark, night scene with a full moon. In the foreground, a person in a dark, hooded robe stands next to a large, dark, mounded object, possibly a body or a pile of earth. In the background, a person in a dark, hooded robe is walking. The scene is surrounded by several text boxes representing different beliefs about the cause of the plague.

Sent by God to punish us for our sins.

The movements of the stars and planets- astrology

Were any of these ideas correct?

Animals roaming the streets (cats and dogs)

Jews poisoning the water

Imbalance in the 4 humours

Being close to infected people.

Bad smells. Miasma. Poisonous vapours

1k) Medicine Stands Still: The Black Death

The plague often began with painful swellings called **Buboes** that appeared under the armpits or on the neck or groin. The patient would develop a terrible fever, painful spasms and black bruising under the skin (hence the name Black Death). The victim usually died within a week. Some people did catch the plague and survive but it was rare. The plague never went away but future outbreaks were never as virulent as the first one in 1348.

Doctors did not know how to cure the plague and offered a wide range of treatments such as bleeding, using dead toads to suck up the poison in the buboes, lancing the buboes, rubbing chickens bottoms on the soles of the feet and getting patients to drink mercury (a poison). One famous plague doctor Guy De Chauliac did survive the plague but had no greater understanding of causes or cures than most other doctors.

Using the information on page 11 and above complete this chart.

Beliefs about the Plague	Symptoms	Prevention	Treatments	Key Words

1k) Medicine Stands Still: Beliefs About Disease- A summary

- People believed in natural and supernatural causes of disease.
- Treatments for disease were usually a mix of practical and superstitious remedies.
- No doctors properly understood the causes of disease as germs, hereditary illnesses and lifestyle illnesses were not known about.
- The most common form of treatment was to bleed a patient but there were many other forms of treatment too.
- Doctors were trained in the theory of the Four Humours and in an attempt to balance these humours would bleed and **purge** their patients.
- Most people also believed that God could give disease and also cure it.
- The Miasma theory made some people think that dirt which caused the bad smells needed to be cleared up from the streets.
- Scientists and doctors studied astrology to try and predict outbreaks of disease.
- Disease spread rapidly in crowded towns and cities.
- Average life-expectancy in the 14th century was 32 years.

Study Source A.

How **useful** is Source A to a historian studying beliefs about disease in the Middle Ages? Explain your answer using Source A and your contextual knowledge. [8 marks]

Here the examiner wants you to evaluate (judge) the usefulness of the source. You should think about TAP and PRAT when evaluating evidence. You **MUST** also bring in as much relevant background knowledge as you can to put the source into context.

Source A- a 14th century illustration from a medical textbook. This was used at medical schools across Europe which were set up by the Catholic church.



This source is useful to an historian in many ways because it suggests that...

Try to comment on

Time
Author
Place
Purpose
Reliability
Accuracy
Typicality
"At this time..."

2a) Medicine Stands Still: Surgery in the Middle Ages

Surgeons were looked down on by physicians in the middle ages but most of them were very highly skilled and had been apprenticed either as barber-surgeons or army surgeons. They used bronze tools specially shaped to perform different surgeries and knew that wine, honey and garlic were good at preventing infection (antiseptics) and that willow bark, henbane and opium were effective at reducing pain. Nonetheless surgery was very dangerous and most patients died after surgery from infections that set into their wounds. Few surgeons were well educated and so did not write books. The ones that did have become famous.

John of Arderne

- 14th century surgeon
- Army-surgeon later worked in London
- Famous in his lifetime for having a 50% success rate. (meaning 50% of his patients didn't die after surgery!)
- Best known for treating urine infections and haemorrhoids
- Developed pain-killing ointment containing **hemlock, opium and henbane**.
- Wrote **The Practice of Surgery in 1350**.
- Suggested doctors should have a good bedside manner and talk to patients calmly and with respect.
- He urged other doctors to think for themselves and not just rely on Hippocrates and Galen.
- Treated the poor for free.
- Quite modern in his outlook and very unusual which is why he became famous. His books were widely read BUT didn't bring about a revolutionary change in the way doctors or surgeons were working in the Middle Ages

Surgery throughout history came with 3 major problems;

1. Pain
2. Infection
3. Bleeding



Practise exam question: Explain the significance of John of Arderne to surgery in the Middle Ages? (8 marks)

This is an impact and consequences question. Aim to write 3 paragraphs about the influence and impact of these men, their work and their beliefs. You have 10 mins of writing time.

2b) Medicine Stands Still: Middle Ages Anatomy and Surgery



- From **1300** dissection was allowed in medical schools
- Students watched a local butcher follow instructions read from books by **Galen** by their lecturer- they could not explore for themselves.
- Nothing new was learned they were designed to show that Galen was correct not to challenge him.

- Because medical students could not dissect for themselves or challenge Galen this held back their understanding of anatomy.
- There was very little progress in understanding the human body since ancient Roman times.



- Army- surgeons will have had plenty of experience patching up mauled bodies on the battlefields of Europe however and the pressure of huge casualties in battle will have forced them to learn new skills quickly.



Using the information on page 14 and this page to answer these questions

1. What is dissection?
2. What is anatomy?
3. Why do you suppose dissection was forbidden by the Church until 1300?
4. Why was challenging Galen considered to be heresy?
5. Why was so little learned about human anatomy in the Middle Ages?
6. How would army-surgeons have become quite skilful?
7. What are the 3 main problems in surgery?
8. Why are so few surgeons known about from the Middle Ages?

Exam practise question

Compare surgery in the time of John of Arderne to surgery in the present day. In what ways are they different? (8 marks)

Remember this is not a question about John of Arderne so you can mention him as an example of a surgeon in the Middle Ages but you are simply comparing surgery in the middle ages to surgery today. Sometimes the question may ask how **similar** they are – so make sure that you read it carefully.

2c) Medicine Stands Still: Famous Medieval Surgeons

Guy de Chauliac – Medieval Surgeon who said
"A surgeon who does not know his anatomy is
like a blind man carving a log"

Treatment of Pus – Guy
believed that Pus was
important to the healing
process and helped the
patient get better.

Chauliac's important
work on surgery,
Chirurgia magna was
finished in 1363 in
Avignon. In seven
volumes, the text covered
anatomy, bloodletting,
cauterisation, drugs,
anaesthetics, wounds,
fractures, ulcers, special
diseases, and antidotes



Guy often quoted Galen
and Islamic writers such
as Avicenna in his work.

What are the good
and bad points
about the work and
ideas of Guy de
Chauliac?

Hugh and Theodoric of Lucca were father and son surgeons
from Lucca in Italy. Hugh taught Theodoric surgery and
anatomy. Theodoric became a Dominican Friar (a monk)

He also promoted the use of
anaesthetics in surgery. A
sponge soaked in a dissolved
solution of opium,
mandrake, hemlock,
mulberry juice, ivy and other
substances was held beneath
the patients nose to induce
unconsciousness.

- Theodoric was significant
in stressing the importance
of personal experience and
observation rather relying
upon Galen.
- He said that the practice of
encouraging the
development of pus in
wounds, handed down
from Galen and from
Arabic medicine be
replaced by a more
antiseptic approach
- He said bandages should
be pre-soaked in wine
- He said the wound should
be cleaned and then
sutured (stitched) to
promote healing.

How are Hugh and
Theodoric different to
other Medieval surgeons?

The *Cirurgia* (Surgery) is Theodoric's major
contribution to western medicine. Written in
the mid 13th Century, it is a four volume work
that covers the major fields of medieval
surgery.

On the treatment of wounds he wrote: "For it
is not necessary that bloody matter (pus) be
generated in wounds -- for there can be no
error greater than this, and nothing else which
impedes nature so much, and prolongs the
sickness."

2c) Medicine Stands Still: Famous Medieval Surgeons

Use the info on pages 14-16 to complete this table

Medieval Surgeons	Explanation/Details
Barber-surgeons	
Army-surgeons	
Guy De Chauliac	
John of Arderne	
Huge and Theoderic of Lucca	

How were the problems of pain, infection and bleeding dealt with in the Middle Ages?

To ease pain they used-

To help prevent infection they used-

To prevent extreme blood-loss they-

3a) Medicine Stands Still: Did the Arab World know more about medicine?

The Arabs admired the writings of Hippocrates and Galen. Medical students studied them carefully. New discoveries were made, some of which challenged Galen's ideas.

The Arab world had large hospitals the most famous were at **Baghdad, Damascus and Cairo**. They were **large and clean** and treated all patients equally. They also served as training hospitals so doctors could learn at the bedside of their patients. In contrast hospitals in Europe were usually run by the church and sometimes refused treatment to patients that were not considered Godly.

The Muslims believed, however, that the Koran, their holy book, held all the knowledge needed and did not encourage the search for new discoveries. The Koran taught them to look after the sick, and many large hospitals were built.

However, criticizing Galen was allowed, and so many new discoveries were made in the Arabian empire, more than were made in Europe at the time.

When Europeans went on **crusades to the Holy Land in the 12th and 13th centuries**, their doctors gained first-hand knowledge of Arab medicine, which was advanced by Western standards.

Arab ideas spread into Europe. The Arabs preserved the books of **Galen and Hippocrates** and shared these with Europeans.

c) Why was Rhazes important?

- * He was a **scientist who had a major impact on medical knowledge during the 10th Century**.
- * He stressed the need for **careful observation** of the patient. Through this he was able to have a better understanding, for example, being able to distinguish between measles and smallpox.
- * He believed in the importance of a **healthy environment**. For example, when asked to identify the best site for a new hospital in Baghdad he hung pieces of meat all over the city. He chose the site from the place where the meat decayed the least.



d) Why was Ibn Sina (Avicenna) important?

- * He produced a **great encyclopedia of medicine** known as 'The Canon'. It was a million word summary of medical knowledge and included the ideas of Galen, Hippocrates and other Islamic writers. **The book contained information on most medical issues**, even issues such as anorexia and obesity.
- * **Ibn Sina** was also an expert on the **medical use of drugs**. Drugs such as laudanum are still used today. The Canon listed the medical properties of 760 different drugs.

Arab anatomy and surgery- Middle Ages

- Limited to knowledge of Hippocrates and Galen due to no dissection rule.
- Bleeding common form of surgery
- Some knowledge of pain control e.g. laudanum and antiseptics like wine, vinegar and honey.
- Use of bronze and glass tools
- Ibnal- Nafis did challenge Galen on the way blood circulated through the heart.
- **But no real progress made since ancient times.**

3b) Medicine Stands Still: Did the Arab World (Islamic Doctors) know more about medicine?

Avicenna (Ibn Sinna) was the most famous Arab doctor of the Middle Ages.

Avicenna wrote many detailed textbooks on medicine – these were collectively known as the **Canon**. Libraries in the Arab world kept these texts safe.

The Arabs had great respect for the Ancient Romans and Greeks of the East Mediterranean. They preserved many ancient texts by Galen and Hippocrates that had been lost in Europe.

Contact between the Muslim world and Christian Europe grew from the 12th c because of the **Crusades**. This led to an exchange of ideas and knowledge on medicine.

Constantine the African - a monk who had travelled from the Islamic Empire translated texts from Arabic to Latin for Europeans.

Arabs believed it was **Allah's** work to heal people. So they had many large hospitals that were not exclusive. The largest of these were in **Baghdad** and **Cairo**.

The **four humours** was used as the main theory of medicine by most Arab doctors.

Muslims emphasised cleanliness and hygiene. Public fountains provided clean drinking water.

Muslims believed that the **Koran** held all truth and there was no need to search for new learning. As a result **dissection** was not allowed.

Source A- From an illustration in the Canon Of Medicine by Ibn Sinna. C. 1006. It describes how wounds can be treated following a battle.



Use the info page 17 and 18 to answer these questions.

1. Who was Avicenna?
2. Who was Rhazes?
3. Why were Arab hospitals better?
4. Complete this chart to give 3 positives and 3 negatives of Arab medicine.

Positives	Negatives

4a) Medicine Stands Still: Public Health in Regress



The Public Health systems provided by the Romans to the towns and cities of their empire is usually regarded as an example of their great civilisation. Once the Romans had left Britain in the 5th century the aqueducts and sewers began to fall into disrepair and ruin.



There was no centralised government in the early Middle Ages to take control of Public Health. **Edward III** during the plague outbreak of 1348 (later Middle Ages) did demand that no more rubbish (including human waste) should be thrown into the streets and **rakers** were employed to clean up the streets but these were only emergency measures undertaken because of the crisis of the plague and were not well enforced.

Unlike the Romans people in the Middle Ages had no hot water systems and so bathing was rare. Whilst personal hygiene was important to people who made their own combs, toothpastes, brushes and soaps; there were no measures put in place by the governments to provide underground sewers, collect waste or provide clean water. There was no **sanitation**.

Towns were over-crowded and disease spread rapidly. Industry and livestock (animals) in the towns meant dirt, disease and pollution were a constant problem.

Discussion Questions

1. What examples of Public Health did the Romans have?
2. When did the Romans leave Britain?
3. Why were Medieval towns so unhygienic?
4. What were rakers?
5. What did Edward III do in 1348?
6. What does sanitation mean?
7. How do you know that people in the Middle Ages did try to keep clean?
8. Why would taking a bath have been so difficult?
9. Why would open sewers running through the streets have been a problem?
10. What did butchers do with animal waste?

4b) Medicine Stands Still: Public Health Problems and Solutions

Wells for drinking water were often close to cess-pits.

Open sewers ran through the streets attracting vermin. The sewers ran into the rivers.

Richer houses had toilets that sat over streams but this polluted the water supply.

Most people used chamber-pots that would be emptied directly into the street below.



Midden's were rubbish dumps including human waste that would be burnt every few weeks to stop the air from getting too smoky.

Rakers were employed to clean up the streets but there weren't many of them.

However personal hygiene was important to them and they used combs, mouthwash, soap and tooth-paste. Usually home-made.

Butcher's slaughtered animals in the streets and the blood was left to run into the sewers.

Public bath-houses did exist but few people had the time or money to use them.

Use the information in the diagram above to complete this table. Add info about the monasteries from page 22

Public Health in the Middle Ages

Problems

Solutions

Attitudes

Monasteries (the exception!)

4c) Medicine Stands Still: Public Health – Some Positives to consider



So how do we balance out the negatives?

- Most monasteries had hospitals
- Most monasteries had clean running water
- Most monasteries had toilets where the waste was flushed away- often into the sea or rivers
- Monasteries had a Physic Garden for growing herbs and plants for healing purposes.



- Some medieval towns e.g Coventry issued a series of laws to clean the town up. The people of Coventry in the 15th century could be fined for not cleaning up outside the front of their houses.
- They had to pay a penny 4 times a year to have their waste collected.
- No latrines (toilets) could be placed over the river and butcher's were fined for throwing waste into the river.

- 1) Give 3 examples below of how the town of Coventry got Public Health right in the Middle Ages.
- 2) Give 3 examples below of how monasteries were examples of good sanitation in the Middle Ages.

Source 1. An Illustration of a public bath house from a 14th century manuscript



Paper 2- Question

How useful is Source 1 as evidence of how clean people were in the Middle Ages? (8 marks)

What is it useful for? What does it suggest to you? What are the limitations of its usefulness- what does it fail to tell you about?

Medicine Stands Still: A summary of Medicine in the Middle Ages

A Summary: Medicine in The Middle Ages

Beliefs about causes of disease:

- God sent disease as a punishment for sin
- Astrology was used to predict illness and suggest cures (Zodiac Man)
- Miasma theory (poisonous smells and vapours)
- Imbalance in the 4 humours
- Jews poisoning the water supply (plague)

Treatments and cures

- Bleeding patients, blood-letting very common to balance the humours.
- Prayer, pilgrimage and pious living recommended
- Magic, lotions, potions and charms- frogs and birds frequently appear.
- 25% of all herbal remedies known probably worked- e.g wine, garlic, honey, onions all antiseptics

Health and hygiene

- Disease spread fast in towns and cities
- Waste and pollution a constant problem
- Some towns passed laws to clean up the streets.
- Public baths existed but rare.
- Personal hygiene was still important.

The role of the church

- Taught that sin would be punished by God with disease e.g. the plague
- Recommended prayer, pilgrimage and pious living
- Set up medical schools and hospitals
- Most monasteries had hospitals and clean running water and flushing toilets.
- Helped preserve the ancient texts of Hippocrates and Galen.
- Forbade dissection until 1300
- Made it a crime to criticise Galen.

Healers

- Physicians treated the rich, trained at medical schools, carried the Vademecum, studied Hippocrates and Galen- 4 humours.
- Muslim medical care was in some ways more advanced than in Europe- especially hospitals.
- Apothecaries provided medicines- expensive
- Many herbal healers in monasteries and wise women. Mothers had herbal knowledge.
- Some healers like John of Arderne took a more scientific approach. (Army-surgeon)
- Barber-surgeons treated minor ailments in towns.

Read the summary above and then revise all the work on the Middle Ages in this booklet.

Then answer the following exam question. This will be the last question type (4 of) on Britain and Health. It should take you just 20 mins.

Has religion been the main factor in holding medicine back in the Middle Ages?

(16 marks plus 4 SPAG marks.)

Aim for 6 paragraphs with a conclusion.

Write about religion but then choose 2 other factors from WISE PIGS Communicate by Chance to give examples of.

Give at least 5 mins to a strong, well-argued conclusion. Try to make links between the factors at work in the conclusion or at least explain which factor you think is most important and why.

5a) 1450-1800: The beginnings of change- The Spread of Renaissance Ideas

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 and a healing ointment instead of cauterising the 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. Far more was now known about anatomy and surgery thanks to surgeons like **John Hunter** who performed 14,000 dissections.
10. **Edward Jenner** discovered a vaccination for smallpox in 1798. He found that people who were given a dose of cowpox didn't catch smallpox. Smallpox was later eradicated as a disease.



Early Italian
Compound
Microscope
(circa late 1600s)

Discussion Questions

1. The printing press, developed in the 15th century, would revolutionise medical understanding. Can you explain how and why?
2. Microscopes developed in the 17th century would also help to revolutionise medical understanding. Can you explain how and why?
3. By 1500 the power of the Catholic church was waning and dissection was becoming increasingly popular as a method of learning. Also people were now able to challenge Galen. How do you think this helped medicine make progress in the Renaissance?

5a) 1450-1800: The beginnings of change- The Spread of Renaissance Ideas



Spend 10 mins learning the key words below, practising spellings and testing a partner.

Renaissance- Key Words to learn.

- **Renaissance-** means re-birth , it referred to the re-birth of learning at this time.
- **Enquiry-** an attitude that is open to discovery and change- this was a key attitude among scholars during the Renaissance.
- **Microscopes-** were a new invention in the 1600s enabling scientists to see in more detail
- **The Royal Society** was an organisation of powerful and famous scientists in England it included men like Sir Isaac Newton it was set up by Charles II in 1660
- **Dissection** -had been allowed at medical schools from 1300.
- **Paracelsus-** was a town doctor living in Basel in Switzerland in the 16th century. He is famous for burning the books by Galen and Avicenna and saying that the 4 humours was wrong, however his theories were no better and his teachings didn't change much, most doctors carried on following the 4 humours.
- **Quinine-** a new herbal treatment from the newly discovered Americas that helped reduce fevers.
- **The Great Plague 1665-** another major outbreak of plague in London- doctors were no better at curing it than 300 years earlier.

5a) 1450-1800: Examples of Continuity with the Middle Ages

In the field of anatomy thanks to **Vesalius, Harvey and Hunter** there was rapid progress during the Renaissance and thanks to the innovative army-surgeon **Parè** there was some progress in surgery- however for the most part people's **understanding of disease had changed very little** the theory of the Four Humours still dominated medical treatments. One important example of this is that when **King Charles II lay dying in 1685** at the end of the Renaissance even the most famous doctor of the day, Sir Charles Scarborough, didn't know what to do to help the king. The King was repeatedly bled and his scalp was blistered with hot tongs to remove the excess humours from his body; not only did these treatments not work but they made him weaker.

Another example of how little, beliefs about disease like the Miasma theory, had changed was the fact that when the plague broke out again in London in 1665, killing thousands of people very rapidly, doctors still did not know what was causing it or, how to prevent it or cure it; their response to the outbreak of disease was not very different from the response to the Black Death in the 14th century.

Discussion Questions- Use the info on pages 23-25 to answer the following

1. In what 2 areas of medicine could you argue that progress was being made during the Renaissance?
2. What 2 examples can you give to prove that most people did not understand very much more about the causes of disease or how to cure it?
3. When did plague break out in London?
4. What year did Charles II die?
5. Which scientific organisation had Charles II set up?
6. Who was Charles II's famous doctor?
7. What was the Miasma theory?
8. What was the attitude of enquiry?
9. What organisation was losing its power and influence in the Renaissance?
10. What invention was key to the spreading of new ideas and knowledge?

5b) 1450-1800: Renaissance Healers

Thomas Sydenham- The English Hippocrates



- Born 1624
- Studied Oxford and Cambridge
- Set up as physician in London 1663
- Didn't believe in books but observation and experience.
- "Scientific method"
- Interested in epidemics like smallpox
- Wouldn't treat patients unnecessarily – which was unusual for the time
- However still used 4 humours and bled patients

Typical Renaissance Healers

Most people still used the wise woman or apothecaries for medicines. Most richer women had herb gardens specifically for medicinal plants and kept remedies in books. Many of these remedies were based on hundreds of years of passed on knowledge about herbs and plants and were often effective.



Lady Johanna St John 17th century wrote herbal remedies down.

Nicholas Culpeper published his Complete Herbal in 1653. He was an apothecary. Also used 4 humours and astrology in his beliefs.



Quack doctors- made profits by selling fake medicines. They usually claimed to heal many different complaints but often contained Opium which could be dangerous.

Some rich people founded new hospitals to help the poor. This helped to make up for Henry VIII closing the monasteries.



What types of healers were typical in the Renaissance and Early Modern Periods?

5b) 1450-1800: Renaissance Healers



Sir John Floyer a physician wrote a book about asthma in 1698. He explained the causes of the disease and gave effective treatments including diet and clean air.



George Cheyne a Scottish physician published an *Essay on Health and Long Life* in 1724. It was very popular. He said that some diseases were inherited and gave advice about exercise, nutrition and depression. He said a healthier lifestyle was more important than seeing a doctor.



James Lind was a physician in the Royal Navy in 1753 he was able to prove that citrus fruits cured scurvy.

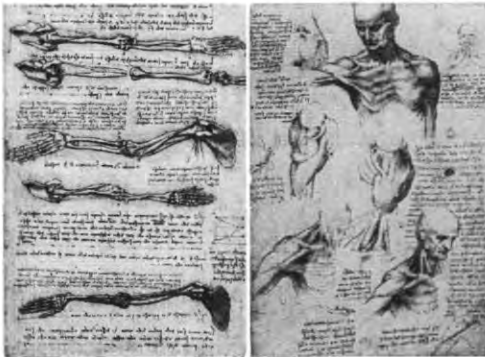
What factors led to James Lind's discovery about scurvy?

All 3 men became famous in their own lifetimes and their books were very popular so their ideas did spread but remember most people could not read at that time and most doctors still depended on the 4 humours and believed in astrology.

This was the age of the "Scientific revolution" but most people weren't very scientific at all.

Name...	Famous For...
Thomas Sydenham	
Lady Johanna St John	
Nicholas Culpeper	
Sir John Floyer	
George Cheyne	
James Lind	

5c) The beginnings of change: Renaissance Anatomy Makes Progress



Vesalius was a Professor at the Medical school in Padua. In **1543** he published a **ground-breaking anatomical textbook** called **Fabric of the Human Body**. This book contained hundreds of detailed anatomical drawings that showed Vesalius' very careful, scientific study with thousands of dissections. Vesalius encouraged students to dissect for themselves and challenge Galen's ideas about the human body. He re-designed anatomical theatres to be round and intimate so that all the students could easily see the dissections taking place.

The **printing press** enabled Vesalius's discoveries about the human body to be widely read. The Catholic church still frowned on any criticism of Galen but no longer had the power and influence to punish men like Vesalius. More **scientific methods** of careful observation and recording were now being used in the Renaissance and **new discoveries were seen as exciting rather than threatening**.
Date rhyme to learn 1543- Fabric Human V



In the middle of the sixteenth Paré's ointment makes you think Ambrose Paré was a French army-surgeon in the 16th century with 20 years of experience in battlefield surgery. On one occasion he ran out of boiling oil to **cauterise** wounds with so instead he used a healing ointment of **rose oil, egg yolks and turpentine**. (Chance and Individual Genius) He also invented a method of tying off blood vessels using thread- **ligatures** after amputating a limb, which was less dangerous and painful than cauterising the wound. Paré published a book on his techniques in 1575 and so was able to influence other surgeons over time. He became surgeon to four kings of France but was always looked down on by French physicians as he had never been to medical school!

5c) The beginnings of change: Renaissance Anatomy Makes Progress



William Harvey was a British doctor, so successful that he was a doctor to James I and Charles I. Harvey was fascinated by anatomy. At this time most people just believed Galen's ideas about how the heart and circulatory system worked but Harvey was convinced that Galen was wrong and set out to prove it. Through hundreds of careful experiments and dissections on animal and human bodies he was able to prove that the heart was a pump that pushed blood through one direction of the body, using a system of arteries and veins, and that the blood was not used up and re-made but re-circulated. **In 1628 he published "On the Motion of the Heart"** which could have revolutionised people's understanding of how the heart worked. However people are often resistant to change and many people refused to accept that Galen could be wrong. Date rhyme to learn 1628 Harvey's heart pumps great.



Hunter emphasised the importance of the **empirical approach**- careful observation.

He set up his own anatomy school in London and performed 14,000 dissections on humans and animals.

He joined the **Royal Society in 1767** and was famous and highly respected.

How significant was he?

John Hunter 18th century

- Famous surgeon and anatomist
- Had served as an army surgeon during the Seven Years War
- Dissected bodies frequently
- Believed nature did much of the healing required
- Trained many other doctors and surgeons including Edward Jenner

- Taught students of anatomy and medicine to use the empirical approach.
- Edward Jenner (who would come up with a vaccine for smallpox) was one of his students.
- He helped to improve understanding of human teeth, bone growth and gunshot wounds, venereal diseases, digestion, child development, foetal blood supplies, and the role of the lymphatic system.
- He made an important contribution to the study of anatomy and the use of scientific methods but did not change approaches to disease. Four humours still be used as was miasma theory.

5c) The beginnings of change: Renaissance Anatomy Makes Progress

The 3 major problems in surgery of **pain, infection and bleeding** continued to be a problem during the Renaissance but surgeons like **Paré and John Hunter** were able to improve surgical techniques and approaches to preventing infection.

As army surgeons both Paré and Hunter had experience of treating gun-shot wounds and huge numbers of casualties in a short-space of time. Hunter set up a school for surgeons with his brother in the late 18th century. Hunter was able to develop Paré's techniques in using ligatures to tie off blood vessels. Hunter also encouraged students of surgery to keep all instruments clean to prevent infection and to learn as much about the human body as possible by dissecting them. However, neither man made surgery much safer and the success rate of surgery stayed at around 50% throughout the Renaissance with many patients dying of infection after an operation.



1. This is an artist's impression of Hunter operating on a battlefield. What kind of difficulties do you think he will have faced?

2. Why do you think army-surgeons were able to become quite skilful and famous surgeons?

3. What problems in surgery continued into the 1800s?

4. Which improved the most during the Renaissance anatomy or surgery? Explain your answer.

5c) The beginnings of change: Renaissance Anatomy Makes Progress

Read pages 28 and 29 and answer the following questions about Renaissance anatomy and surgery

1. When did Vesalius publish his book and why was it ground-breaking?
2. Why was dissection far more common in the Renaissance?
3. Why was challenging Galen more acceptable in the Renaissance?
4. What enabled Vesalius' understanding of the human body to be more widely understood by others?
5. What was remarkable about Paré's achievements?
6. Why is chance an example factor in how his discovery was made?
7. Why is war an example factor in how his discovery was made?
8. Why was Paré looked down on by French physicians?
9. Why was Harvey's book so significant?
10. How many dissections did John Hunter perform?
11. Complete the summary table below.

Individual	Before them	Their discovery	Their Impact
Vesalius			
Paré			
Harvey			
Hunter			

5d) The beginnings of change: Renaissance Medicines

In spite of better understanding of anatomy and surgery during the Renaissance, bloodletting and purging were still the most common treatments by doctors. Doctors and medicines were still expensive so most people relied on herbal healers. Superstition was still very important too and astrological charts were consulted by the best doctors. Beliefs like the fact that a skin disease called **scrofula** known as "**The King's Evil**", could be cured by the touch of the King meant that hundreds would queue outside the palace of Whitehall to receive the King's healing touch.

For people that could afford it "Quack" medicines were very popular. They usually contained many different ingredients and were sold at fairs and markets by "Quack doctors". These "doctors" usually had no medical knowledge and sometimes the medicines they sold were downright harmful! From 1600 doctors had to carry a license issued by the **Royal College of Physicians** to try and crack down on the quack doctors.

Women could not gain a license as a doctor at this time, but many became skilled herbal healers and were respected in society. Some rich, well-educated women wrote "Herbals" Books that contained herbal remedies many of which were effective forms of treatment.

Henry VIII had closed down the monasteries in the 16th century and so one of the places where people could get medical help and care was no longer available to them. Some rich people that wanted to use their money to help the poor set up hospitals in towns and cities, however the quality of care in them was not always good.



An artist's impression of a quack doctor selling medicines at a fair in 1600. Most of the medicines were harmless but ineffective; though some had dangerous ingredients like mercury and arsenic which are poisonous.

Do you think health care was any better in the Renaissance than it had been in the Middle Ages? Explain your answer.

5e) The beginnings of change: The Great Plague 1665

The plague outbreak of 1665 offers examples of both continuity and change.

Plague never really went away. Plague revisited Europe many times over the next 300 years. In 1604 30% of population of York died of plague and in 1665- nearly 100,000 people died of plague in London.

- Public entertainment, theatres and ale-houses were closed
- Pigs were no longer allowed to forage in the city.
- Culling of cats and dogs
- Fires were lit to drive away bad air (Miasma theory)
- Houses where a plague victim lived were to be shut up for 40 days and a red cross painted on the door.
- No strangers were to be let into the city unless they carried a clear medical certificate.
- Bodies were to be buried after dark and in special plague pits
- Public prayers to be said every Wednesday and Friday
- Weekly fasts must be held.



Preventions in 1348

- March through the streets praying to God to spare us the plague: By order of the King
- Protect yourself by making candles as tall as yourself, and burning them in church
- Avoid eating too much
- Avoid taking a bath as opening the pores of the skin will let in the disease
- Avoid all plague victims
- Clean all the filth from the streets: by order of the King
- Carry a posy of sweet smelling herbs and spices to keep away the evil smell
- Attend church and pray for your soul every day to keep you healthy
- Bathe in urine three times a day, or drink it once a day to protect you from harm

It was local governments (town and parish councils) that implemented these measures not an act of national government. It is possible that the Great Fire of London helped to end this particular outbreak of the plague.

What key differences can you find between what people believed about, and how they responded to the plague firstly in the Middle Ages and then later in the Renaissance?

5e) The beginnings of change: The Great Plague 1665

Study the info on page 33 and answer the following questions

1. When did the Great Plague break out in London?
2. How many people died of the plague in London?
3. Name 3 beliefs about what caused the plague?
4. Name 3 responses to the plague in 1665 that were different from responses to the black Death in 1348.
5. Why authority made the decisions about what should be done to prevent the plague?

Practise exam question

Compare responses to the Plague during the Renaissance to the Middle Ages. In what ways are they similar? (8 marks)

Refer to both time periods in your answer. You must stick to similarities and examples of continuity in this question do not look for differences. Give specific examples from your contextual knowledge.

The Renaissance and Public Health

- The English governments did not pass laws to improve health or protect from disease but local governments sometimes did. Mayors and town councils often made decisions like the culling of cats and dogs or the shutting up of houses – **quarantine**.
- **Bills of Mortality** collected valuable information about who was dying and why but there was no official government body to analyse this data and do anything about why so many people were dying from disease.
- Towns and cities were even more crowded than in the Middle Ages as the population was growing and problems regarding sanitation, sewers and refuse collection remained the same or worse than in the Middle Ages.
- The Elizabethans (16th century) were very concerned about the increase in poor people and so passed **The Poor Law of 1601** which set up alms-houses and payments to the poor via a local tax and also workhouses – this Poor Law lasted for 200 years.

5e) The beginnings of change: Renaissance Public Health

Read the info on page 34 and this page then answer these questions

1. Bills of Mortality like the one below were published during the Renaissance each week. In this week what did most people die of?
2. What was the Poor Law of 1601?
3. What was a workhouse?
4. What percentage of children died before the age of 5?
5. Why was the problem of disease worse in the towns and cities?

The printing press spread new ideas but few people could read.

The church no longer controlled medical learning. Doctors and surgeons questioned more.

In the countryside most people would still visit the wise woman.

Bleeding was still the most common form of treatment for many ailments.

The Diseases and Casualties this Week

A Borne	5
Aged	43
Apoplexie	1
Rickets	17
Borne in his Bed by a Candle	1
at St Giles Cripplegate	1
Canter	1
Children	43
Crises	18
Consumption	134
Convulsion	64
Cough	3
Dropsie	33
Fever	309
Flux and Small-pox	5
Frighthead	3
Gout	1
Grind	3
Gripping in the Guts	51
Jaundies	3
Impollution	21
Infants	16
Killed by a fall from the Bell	1
try at Abchurch Lane	1
Kings evil	3
Lewdery	1
Palist	1
Plague	7165
Rickets	17
Rising of the Lighs	11
Scurvy	5
Scurvy	3
Spleen	1
Spoiled Fever	101
Stilborn	17
Stone	3
Stopping of the Stomach	3
Strangury	1
Suddenly	1
Surfeit	49
Teeth	131
Thrush	5
Tongue	1
Typhic	11
Vomiting	3
Winde	3
Wormes	15

Males	95
Carried	81
In all	176

Males	4091
Buried	4103
In all	8194

Increased in the Buriall this Week 607

Parishes clear of the Plague 4 Parishes Infected 176

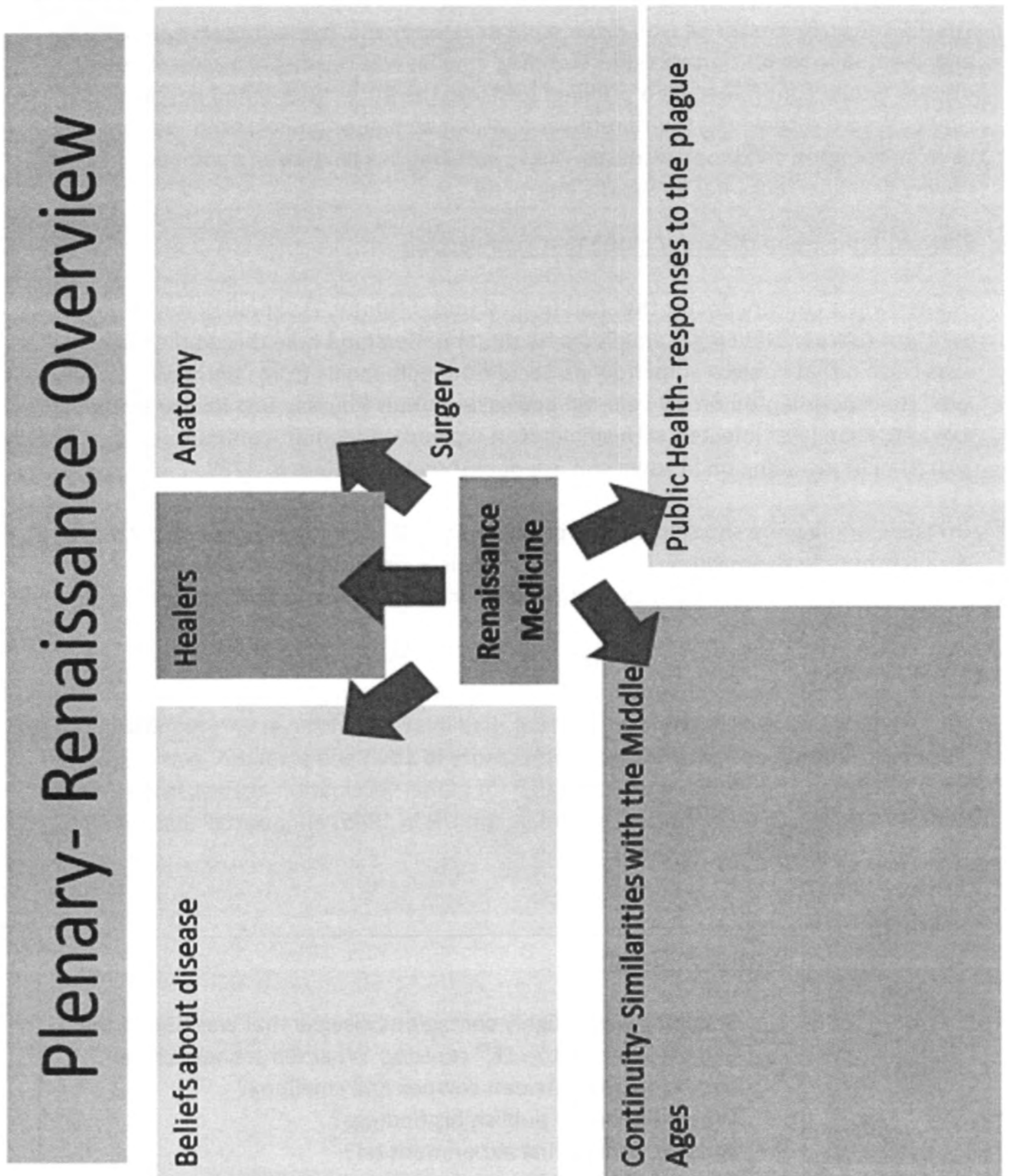
The Office of Bread set forth by Order of the Lord Mayor and Court of Aldermen,
A penny Wheaten Loaf to contain Nine Ounces and a half, and three
half penny White Loaves the like weight.

People seemed more aware that outbreaks of disease were worse in crowded towns and cities and among the poorest areas.

People were starting to make clear links between dirt and disease.

People still did not know what caused or how to cure the plague. 1665

Infant mortality remained very high and about 30% of all children died by the age of 5.



Using your knowledge complete this diagram.

6a) 1750-1900: A revolution in Medicine- An Introduction

The 18th and 19th centuries would see rapid developments in how to prevent disease and eventually **revolutionary understanding** in what was causing diseases. Curing disease would continue to be a problem well into the 20th century and beyond. Nowadays we receive many different vaccinations as babies and children that protect us from common childhood diseases. These vaccinations have been an important part of why life expectancy has so rapidly improved.

Edward Jenner and the story of the first ever vaccine

Jenner was a country doctor that had trained under Hunter. He knew that milk-maids who got **cowpox** NEVER got smallpox. He didn't understand how this worked but he was certain that cowpox somehow protected the milk-maids from contracting smallpox. He experimented on a 9 year old boy called **James Phipps**; first Phipps was given cowpox, than later infected with smallpox. It worked and Jenner continued to experiment including on his own son. He published his findings in **1797**.

Initially people were shocked and sceptical about the idea of being given cowpox to protect them from smallpox. It didn't help that **Jenner could not explain how vaccination worked**. (Vacca is the Latin word for cow.) Jenner did not charge for his vaccination service.

The government however supported Jenner's findings and gave him **£30, 000** in funding to set up vaccination clinic. Jenner died in 1823 but the government went on to make **vaccination against smallpox compulsory in 1853** and smallpox was eradicated from Britain. In 1980 following a campaign for global vaccination against smallpox the WHO (world Health Organisation- set up by the UN in 1945) announced that smallpox had been eradicated as a disease.



Discussion Questions

1. Smallpox was a highly contagious disease that was one of the biggest killers in the 18th century. What did Jenner notice about the link between cowpox and smallpox?
2. When did Jenner publish his findings?
3. Who did Jenner first experiment on?
4. How did the British government support the campaign against smallpox?

6a) 1750-1900: A revolution in Medicine- The response to the smallpox vaccine

Most historians today regard Jenner's contribution to medicine as hugely significant. Many other vaccines followed like those developed by **Pasteur, Koch and Erlich's (19th century)** research teams to prevent polio, measles and diphtheria. Today we are vaccinated as children against many diseases. The most well known vaccine today is the MMR (Measles, mumps and rubella) .

Opinions against vaccination

Prior to Jenner's vaccination, doctors had been **inoculating** people against smallpox by attempting to give them a weak strain of smallpox that would not kill them. But this was a huge gamble and many patients died following inoculation. Also some doctors charged a fortune for people to be inoculated – these doctors were angry and jealous of Jenner's success with vaccination as it made them look foolish.

Jenner was also highly **criticised by the Church-** who said that only God should have the power to prevent a disease.

Some people hated the idea of the government interfering in their daily lives and refused to have their children vaccinated even after it was made compulsory.

People often resist change and because Jenner could not explain how his method worked many people continued to oppose vaccination.



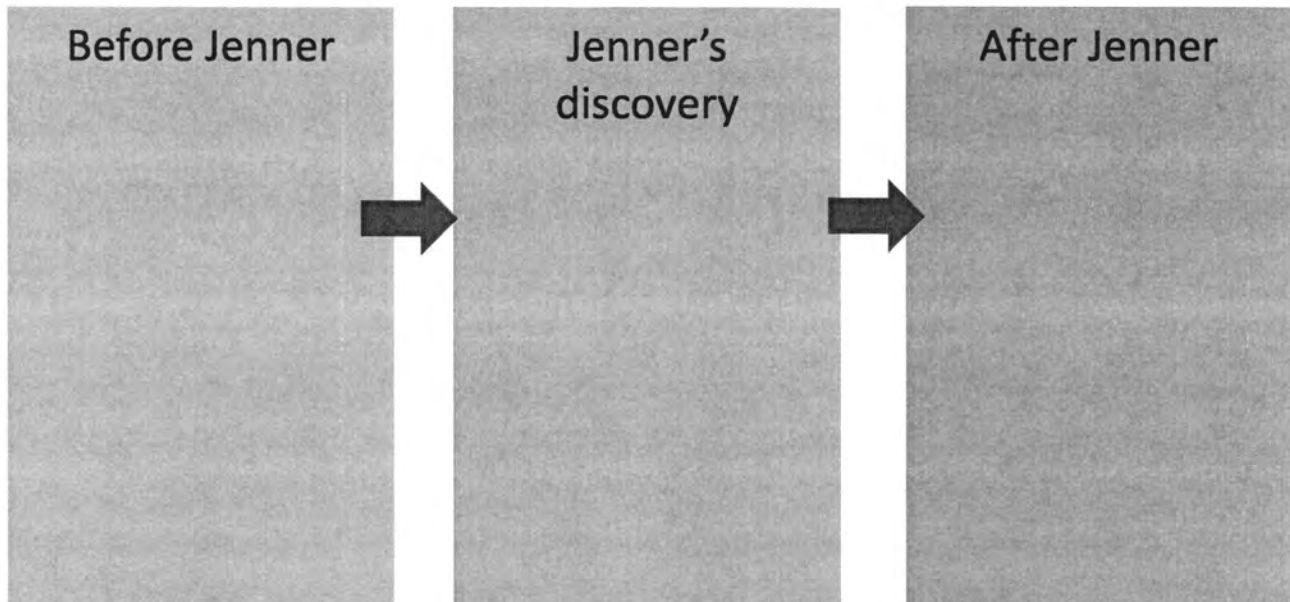
Source A is a cartoon by James Gillray from 1802 it shows that some of the public did not understand vaccination and were afraid of it.

Discussion Questions

1. What can we learn from source A about attitudes towards vaccination?
2. Why did doctor's oppose vaccination?
3. Why did the church oppose vaccination?
4. Why did some of the public oppose compulsory vaccination?
5. How did people try and protect themselves against disease before vaccination?
6. What vaccinations have you had? ³⁹

6a) 1750-1900: A revolution in Medicine- The response to the smallpox vaccine

Using the info on pages 37 and 38 complete this diagram.



Exam Practise Question

(No 2 on the Britain and Health Paper)

Explain the significance of Edward Jenner in protecting people against disease? (8 marks)

3 part question- cause and consequence, change and development

Before, during and after

6b) 1750-1900: A revolution in Medicine-

1. The nineteenth century saw massive **population growth** – from 16.3 million in 1801 to 41.6 million in 1901.
2. Three people made major scientific discoveries for medicine: **Louis Pasteur, Robert Koch and Paul Ehrlich**. They paved the way for further developments.
3. Pasteur discovered germs and developed the **germ theory** – the idea that disease is caused by germs. **Koch invented a way to stain bacteria so you could see them and identify** which bacteria caused different diseases. **Ehrlich invented 'magic bullets'**, drugs which could target specific organisms in the body.
4. The discovery of germs led to improvements in cleanliness in hospitals. **Lister began to use carbolic spray during operations as an antiseptic.**
5. **Anaesthetics** were also developed to make surgery and childbirth less painful.
6. Once surgery was pain free and patients were likely to survive, new techniques could be developed.
7. Rapid growth in towns led to initial **public health problems, including diseases such as cholera.**
8. Reform and improvements came eventually to Public Health, including the development of a sewage system and clean water.
9. The government worked to improve public health, with Public Health Acts in 1848 and 1875.
10. Women had to fight hard for the right to become fully qualified and registered doctors.
11. Nursing became a profession- nurses needed to be trained and qualified.



Pasteur, French scientist employed by the agricultural industry.



Koch, German scientist identified which bacteria cause which diseases.



Ehrlich, German scientist, developed the first "magic bullet" to treat a disease

6b) 1750-1900: A revolution in understanding disease



Louis Pasteur v Robert Koch

These men were contemporaries but not friends. Germany and France were at war at the time. These men were rivals.



Who made the greatest contribution? - You decide

The Major Breakthrough-The Germ Theory

For centuries since the theory of the four humors or the miasma theory.

In the late 1600's a Dutch clock maker, **Leeuwenhoek** had invented the first **microscope**. Using them he discovered that everything he studied seemed to contain **micro-organisms**.

In **1830 Joseph Lister** a British scientist developed a microscope that could magnify 1,000 times. Scientists could now observe the behaviour of micro-organisms.

In the **1850's Louis Pasteur** a French Scientist developed the germ theory. Pasteur had been called in by a brewery to help explain why vats of beer were turning bad. **He explained that germs were the problem** and that boiling the liquid could kill them. He was able to prove that microbes existing in the air could cause decay but could be killed by heat.

Following Koch's work at identifying bacteria he went on to discover **vaccines for anthrax rabies and chicken cholera**.

Robert Koch

Koch was a German doctor who became interested in Pasteur's germ theory. Between **1875-1878** he studied the disease **anthrax** which affects both animals and humans. He found bacteria inside a sheep that had died from anthrax he then grew this bacteria and injected it into hundreds of mice which went on to develop anthrax. He had thus proved that it was a particular bacterium that caused the disease.

Koch then developed a method of **staining** the bacteria so a scientist could easily observe it growing. This meant that it was easier for bacteria to be studied, identified and recorded by other scientists.

Koch and his team of **bacteriologists** went on to discover the bacterium that caused **Tuberculosis in 1882** and **Cholera in 1883**. Other scientists using his methods discovered the bacterium that caused **Typhus in 1880, Tetanus in 1884, Pneumonia in 1886, Meningitis in 1887 the plague in 1894 and Dysentery in 1898**.

Discussion Questions

1. Pasteur published his Germ Theory in 1861. (Date Rhyme- 1861 Germs aren't fun!) What was he able to prove?
2. Pasteur also discovered vaccines – against what diseases?
3. Pasteur was not a doctor but a scientist working for French agriculture. Explain how his discoveries would improve medicine anyway?
4. Koch noticed that if you stained different bacteria with the same coloured dyes they changed different colours. This enabled him to identify different bacterium – name 3 of them.
5. Pasteur's discovery of germs would go on to improve surgery and public health. Can you explain why?

6b) 1750-1900: A revolution in understanding disease

Technology

Microscope
Better glass making - swan neck glass

Industry

Pasteur was asked by the wine industry to investigate why wine was going bad

Poultry industry asks Pasteur to investigate the chicken cholera epidemic

Experiment

Showed that germs could be destroyed by boiling (pasteurisation)

Proved that weaker strains of chicken cholera could provide immunity

Proved that weaker strains of anthrax could provide immunity.

Proved that weaker strains of rabies could provide immunity.

Communications

The telegraph relayed Pasteur's experiments and their success all round the globe. Newspapers and medical journals published articles about his work.

Railway networks across Europe enabled scientists to meet up and share work.

Chance

Pasteur's assistant Chamberland forgot to inject chickens with a chicken-cholera culture. He left the culture out in the open air. This weakened it. When the chickens were eventually injected with that culture they became immune to another dose of chicken cholera. This became a vaccine.

The rabies vaccine may not have been tested on humans if Joseph Meister's mother had not brought him to Pasteur

War

Rivalry with Germany, (Franco-Prussian war) led to competition with Robert Koch eminent German scientist. The two had a race to discover vaccinations.

Pasteur found vaccinations for chicken cholera, rabies and anthrax.

Koch identified the germs (bacteria and viruses) that caused for tuberculosis, cholera and blood poisoning. (septicaemia).

Shade in the 3 factors that you think helped Pasteur the most to make his discoveries.

Robert Koch uses Science and Technology



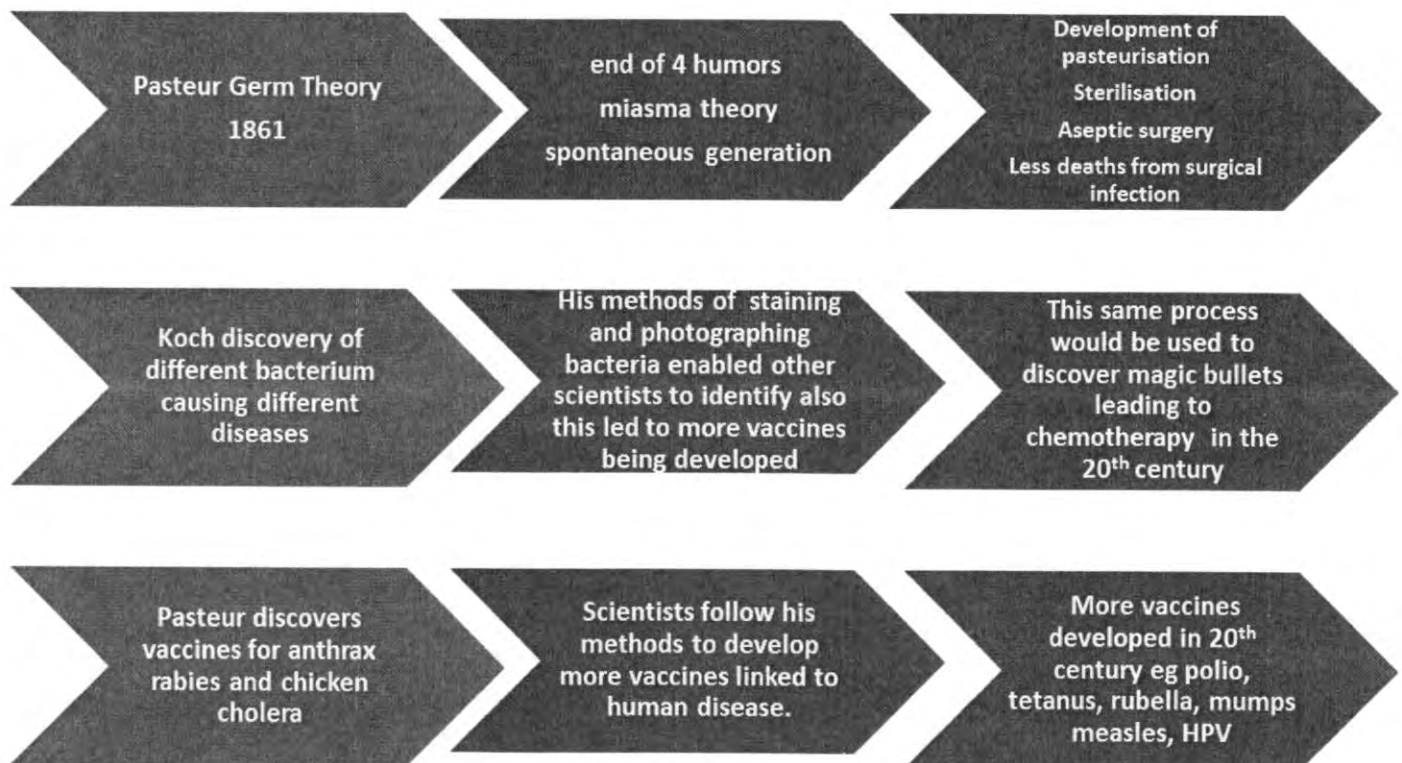
Example 1- He used solid cultures like agar jelly to breed lots of bacteria

Example 2- He used chemical dyes and observed how the bacteria changed- they were now more visible under the microscope .

Example 3- He photographed (photography was a new invention) images of the bacteria so that other scientists could also identify them.

This image is a still from a film about the work of Robert Koch. Why do you think a film was made about him?

6b) 1750-1900: A revolution in understanding disease



The work of Pasteur and Koch had a **hugely significant** and **long-term impact** on people's understanding of the causes of disease and also how to prevent them through vaccines. Other "microbe hunters" would follow their work and methods and by the end of the 1800s the causes of many more killer diseases had been developed. Once the bacteria causing the disease had been identified a vaccine could be developed. The use of vaccines in the 20th century meant that most of the big killer diseases from the 19th century are no longer an issue today.

Answer this question in the space-below. Using the diagram above to help.
What was the long-term impact of discoveries by Pasteur and Koch in the 19th century?

6b) 1750-1900: A revolution in understanding disease

The **magic bullet** was a scientific concept developed by a German Nobel laureate Paul Ehrlich in 1900. While working at the Institute of Experimental Therapy, Ehrlich formed an idea that it could be possible to kill specific microbes (such as syphilis) that cause diseases without harming the body itself. He named the idea "the magic bullet." He envisioned that just like a bullet fired from a gun to hit a specific target, there could be a way to specifically target invading microbes. His continued research to discover the magic bullet resulted in further knowledge of the functions of the body's immune system, and in the development of **Salvarsan 606**, the first effective chemical drug ever made. His work was the foundation of **immunology**, and for his contributions he shared the 1908 Nobel Prize in Physiology or Medicine with Élie Metchnikoff

1. What is the idea behind the magic bullet?
2. Who discovered the first magic bullet?
3. What was the first ever magic bullet called?
4. When did Ehrlich win a Nobel Prize in Medicine ?
5. Why was this concept such a big leap forward in treating disease?

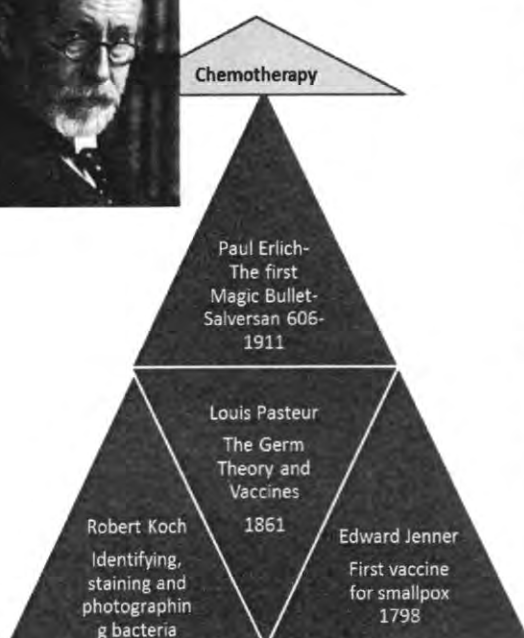
Paul Ehrlich = early 20th century

Paul Ehrlich was a young scientist when he joined the research team of **Robert Koch**. He, along with another Scientist, **Emi Behring**, developed an interest in the **antibodies** produced by the human body. His studies of these led him to believe that a chemical substance could be produced to work alongside these antibodies, killing specific bacteria without harming the rest of the body.

This line of research led to Ehrlich opening his own research institute, to search for '**The Magic Bullet**'. The 'Magic Bullet' was the name given to the much sought after dye or drug that would counter act the spread of infection.

Ehrlich's team tested over 600 chemical compounds, searching for one that would target and destroy the syphilis germ. The 606th compound they selected and destroyed the germ. Ehrlich rigorously tested the vaccine and in **1911 Salvarsan 606 was used for the first time on Humans**.

Ehrlich's work with Behring led to a cure for Diphtheria, he also researched extensively into the field of chemotherapy, for which he was awarded the **Nobel Prize for Medicine in 1908**.



6b) 1750-1900: A revolution in understanding disease

Technology Matters...

- Stethoscope invented 1816
- More powerful microscopes
- Thermometers
- First x-ray machine 1895
- Empirical approach now seen as all important.

Take 5 mins to practise spelling Pasteur, Koch and Ehrlich or until you make no mistakes!



Has science and technology been the main factor in understanding the causes of disease in Britain?

(16 marks) plus SPAG marks

Give at least 3 specific examples of where science and technology has helped people to understand causes of disease

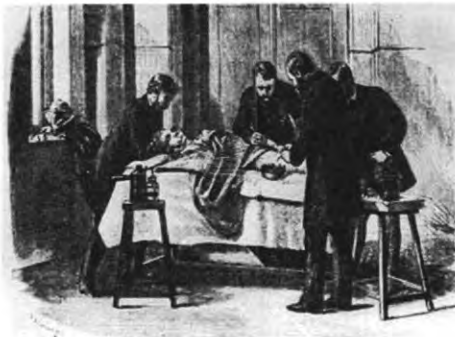
e.g. development of microscope and Pasteur's germ theory
Development of printing press and spread of new ideas like Pasteur, Koch and Ehrlich's understanding of disease, vaccines and magic bullets

BUT give examples of other factors at play in these discoveries e.g individual genius, the role of governments- do factors needed to be combined for developments to be made and have an impact. E.g. Jenner uses individual genius to develop vaccine for smallpox and scientific methods and gets backing of government £30,000 to set up vaccination clinic. Which do you think is the main factor in these developments and why?

Examiner will give extra marks for

- Specific examples
- Use of key words
- A well-structured argument- a plan, clear paragraphs
- Good SPAG

7a) 1750-1900: A revolution in surgery



Problems in surgery

1. Pain
2. Infection
3. Blood-loss

Up to the first half of the 19th century surgery remained extremely painful and dangerous. The death rate remained high following operations. Natural drugs like opium, mandrake and alcohol were used to ease pain but couldn't be considered completely effective anaesthetics.

1811

Mastectomy

"Yet—when the dreadful steel was plunged into the breast—cutting through veins—arteries—flesh—nerves—I needed no injunctions not to restrain my cries. I began a scream that lasted unintermittingly during the whole time of the incision—and I almost marvel that it rings not in my Ears still! so excruciating was the agony. When the wound was made, and the instrument was withdrawn, the pain seemed undiminished, for the air that suddenly rushed into those delicate parts felt like a mass of minute but sharp and forked poniards, that were tearing the edges of the wound—but when again I felt the instrument—describing a curve—cutting against the grain, if I may so say, while the flesh resisted in a manner so forcible as to oppose and tire the hand of the operator, who was forced to change from the right to the left—then, indeed, I thought I must have expired."



The developments of Anaesthetics...

The first two attempts at developing anaesthetics were

- 1) **Nitrous Oxide** (Laughing Gas) - Had limited use as some people were not affected by it
- 2) **Ether** - Had a strong effect but was disliked by many because it was **flammable** (could ignite / blow up) had a strong **smell** and **irritated** the lungs.
- 3) These were steps in the right direction - but it was **James Simpson** who discovered **chloroform** in 1847. This was a new anaesthetic which was widely used until the early 1900s.

7a) 1750-1900: A revolution in surgery

The Revolution in Surgery

1845- **Humphrey Davey** uses **nitrous oxide** (laughing gas as an anaesthetic) British inventor

1847- **Ignaz Semmelweiss** a Hungarian doctor demands all doctors and nurses wash their hands and is labelled as a crack-pot!

1847- James Simpson Professor of Midwifery at Edinburgh University uses chloroform

1850s – J.C Warren using ether (pure alcohol fumes) as an anaesthetic. (Uni of Massachusetts) The idea catches on and Britain's most famous surgeon Robert Liston also uses it.

1853- Queen Victoria uses Chloroform in birth of her last child. Its use now become more accepted.

1861- Pasteur's germ Theory published.

1867- Joseph Lister experiments with carbolic spray as an antiseptic. ASEPATIC surgery is developed.

1889- William Halsted introduces sterilised gloves and masks.

1901- **Karl Landsteiner** discovers different blood groups- transfusions now successful

1916- sodium citrate used to prevent blood clotting so it could now be stores- blood banks

Discussion Questions

1. Why was surgery still so dangerous in 1800?
2. Which English inventor first used nitrous oxide?
3. Which Hungarian doctor was considered crazy for expecting doctors and nurses to scrub everything clean on the hospital wards?
4. Which British surgeon first uses Ether to control pain?
5. When did using chloroform as an anaesthetic become popular?
6. How is an anaesthetic different from an antiseptic?
7. Why after 1861 did surgeons like Joseph Lister start using antiseptics?
8. Why had the problem of blood-loss not been solved before 1901?

Which of the following was most important in improving surgery in the 19th century? Explain your answer below. James Simpson, Louis Pasteur or Joseph Lister?

7a) 1750-1900: A revolution in surgery

1) Many doctors were unsure about the effects of chloroform and how much should be given



Why did people oppose the use of anaesthetics?

2) Many were against it because they believed pain was invented by God. They said that the pain of childbirth made women more religious and improved their moral character. It would be unnatural to stop it.

It took 10 years for Simpson's ideas to be recognised...

He was helped by Queen Victoria who used chloroform during childbirth

Some people can be very resistant to change. Even though Professor James Simpson had discovered a powerful anaesthetic in the form of Chloroform in 1847 not all surgeons or even all patients were willing to use it! The idea only became more acceptable once Queen Victoria used it giving birth to her 8th child.



1853- I found chloroform soothing, quietening and delightful beyond measure

However although by the mid 19th century anaesthetics were being widely used **this did not make surgery safer just less painful!** Until surgeons properly understood germs and infection they were not sterilising their surgical instruments or operating in a germ-free environment. This is known as Aseptic surgery.

• 'The black period of surgery' refers to the time in the nineteenth century when more people died as a results of infections.

• These were caused by operations where surgeons were able to operate more deeply inside the body.

• Surgeons became overconfident as patients felt no pain and tried to perform operations above their skill level.

Can you explain why, for about 30 years after the development of anaesthetics ,more people were dying after surgery than ever before?

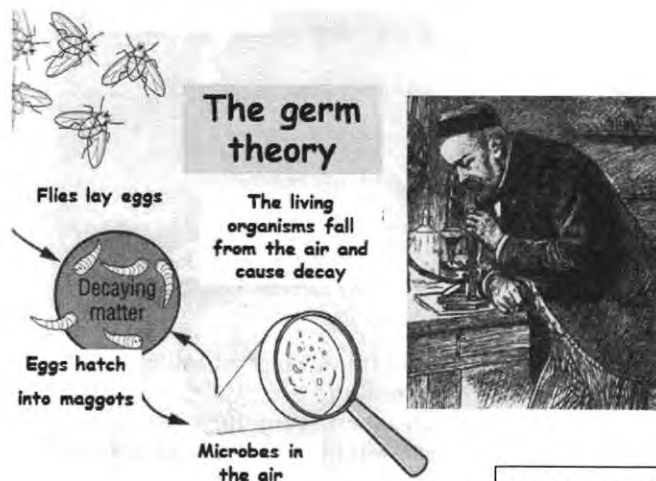
That nutcase Ignaz Semmelweiss!

1840s



- Hungarian doctor.
- Before the germ theory (1840s) used calcium chloride to clean surgical instruments.
- Insisted that junior doctors and nurses wash their hands and that the hospital floors should be kept clean.
- Although death rates from infection massively reduced most people thought he was a crack-pot
- Some nurses refused to work with him.

1860s



Joseph Lister

- English surgeon
- Joined Royal College of Surgeons in 1852
- Supports Pasteur's Germ Theory
- Started to sterilise surgical instruments with **carbolic spray** and use the spray in the room too- this disinfected the area massively reducing the risk of infection.
- This was the beginning of **aseptic surgery**.

What is Aseptic surgery?

7a) 1750-1900: A revolution in surgery- Understanding Infection



Used a spray that covered the surgeon's hands and the patient with weak carbolic acid.



Soaked bandages in carbolic acid.

The development of Antiseptic Surgery (1860's)



Cleaned the instruments with carbolic acid.

Improvements in technology also helped the development of antiseptics. **Joseph Lister** used a newly designed pump to pump **Carbolic Acid** as a spray in his operating theatre. The effects were immediate and death rates following surgery dropped from 50% to 15%.

Carbolic Acid had been used previously in sewage works to improve the smell! Carbolic acid did work well as an antiseptic but it was very powerful and it irritated both skin and lungs. Some surgeons refused to work with it even though Lister had been able to prove its benefits.

In 1881- **Charles Chamberland** – a French scientist, had been on Pasteur's research team (the one that accidentally left the chicken cholera out to discover a vaccine for chicken cholera by chance) invented a **steam steriliser** for surgical instruments. He proved that heating with steam at 140 for 20 mins destroyed the bacteria. However at this point surgeons were not yet using surgical masks and gloves so Aseptic surgery was not a reality yet.



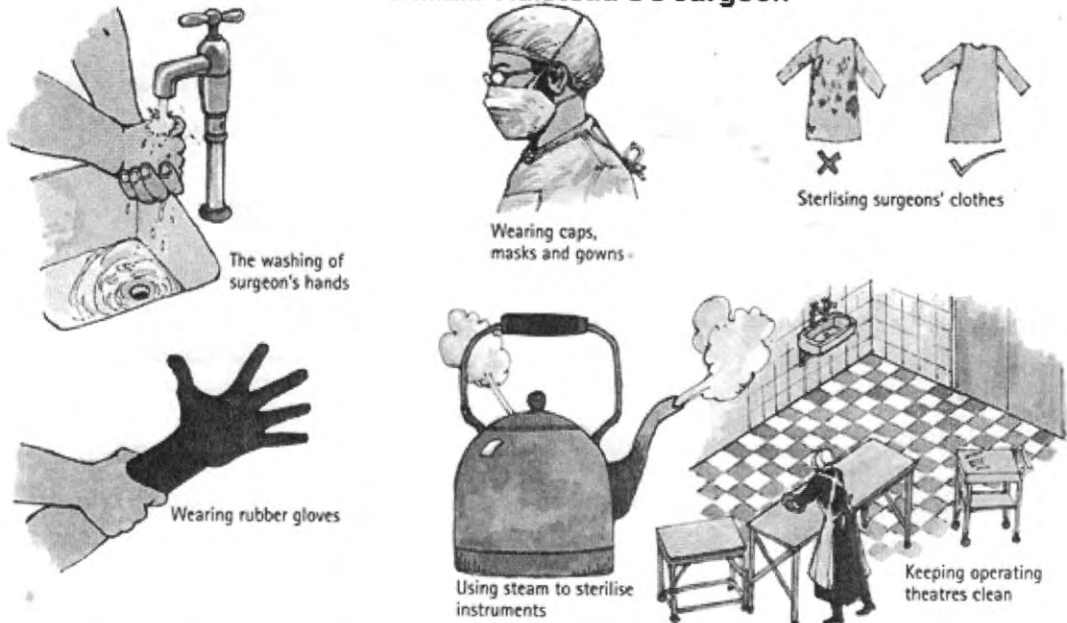
This is an image of Joseph Lister operating on a patient in 1871. In what ways had surgery improved by this point?

What still needed to improve?

7a) 1750-1900: A revolution in surgery- Understanding Infection

The development of Aseptic Surgery (1889)

William Halstead US surgeon



So did surgery develop?

- Before aseptic surgery and pain control over 40% of people died from complications in or after surgery.
- Surgery continued to be dominated by men
- The first anaesthetics were used.(Simpson chloroform)
- Lister used carbolic spray to prevent infection
- Aseptic surgery massively improved survival rates after surgery
- Some surgeons continued to disapprove of pain control and antiseptics.

Complete the table

Name	Contribution to Surgery
James Simpson	
Louis Pasteur	
Joseph Lister	
Charles Chamberland	
William Halstead	

What about the problem of blood loss?

- Lister did make a contribution here - He improved on Paré's ligatures by using sterilised catgut which did not pose any risk of infection
- Other surgeons experimented with blood transfusions but these attempts failed. The blood often clotted and even when the transfusion was successful the patient mysteriously died

Exam practise question 3 of 4

Compare surgery in the time of Joseph Lister to surgery in the Middle Ages. How were they different? (8 marks)

Remember this is not a question about Joseph Lister but about how surgeons were operating at that point in time (end of the 1800s) compared to surgery in the Middle Ages (think army-surgeons and barber-surgeons. In this case the examiner wants you to give 3 examples of how surgery differs at this time. Sometimes the question will ask you to look for similarities-examples of continuity.

8a) 1750-1900: Public Health

At the beginning of the 19th century the British population began to grow very rapidly, demand for many goods grew. Many factories were built to house machines that would produce the goods in bulk and cheaply. Working towns grew up around the factories. **Initially this brought slum housing, poor public health and epidemics of infectious diseases.**

But the Industrial Revolution also brought benefits to the world of medicine. New machines and new materials were put into use for example surgical steel. **New technological developments led to better glass which improved microscopes and led to the development of the germ theory, a huge breakthrough in understanding what caused disease.**

When electricity came into use at the end of the 19th century it opened the way for new machines to help medicine. **Other factors linked together to bring about rapid progress in medicine from the mid-nineteenth century compared to the slow pace of change seen in the previous 3,000 years.**

Living Conditions in the Towns

Houses for the working class were built as cheaply as possible. There were no building or planning regulations. There was little by the way of sewage disposal or provision for water. In the Eighteenth Century the British government had a policy of “**laissez-faire**” –leave it well alone, and did not see themselves as responsible for the nations health.

Town houses were often built back to back preventing ventilation. They were overcrowded, overrun with rats and the streets were littered with waste. Wells and streams quickly became polluted if not by human waste then by pollutants from factories.

These living conditions meant that infection spread easily. **Smallpox, tuberculosis, influenza, typhoid and typhus ravaged the population in the 18th and 19th centuries. They were joined in 1831 by a disease that had spread from China and India killing millions-Cholera.**



8a) 1750-1900: Public Health

Using all the key words in the box- describe the conditions in Industrial towns at this time.



From 1837 the Victorians collected data about births, deaths and marriages.

A civil servant **William Farr** collected and analysed this data revealing shocking differences across the country in terms of health and poverty. E.g. in Manchester 57% of all children died before their 5th birthday.

Pollution overcrowding
slum-housing
cellar-dwellings
Cholera

Poverty work-houses
lack of sanitation
no political power for working class

- Life expectancy of working class an average of 25 years lower than middle class.
- Scrotal cancer- chimney sweeps
- "Phossy Jaw"- Match-girls
- Coal-miners pneumoconiosis
- Factory injuries
- Typhoid
- Diphtheria
- Tuberculosis
- Rickets
- Cholera
- 57% of all children died before age 5

In 1846 Farr demonstrated that the average life-expectancy for a working-class male living in Liverpool was just 16 years old!

Discussion questions

1. Why were so many children dying before the age of 5 at this time?
2. Who was collecting and analysing statistics about death rates?
3. Practise spelling Diphtheria, Tuberculosis and Cholera until you make no mistakes!

8a) 1750-1900: Public Health

Progress in science led to many medical discoveries which were beyond understanding before. Doctors moved away from Galen's ideas and looked for scientific reasons for illness.

Another important effect of industrialisation was that many people moved to towns to work.= **Urbanisation**

Industrial towns were **overcrowded** and people lived in cramped, quickly-built, poor-quality housing. Health was badly affected as **infectious diseases** spread rapidly.

Only the wealthy could afford to have toilets (water closets WC) and piped water to their homes.

Public toilets and cess-pits were still being used. Cleaned out by **night-soil men**.

Any changes to public health would cost money- taxes would have to be raised- this idea would never be popular.

But in the first half of the century the government would not take responsibility for the poor- **laissez-faire**



Most people had to collect their water for washing, drinking and cooking from a stand-pipe at the end of the street. But the water in them was often contaminated with sewage from cess-pits and rivers. Until 1854 people did not know that dirty water was actually killing them. At this point **Dr John Snow** who had been investigating outbreaks of Cholera for the last 15 years was able to prove that Cholera was carried in the water supply. (This is before the Germ Theory) In 1832 Cholera had killed 21,000 people. Further outbreaks occurred into the late 1860s.

How does this source reflect people's concerns about the water supply after 1854?

8a) 1750-1900: Public Health



Cholera

Cholera is caused by a germ that attacks the intestines leading to **diarrhoea, vomiting, cramps, fever and death**. It is spread by contaminated water. Cholera was first known to have entered Britain when **William Sproat**, a sailor, died in the port of Sunderland. Doctors at the time had no idea what caused it. **The disease killed so many people that the government was forced to act.** Instructions were given about the immediate burial of the dead and the depth at which they should be buried.

By the end of 1832 most places in Britain had been effected by Cholera. Over **21,000 people had died**. The disease appeared to die out and the boards of health that had been set up to combat it were abolished. Cholera was to return however in 1848, 1854, and 1866.

Edwin Chadwick a civil servant had studied the living conditions of the poor and was convinced that this was linked to disease. **In 1842 he published a report** which revealed the living conditions of the poor to the wealthy privileged classes. The report was received by many with shock and horror. Chadwick urged that if the towns were cleaner, the workers would be healthier, could work and would not need poor relief and would therefore save ratepayers money. Many people disagreed with him believing that the poor should be responsible for themselves any help to clear up the slums would make the poor dependent on the government. However when Cholera broke out again in **1848 the government passed its first Public Health Act**. It set up a Central Board of Health in London and other boards could be set up across the country if ratepayers agreed. These boards could take over responsibility for sewage and water supply. The act was not very effective however as nothing was compulsory and many people disagreed with the idea of getting involved in public health.



Discussion Questions

1. When did Cholera first appear in Britain?
2. How many people died of Cholera in 1821?
3. What did Edwin Chadwick urge government to do?
4. When did the government pass its first ever Public Health Act?
5. Why was this act not very effective?
6. What did Laissez-faire mean?
7. Who would have to pay for these new Public Health measures?
8. What do the images above suggest?

8a) 1750-1900: Public Health



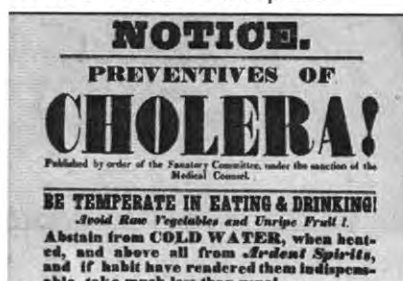
A COURT FOR KING CHOLERA.

The debate- "Clean Party" v "Dirty Party"



But also key events helped change attitudes;

- 1) The cholera 1857 outbreak frightened people and once they believed it was in the water supply they knew what could be done to help prevent it.
- 2) 1867- working class men got the vote- now the government had to respond to the needs of the poor.



This source is from 1851 before Dr John Snow proved that Cholera was in the water supply. What does it suggest about people's beliefs and attitudes at the time?

Not everyone in Parliament supported the idea of the **Public Health Act of 1848**. Reformers like Edwin Chadwick were keen for the government to improve living conditions but others saw this as too much government interference and tended to blame the poor for the conditions they were living in. They saw it as the responsibility of the people – not of the government to improve things. Reformers that called for Parliament to improve things were nicknamed the Clean party. Those that felt this was not the government's responsibility were nicknamed the dirty party.

Which of these do you think is the main reason why the government passed the 1848 Public Health Act?

- i) The report by Edwin Chadwick
- ii) The Cholera outbreaks
- iii) Concern for the working class?

8a) 1750-1900: Public Health Reformers

Who helped change the government's attitude to Public Health?



Dr John Snow

Respected doctor. In 1854 proved that Cholera was spreading through the water supply. (But many people still clung to the miasma (bad air) theory.) The Broad Street pump.



Edwin Chadwick

1842 wrote a report on how bad the living conditions were in the cities. "Report on the Sanitary Conditions of the Labouring Classes." People were horrified by what they read. He recommended that the government build sewers, clean up the streets, provide clean water and appoint medical officers for every area.



Octavia Hill

Christian Socialist reformer. Bought slum houses in 1865 and transformed them into clean, hygienic homes. Encouraged the government to start knocking down slums.



William Farr

After 1837 all births, deaths and marriages had to be registered. Farr carefully analysed this information to present a picture of the health of the nation. Found out that the average life-expectancy for a labourer in Liverpool was just 16!!!! Whereas richer people living outside of the cities were living far longer.

Thomas Southwood Smith



- 1824 made Physician at London Fever Hospital
- Studied diseases that mostly effected the poor
- Published papers that gave data and examples to support the work of Edwin Chadwick 1843. Both their evidence helped to convince the government to introduce the first Public Health Act 1848
- Helped to set up the Health of Towns Association with Edwin Chadwick.
- Gave support to the "Clean Party" in government.

Dr Barnardo



1866 went to London to train as doctor- appalled by poverty set up the first "Ragged School" in the East End.

Food, education and employment help provided.

Also set up Barnardo's foster homes for destitute children

Read the information above about key reformers from this period and complete the table below.

Reformer	What they did	The impact of this
William Farr		
Edwin Chadwick		
Dr Southwood Smith		
Dr John Snow		
Octavia Hill		
Dr Barnardo		

8a) 1750-1900: Public Health Act 1875

In 1858 **The Great Stink** (an appalling smell from the polluted River Thames) shut down parliament. So in 1859 they commissioned **Joseph Bazalgette** to build sewers across London. These sewers are still in use today and at the time helped to reduce deaths from Cholera.

The 1875 Public Health Act

(Much better than the first one in 1848- this one was not voluntary. Government said that Local authorities had to provide the following.)

The Act set up a **General Board of Health** (Chadwick was on it.) It was their job to set up **Local Boards of Health** that would make sure that town councils did the following;

The act required all new residential construction to include running water and an internal drainage system.

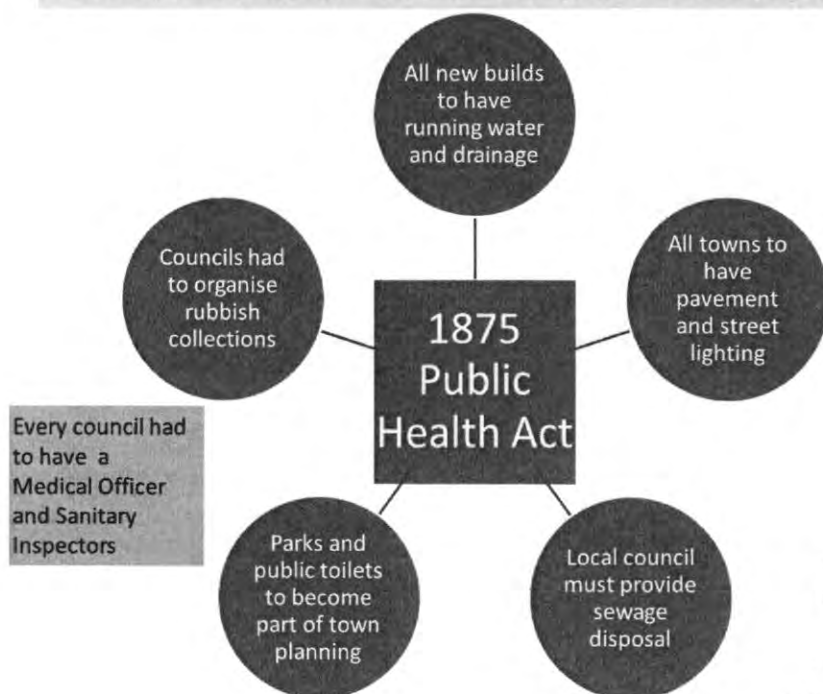
The act also meant that towns had to have pavements and street lighting.

Town councils also had to include parks and public toilets in all town planning. (Influence of Octavia Hill)

Sewers had to be built.

Town councils had to collect and dispose of household waste. (Bin collections)

This was the end of Laissez-Faire and did much to clean up the streets and improve the Health of the people in inner cities. It helped to reduce Cholera outbreaks. However it was not perfect; for example, slum housing still existed in the 1940s.



Did this all work?

1900 no deaths from typhus smallpox or cholera in London.

Some town councils like Lincoln tried to take short-cuts and reduce costs to tax-payers outbreaks of disease continued there.

- In 1902 over half the recruits volunteering to fight in the Boer War were rejected for being unfit to serve!

8a) 1750-1900: Exam Practise- Public Health

Discussion Questions

- 1) What was the Great Stink?
- 2) Who built the sewers under London?
- 3) List 5 things that the Public Health Act of 1875 provided.
- 4) Why was this act so much better than the 1848 one?
- 5) What public health problems continued?

Explain the significance of 19th century reformers on the government's attitude to Public Health? (8marks)

Question 2 of 4

Before them

What they did

What they changed

At least 3 reformers.

Different Factors Affect change at different times- they work in combination to bring about change or even hold change back. Learn this acronym for different factors that affect medicine.

W= War
I= Ideas
S= Science and Technology
E= economy (money and trade)

P= people
I= individuals
G= governments
S= superstition and religion

Communicate by Chance



Has the role of government been the main factor in the development of Public Health? (16 marks plus 4 SPAG)

WISE PIGS Communicate by Chance. (Factors) Talk about 2 others as well as role of government. (3 factors in total)

Can you show how the factors interlink- work together, depend on each other to create change?

Specific examples and lots of detail needed.

2 pages!

Biggest question on the paper.

Question 4 of 4

Role of government 3 examples

Role of individuals (?) 3 examples

Role of science and technology (?) 3 examples

Florence Nightingale



- During the Crimean War transformed an army hospital at Scutari.
- Mortality rates for wounded soldiers reduced from 40% to 2%
- Wrote "Notes on Nursing" 1863
- Set up the first nurse training school at St. Thomas' hospital in London.
- She raised the £44, 000 funding needed herself.
- Emphasis was on clean, safe, well-ventilated hospitals
- Nursing now becomes a respectable profession.



Mary Seacole

- Ex-slave from Jamaica
- 1854 travelled to Britain and then onto the Crimea as a nurse.
- Became as famous in her own lifetime as Florence Nightingale for excellent standards of nursing.
- Wrote a book about her travels and experiences.
- Probably due to the racial prejudice of the time- she was never as influential back home in Britain as Florence Nightingale became after the war.

- By the start of the 20th century there were about 500 female doctors in Britain
- Today 35% of all doctors are women.
- 20 % of all surgeons are women
- Conversely 92% OF ALL NURSES ARE WOMEN

Discussion Questions

1. Why did the work of Florence Nightingale have more of an impact than the work of Mary Seacole? (Don't just talk about racial attitudes think about what Nightingale achieved.)

9a) 1750-1900: Women in 19th century Medicine

Elizabeth Garrett Anderson



- No university would let her do a course on medicine
- Took an exam with the **Society of Apothecaries**- gained the highest marks- so they banned all women from studying!
- Set up the **New Hospital for Women and Children in 1872**
- 1870 she learned French and went to study Medicine at University in Paris.
- She gained membership of the **British Medical Association in 1873** but was the only woman in the BMA for 20 years.
- **1874**- helped to set up the London School of Medicine for women. The idea of women doctors was becoming more acceptable thanks to her efforts.



Sophia Jex Blake

- 1869- applied to Edinburgh University to study medicine but was rejected because she would be the only woman.
- She advertised for other women to join her and eventually the "Edinburgh Seven" started studying but other male students started to protest and riot!
- Even though Sophia Jex Blake and another- Edith Peachy qualified with the highest marks the University refused to award them their degrees!
- In 1877 Jex Blake gained her degree finally from a university in Switzerland.
- Helped set up the New Hospital for Women and Children with Garrett-Anderson

Public attitudes against women as doctors was very strong. Some male students refused to attend lectures where women were present.



1. How useful is this source for reflecting typical attitudes to the idea of female doctors?
2. What prejudices do you think women faced at this time?
3. Why can Elizabeth Garrett Anderson and Sophia Jex Blake be regarded as pioneers?

10 a) 1900 to present day: Rapid progress in Medicine

1. **Alexander Fleming** worked on **developing penicillin** – an antibiotic which could kill bacteria and cure disease.
2. World War One and its horrific injuries led to developments in plastic surgery, skin grafts and reconstruction.
3. **The National Health Service was set up in 1948**, offering free healthcare to all.
4. Alternative medicine, including herbal remedies, acupuncture, aromatherapy and reflexology, offer a different approach to pills and drugs.
5. **X-ray technology** was developed in the early 20th century to allow doctors to easily see inside patients.
6. Many new surgical procedures have been developed, including transplants, heart pacemakers, hip replacements and test tube babies. Keyhole surgery is now common.
7. There are debates about whether science and technology is taking us too far and there is a risk we could end up 'playing God', with experiments in cloning and sterilisation taking place.
8. The Liberal Government of 1906 – 14 passed a series of laws to improve the health and well-being of the people, including introducing **National Insurance (1911)** and banning back to back houses (1909). **Later in 1948 the NHS would be set-up.**
9. Nowadays we have new concerns – obesity, unhealthy lifestyles, smoking, alcohol and the risk that 'super-bugs' will develop which can't be killed by antibiotics.
10. Many diseases have been wiped out altogether in Britain, but research continues in the battle against diseases such as cancer and new threats appear in the media, such as swine flu or the Ebola virus.

Key words

Check your understanding of these words and phrases.

Antibiotics

Hereditary diseases

DNA

X-rays

homeopathy

lifestyle illnesses

Thalidomide

Pandemic

10 a) 1900 to present day: A bad start to the 20th century.

1900- Child mortality was high

Deaths from infectious diseases was still high.

No understanding of DNA and genetically inherited diseases.

RAPID PROGRESS

2000- wide range of chemical drugs and antibiotics to fight infections, viruses and genetic illnesses. Better understanding of mental health. Transplant surgery.

A 20th century Pandemic

- Spanish Flu- killed 20-40 million people world wide.
- Hit war-ravaged Europe in 1918- spread by mass troop movements.
- ¼ million died in the UK
- No cures available- no antibiotics or flu vaccines yet

Doctors and scientists had developed many different vaccines by the start of the 20th century which helped **prevent** many diseases but curing disease using chemical drugs was a fairly new development (Ehrlich and the Magic Bullet) When the Spanish Flu hit Europe after World War One doctors struggled to cope with the numbers of patients dying. During the war many wounded soldiers had died from infections. It seemed that doctors were no closer to effectively treating illnesses than before.

10 a) 1900 to present day: Penicillin- The Wonder Drug.



The Story of Penicillin

Alexander Fleming

- Served in WWI- saw lots of infections from wounds
- Staphylococci caused septicaemia (blood poisoning)
- 1928 returned from holiday noticed penicillin mould growing in a petri dish and staphylococci bacteria around it had been killed off.
- He called it an antibiotic- "destroys life"
- Published results 1929 but couldn't secure funding to develop the drug.



Florey and Chain

- Oxford Scientists in 1937 read Fleming's work and studied penicillin.
- 1941 trialled on a wounded policeman with septicaemia kept him alive for 5 days until their supply of penicillin ran out.
- Second World War US and British governments jointly provided funding to develop the drug in quantity and first used it on troops from 1943 onwards- saved countless lives
- Penicillin used to treat bronchitis, impetigo, pneumonia, tonsillitis, syphilis, meningitis, boils, abscesses and many other infections and wounds.

How did the factors of chance, war and government effect the development of penicillin as the first antibiotic?

1945 Fleming, Florey and Chain received the Nobel Prize for Medicine.



Source A- August 1944 an advert for penicillin.

How useful is Source A for finding out about the production of penicillin?
(8 marks)

10 a) 1900 to present day: The Drug Revolution

Pharmaceuticals and antibiotics into the 21st century...

As you have learnt, medicine and procedures have developed dramatically through the ages. Today, the pharmaceutical industry is one of the biggest industries in the world, worth an estimated **£200 billion to £300 billion**. But they are facing an ever changing world when it comes to drugs, medicines and cures...

Chemotherapy is when a cocktail of chemical drugs is used to fight an illness like cancer.

Drug companies began to make fortunes from making medicines but the research for these new drugs is very expensive. Some less common diseases are neglected by drug companies as they will not make any money from them.

Most medicines have side effects.

All medicines have to be tested before use on humans.

Not all have been tested carefully enough

Thalidomide- a drug intended to relieve morning sickness led to thousands of deformed babies- 1950s. This tragedy prompted much stricter regulations about testing drugs. Since 1963 all drugs have to pass very strict tests by government agencies.

Holistic/ Alternative Medicine

- Acupuncture
- Aromatherapy
- Hydrotherapy
- Hypnotherapy
- Homeopathy
- These treatments although increasingly popular have been discredited by the scientific world.

Superbugs

- MRSA
- Norovirus

Over- use of antibiotics both in humans and animals has led to many bacteria and infections becoming resistant to them. Scientists are really concerned about this being an increasing problem in the future.

Discussion Questions

1. What is chemotherapy?
2. Why was Thalidomide such a scandal in the 1950s?
3. Which examples of alternative medicine have you heard of before or tried?
4. Can you name any drug/pharmaceutical companies?
5. Why is strict government regulation of drugs necessary?
6. What is a super-bug?

10 a) 1900 to present day: Understanding Hereditary Diseases

Cambridge University – **James Watson and Francis Crick** worked together on studying the structure of DNA (deoxyribonucleic acid), the molecule that contains the hereditary information for cells. Watson, Crick and Wilkins shared the Nobel Prize in Medicine in 1962.

How significant was the discovery of DNA?



- Possibly the most important medical discovery of the 20th century
- Now genes could be identified that trigger major diseases
- Drugs could be developed that worked specifically with that individuals genetics- custom made drugs
- Stem cells are being used in all area of medicine to build genetic material and to re-programme cells
- Due to understanding the genetic nature of many diseases people are screened earlier

Exam Practise Question

Explain the significance of the discovery of DNA in the 1950s? (8 marks)

What was this discovery?

What did it change?

A consequence and impact question.

10 a) 1900 to present day: Understanding disease- a summary

A Modern Pandemic- AIDS

- First identified in 1981
- The HIV virus attacks the immune system
- By 2014- 40 million people had died of the disease and another 40 million are living with it.
- Spread via drug use (needles) and unprotected sex- this is classed as a Lifestyle disease.

What do you think is the most important breakthrough in the 20th century?

- i) The discovery of penicillin
- ii) Chemotherapy
- iii) Understanding human DNA

Be ready to explain your answer.

Understanding causes and cures for disease in the 20th century- A summary

- Rapid progress was made
- Child mortality rates massively dropped.
- Life expectancy steadily increased
- 1918 saw massive worldwide pandemic – **Spanish Flu** kill between 20 and 40 million people. No antibiotics or anti-viral drugs to help back then.
- **1928 Alexander Fleming discovered penicillin** – his work was developed by two scientists Florey and Chain in the 1930s and the British and Us governments invested into its production meaning penicillin could be used on wounded soldiers at the end of WWII.
- Thousands of pills were prescribed by doctors for many different ailments but the drugs were not always rigorously tested. The **Thalidomide** scandal of the 1960s ensured that drug testing became much more thorough.
- **Holistic/ Alternative** medicine has become very popular in the later half of the 20th century and today although the effectiveness of therapies like acupuncture, aromatherapy and homeopathy has not been scientifically proven.
- **DNA was discovered by scientists Crick and Watson in the 1950s** – now doctors and scientists know that many illnesses can be caused by a genetic defect and drugs can be tailor made to work for individual patients.
- In 2017 the UK government approved 3 parent babies so that parents with a genetic defect can have that section of their DNA replaced with a donor's DNA.

1. What happened to child mortality and life expectancy in the 20th century?
2. Why are people living longer now than in 1900? (Think of at least 3 reasons)

10 b) 1900 to present day: 20th century surgery

20th Century Surgery – Key Words

Endoscope- microscopic camera on the end of a wire that can be sent into the body.

CT and MRI scans – provide a 3D image of the inside of the body

Aseptic surgery- operating in a germ free environment

Karl Landsteiner- Austrian scientist discovered blood types- this enabled blood transfusions to be successful

Harold Gillies- famous surgeon WWI- developed cosmetic surgery techniques- skin grafts

Wilhelm Rontgen - discovered x-rays in 1895- mobile x-ray machines developed for WWI

Sir Archibald McIndoe- New Zealand surgeon WWII – famous for developing cosmetic surgery techniques alongside psychological help for patients.

Christiaan Barnard- South African surgeon performed the first heart transplant in 1967

Surgery developed rapidly in the 20th century. War, technology and individuals made a massive contribution to the progress made.

The kidney was the first organ to be transplanted in 1954 but since then thousands of successful organ transplants have taken place thanks to the development of **immunosuppressant** drugs. These prevent the immune system from attacking the donor organ.

Lasers became widespread in the use of medicine from the 1980s and is often used to correct vision, burn away cancerous tumours and in dentistry. Advances in video technology led to the development of key-hole surgery.

Discussion Questions

1. What did Wilhelm Roentgen discover and why was this useful?
2. When was the first heart transplant performed and who by?
3. What is an immunosuppressant drug?

10 b) 1900 to present day: 20th century surgery



Blood Transfusions

- 1901- Karl Landsteiner, Austrian Scientist discovers different blood types.
- Initially blood had to be delivered directly from donor to patient.
- British army figured out how to store blood using Sodium Citrate and in October 1915 used the first blood banks.
- 1921- British Red Cross set up blood donor scheme



In the 20th Century science and technology were used to further improve surgery:

- **Electricity** – Power machinery such as artificial kidney machines
- **Plastics and steel** – Brain surgery, Artificial limbs and joints
- **X Ray** – Allowed surgeons to investigate problems without invasive surgery- first discovered by **Wilhelm Roentgen** in 1895. Radiotherapy would be developed between the wars to destroy cancer cells.
- **CT scans** would provide a 3D x-ray image inside the body.
- **Electrocardiograph** – Monitor heartbeat
- **Endoscopes** – Operate and see inside the body without the need to make large incisions
- **Microscopes** – Microscopic surgery on nerves
- Laser treatment for eyes and some tumours

10 b) 1900 to present day: 20th century surgery and war



How did two World Wars affect medicine?

Positives	Negatives
Surgeons practiced new techniques Medics (Royal Army Medical Corp) set up	Stopped governments spending money on medical research
Mobile X-ray machines developed for finding bullets and shrapnel	14,000 doctors removed from helping at home to serve the armed forces WWI many more in WWII
Poor health of recruits encouraged governments to improve health and welfare at home	Field hospitals awful conditions deaths from infection very high
Government promised soldiers "Homes for Heroes"	Millions of casualties
Blood transfusions and blood banks developed by the army	20 million injured in WWI
Skin grafts and plastic surgery developed- Harold Gillies treated 5,000 men for facial injuries in WWI - regraded as the pioneer of plastic surgery.	60 million injured WWII
Development of artificial limbs	
By WWII better understanding of psychological effects of war.	
US government support for mass production of penicillin	
WWII- British government reorganises health care this in turn inspired the Labour Party to develop the NHS	
Rationing WWII improved diet and nutrition	

War puts governments, doctors and surgeons under immense pressure. There are often hundreds of desperate casualties in a short-space of time. Decisions have to be made quickly and resources need to be made available. Surgeons often have to think on their feet. In the First World War **mobile x-ray machines** would help surgeons locate bullets and shrapnel. **Blood-transfusions** were made easier by learning how to store blood using **sodium citrate** and setting up blood-banks. These developments would have happened eventually anyway but the pressure of the war meant that solutions had to be found quickly.



Cosmetic Surgery

WWI- Harold Gillies

Treated 5000 men for facial injuries.
Regraded as the pioneer of plastic surgery.
Famous for successfully reconstructing damaged faces with skin grafts.



WWII Surgery and beyond...

Sir Archibald McIndoe

- A New Zealander surgeon working for the RAF during WWII
- Improved upon Gillies skin-graft techniques
- Famous for treating burns victims from Battle of Britain
- Helped with the psychological problems of injury too.
- Adored by his patients.



US army in Korean War established use of **MASH** (Mobile Army Surgical Hospital) there use has been extended by the British army ever since.

The work of Harold Gillies in cosmetic surgery during WWI was pioneering. Archie McIndoe had been his assistant and during the Second World War would perfect Gillies methods to treat badly burned pilots.

Pioneers in Modern Surgery- Revision

Joseph Lister- uses carbolic spray to create aseptic surgery- germ free environment. **C. 1870s**

James Simpson- professor of midwifery University of Edinburgh-first discovered and used chloroform as an anaesthetic. Made it acceptable for women to have pain control during childbirth. Thank you, thank you, thank you!!! **C. 1850s**

Archibald McIndoe- New Zealand Surgeon moved to Britain- develops treatment of badly burned aircrew in WWII. Develops plastic surgery techniques for facial disfigurements. Emphasised the rehabilitation of the patient. **C. 1940s**

William Stewart Halstead- US surgeon develops idea of aseptic surgery, use of anaesthetics and creates radical procedure of mastectomy for breast cancer. Also introduced hospital chart to track temperature, respiration and pulse. **C. 1880s**

Wilhelm Roentgen discovered x-rays 1895. In WWI British army would develop mobile x-ray machines.

Harold Gillies pioneered cosmetic surgery during WWI

Christiaan Barnard- South African cardiac surgeon, develops heart surgery and performs first heart transplant. **C. 1960s**

Karl Landsteiner- discovers different blood-groups 1901. Later the army figures out how to store blood and develops the first blood-banks. British Red Cross sets up blood donation scheme.

What is done today to keep germs out of the operating theatre?

- Rigorous hand washing / clean surgical 'scrubs'
- Instruments are pre-packed in sterile containers
- Air is sterilised in the operating theatre
- Some high risk operations take place in sterile 'tents' to ensure that there is no risk of infection



10 c) 1900 to present day: 20th century surgery an Overview

Factors of change	War	Science and Technology	Individuals
1.			
2.			
3.			
4.			
5.			

Use the information from pages 70-74 to find 5 examples of how war, technology and individuals advanced surgery in the 20th century.

Has **war** been the main **factor** in the development of **surgery** in the **20th century**? (16 marks) plus 4 SPAG

Wise Pigs Communicate by Chance

Success Criteria

- Write a detailed paragraph about the developments caused by **war** in surgery in 20th century
- Write a detailed paragraph about the impact of **technology** on surgery in 20th century
- Write a detailed paragraph about the role of **individuals** in 20th century surgery
- Write a clear conclusion that shows which factor you think is the most important of these and why – or that shows how they worked together to bring about change.
- Include dates, key names and specific examples and details.
- Check your SPAG

11 a) 1900 to present day: War and Mental Health Care



"Shell-shock Psychotherapists" at the Military Hospital, Maghull, 1915. Left to right: Dr William Brown, Rivers, Grafton Elliot Smith (1871-1937).

Following a long and successful career in Medicine and Psychology in 1915 **William H Rivers** set up a mental care hospital at **Craiglockhart** in Scotland. Here he treated hundreds of the 80,000 men identified as having "Shell-shock". He did this using a variety of therapies but the best known was the "talking cure" like counselling to encourage the men to explain the horrors they had experienced in the war. Because of this approach Rivers is regarded as a pioneer in mental health care.

Shell shock was a mental health condition but presented itself in many physical ways; some men could not walk, went blind or did not talk and yet there was no physical injury to cause this response. The army had at first been unsympathetic to shellshock and 306 British and Commonwealth troops executed for cowardice.

In 2006 they were pardoned.

By 1918 attitudes towards mental health problems were slowly beginning to change with more understanding and sympathy. Today the army recognises that soldiers that have experienced battle and extreme danger may well suffer from PTSD (Post-Traumatic- Stress disorder) and Mental Health Awareness is growing into the 21st century.

Discussion Questions

1. Why was the work of William Rivers considered to be pioneering?
2. $\frac{1}{4}$ people today will experience a mental health issue this might range from anxiety to schizophrenia. The biggest killer of young men between 18 and 25 is suicide.

What support does our government and NHS give to mental health patients today?

12 a) 1900 to present day: Welfare Reforms

In the 20th century people became increasingly aware that if you were poor you had a lower life-expectancy. Reformers felt that the government needed to do more to help the poor and advocated a welfare system that would provide financial help to the most vulnerable members of society. The Liberal Government eventually responded and introduced the Liberal Welfare Reforms these would provide help for children, the elderly and to workers. Although the reforms were limited they started the idea that the state would help the poorest people.

Why did the Liberal Government introduce Public Health Reforms 1906-11?

Charles Booth

- Liverpool ship owner who originally believed that if people were poor it was their own fault.
- Between 1889 and 1903 he studied the life of the poor in London
- His findings 'Life and Labour of the people in London' changed his opinion and he concluded that 35% of London's population was living in poverty
- He used scientific methods and put people in classes, he worked out a 'poverty line' a level of income required to stay above starvation
- The scale of poverty he discovered could not be met by charity alone and was far higher than anyone in government had yet realised.

Seebohm Rowntree

- Member of the wealthy family Rowntree's chocolate factory. A Quaker (Christian sect) He decided to conduct his own research in York to compare Booth's findings. His book *Poverty, A study of Town Life* 1901 found similarities to those of Booth
- Showed poverty was widespread, nearly half of the population living in towns lived in poverty
 - These investigations found poverty was not the persons fault
 - Many of the elderly, ill and unemployed lived poor lives and workers wages were so low they could not afford the basics.
 - Booth became friends and adviser to David Lloyd George the Liberal Chancellor and later Prime Minister.

The Boer war

The Boer war broke out in 1899 between British Empire and the Boer Republicans (Dutch settlers) in South Africa. Britain thought the war would be over quickly but Boer troops were well trained and equipped and it dragged on for 3 years. 400,000 British troops were sent eventually to defeat the Boers. In some towns 90% of recruits were rejected as unfit to serve; many had rickets, polio or were malnourished.

Maud Pember Reeves

Author of "Around About a Pound." 1913. Showing that many workers were massively under-paid earning on average £1 per week and that far from spending money on alcohol and cigarettes as some people suggested women were going without food so that their husbands and children could eat.

The rise of Socialism

By 1900 2 million workers had joined Trade Unions. By 1890 the vote had been extended to include even more working class men. In 1900 a new political party called Labour was formed to represent the workers. This was a direct rival to the Liberal Party if they didn't introduce measures to help the working class they would be likely to lose votes to Labour in the next elections.



Charles Booth

Seebohm Rowntree

Maud Pember Reeves

All three wrote harrowing reports of how the poorest people in society were living. People in government were shocked to learn the extent of poverty in the towns and cities. Rowntree was probably the most significant of the 3 because he became friends and adviser to David Lloyd George the Liberal Government Chancellor and later Prime Minister.

Social Reasons

Political Reasons

Military Reasons

12 a) 1900 to present day: Welfare Reforms

- Reports by Booth and Rowntree had proved to the government that 1/3 of people in London and York were living below the poverty line.
- During the Boer War **90%** of all recruits were rejected as not fit to serve because they were malnourished or had rickets or polio. (working class lads)
- Maud Pember Reeves wrote a book called "Around About a Pound" many people now realised just how little money the poor had to survive on.
- **Labour Party set up 1900** to represent workers. Rival the Liberals for working class men's votes. The Liberals need to do something to help the poor.

Which reason do you think is the most important reason why the Liberal government introduced Welfare reforms?

Why were the Liberal Social Reforms an important turning point in public health?

1906 Provision of school meals

1906 Workmen's Compensation Act (injuries at work)

1907 School medical inspectors/

1908 Children's Charter- Now illegal to sell alcohol, tobacco and fireworks to children

1908 Old Age Pensions Act - 5 shillings a week to all those over 70.

1909 Labour Exchanges set up to help the unemployed find work

Back to Back housing banned.

1911 National Health Insurance Act - sick and unemployment pay via NI contributions.

12 a) 1900 to present day: Welfare Reforms

Use the information on page 78 and below to complete this table

Opposition to the Reforms

- **Conservatives** argued that welfare would make people too dependent on the government.
- The rich and Conservatives hated the fact that taxes on wealthier people would be raised to pay for the reforms. At first the **House of Lords** refused to pass the budget that would introduce these new taxes.
- The new **Labour party and socialists** argued that the reforms did not go far enough for example not many people lived past the age of 70 and they argued that the money for sick and unemployment pay was not enough (just 5 shillings a week) and only lasted 6 weeks. Additionally the NI scheme did not include women or the self-employed,

How did the Liberal reforms improve public health?	Date & Act Passed	Way it helped	Criticisms
Children			
Unemployed			
Sickness			
Elderly			

The **Liberal Reforms** saw a change in government **attitudes** because...

12 a) 1900 to present day: Welfare Reforms



David Lloyd George- Liberal Chancellor of the Exchequer and later Prime Minister.

- Largely responsible for getting Parliament and eventually even the House of Lords to support the many welfare reforms.
- He was in charge of the budget and lots of money via taxes on the rich had to be found to cover the cost of the Liberal Welfare Reforms.
- Friends with Seebohm Rowntree.

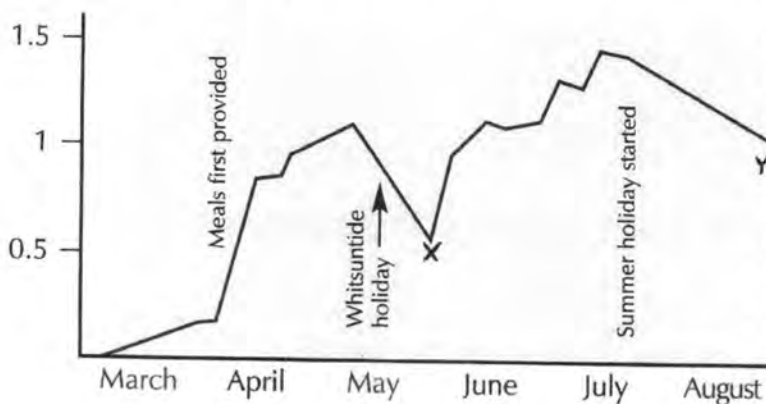
1909 Budget statement;

"This is a war budget... to wage implacable warfare against poverty and squalidness"

He also stated that the government would now protect people "from the cradle to the grave."

Weight gain of child in kgs

What does this source suggest?



Propaganda
David Lloyd George
National Insurance
scheme

Exaggerated

Public

Liberal Welfare
Reforms

From the Cradle to
the Grave.

Did they make
enough difference?

Could the country
afford them?



A graph from 1906

1. What can these sources teach us about the impact of the Liberal Welfare Reforms?

12 a) 1900 to present day: Welfare Reforms

3) Explain the significance of the Liberal Welfare Reforms. (8 marks)

Explain the situation before the reforms (mention reports by Booth and Rowntree, Boer War etc.)

Explain what the Liberal Welfare Reforms were.

Explain their impact both short-term and long-term.

Success Criteria

Any significance question is a 3 part question

Before

What changed?

After- what impact

Include specific details dates, names, examples of reforms

Make sure you explain the impact of these reforms at the time and into the future.

Choose your conclusion

a) The Liberal Welfare reforms transformed the lives of the poor in particular for children and the elderly. Free school meals were introduced and Old Age pensions that meant that the most vulnerable people in society received help from the government for the first time. The first form of unemployment, disability and sickness benefit was also introduced. The Liberal government transformed the way that provided for the poor ending laissez-faire and proving that poverty was a shared problem.

b) The Liberal Welfare reforms did not go very far providing limited support for a limited number of people. At the same time to afford them taxes on the rich had to be raised which always made welfare reforms unpopular with the powerful classes. Few people's lives were changed for the better for example few people lived past the age of 70 therefore could not collect the meagre 35p pension allowance. Similarly women and the self-employed were not entitled to sickness benefit or unemployment support. Perhaps the biggest change was the way in which children were treated in the law to protect them from the harsh realities of the adult world.

c) The Liberal Welfare reforms were an important start in the right direction. Whilst they could be criticised for not going far enough to help the poor nevertheless they set a precedent that other governments would follow. The greatest achievement of the welfare reforms was to end once and for all the dominance of laissez-faire and show that the government would increasingly provide help for its most vulnerable citizens. .

12 a) 1900 to present day: Setting up the NHS

Poverty was still having a significant impact on health. Diets of the poor in the 1930s lacked fruit and veg. Many families could not afford to pay for doctors and medicines when children became sick. The Beveridge report highlighted the fact that the government needed to do more if it were to protect its citizens from the Cradle to the Grave. Socialists welcomed the report, Conservatives said further government hand-outs would make people dependent and weak.

1914- it was made compulsory for all local councils to provide free school meals to the poorest families.

During WWII 15 % of children were receiving free school meals.

1918- Local councils to provide health visitors and clinics for pregnant women and those with toddlers.

1919 Housing and Town Planning Act – Gave local authorities a grant to help them build council houses. “Home for Heroes”

1940- campaign to get all children immunised against Diphtheria

1939- 700,000 new homes built with good sanitation and ventilation

1942- Beveridge Report proposes a free National Health Service for all.

1940-45 Food Rationing improves the diet and health of the nation

5 July 1948- introduced by a Labour government which won a landslide victory because of this issue- the National health Service began

Read the boxes above and make a decision about the most important of these reforms. Label them 1-9 with 1 being the most important and 9 being the least.

12 a) 1900 to present day: Setting up the NHS



William Beveridge- The Beveridge Report 1942

- Economist
- Had been friends and adviser to David Lloyd George
- Beveridge Report 1942-5 Giant Evils
- **“Want, Disease, Ignorance, Poverty, Squalor”**
- Advocated setting up a National Health Service
- Labour party promised they would do this and won the 1945 election- a landslide victory
- NHS created 1948
- Hospitals, doctors, pharmacists, opticians, dentists put under one umbrella and to provide healthcare free of charge.
- The money would come from taxation.

“Medical treatment should be made available to rich and poor alike in accordance with medical need and no other criteria. Worry about money in a time of sickness is a serious hindrance to recovery, apart from its unnecessary cruelty.”

Aneurin Bevan- Minister for Labour liked the Beveridge report wanted to set up the NHS.

So why was the NHS set up?

Criticisms

- Taxpayers (businesses) said it cost too much
- Conservatives said that people would become dependant
- British Medical Association (BMA) Doctors thought it would curtail their professionalism and freedom
- Demand would be too high

12 a) 1900 to present day: Setting up the NHS



Nye Bevan

- Minister for Health and Housing
- Son of a Welsh miner- socialist
- Managed to persuade 90% of doctors to join NHS by saying they could also work privately
- Taxes on rich businesses massively increased to pay for the NHS and Welfare Reforms
- ½ million new homes built (good but not as many as needed)

In 1948 the National Health Service was introduced. This provided free:

Hospital treatment, eye tests, dental treatment, GP treatment, prescriptions, vaccinations, emergency treatment, government controlled doctor training and medical research.

In 1950 as money began to run low prescription charges were introduced.

Treatment on the NHS was already no longer completely free.

Use the info on pages 82-4 to answer the following;

1. Why did some people think that a National Health Service was necessary?
2. What kinds of services would the NHS provide?
3. Who opposed the NHS and why?
4. How can we prove that the majority of the public were in favour of setting up the NHS?
5. Who do you think deserves more credit for setting up the NHS Beveridge or Bevan? Explain your answer.

12 a) 1900 to present day: Setting up the NHS

1948



Source A- A political cartoon by David Low in 1948. The man holding the large drill is Nye Bevan.

1) How useful is this source for explaining attitudes to the new NHS?
(8 marks)

Public Health after WWII

Dec 1952- Killer Smog (The Pea-Souper)

12,000 died from the pollution

100,000 more taken ill with respiratory problems.

Led to the **Clean Air Acts of 1956 and 1968** people encouraged to use gas and electricity not coal to heat homes.

1960s Slum Housing Clearance

New Towns and cities e.g. Milton Keynes

13 a) Britain and Health: The Big Picture

Complete this table summarising key changes across the periods and topics

Middle Ages	Renaissance	18 th century	19 th century	20 th century
Understanding disease				
Anatomy and Surgery				
Public Health				