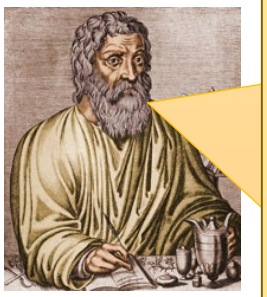
GCSE HISTORY REVISION CARDS

[PAPER|2]

Britain Health and the People

Approaches to Disease



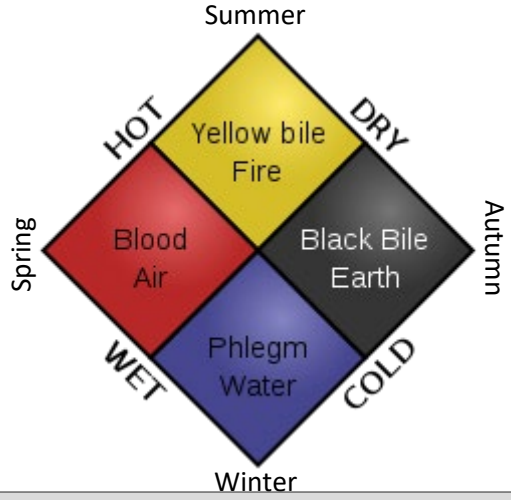
Hippocrates

Hippocrates was a Greek Doctor born around 460BC and was so influential his ideas are still used today. His main idea was to observe patients carefully to work out what was wrong with them and write down what he saw. Today we call this **clinical observation** and some doctors in medieval times would have used this. Hippocrates is best remembered for the theory of the **Four Humours** and the **Hippocratic Oath** which was an oath taken by new doctors promising to be ethical and not harm their patients.

The Four Humours

The Greeks believed the body was made up of four basic elements, the Four Humours. When the Humours were out of balance, the person became ill.

The balance of the Four Humours could be restored by reducing whichever one was out of balance. This usually meant purging (being sick) or bleeding a patient (bloodletting) using leeches or cutting to reduce their blood. This continued until the 19th century.



Galen

Galen was Greek but studied medicine in Egypt. He was a follower of Hippocrates and the most celebrated physician in the Roman Empire. He was the first doctor to encourage dissection even though it was illegal. As doctor to the gladiators in his hometown, he gained a lot of practical experience. He took the idea of the Four Humours further coming up with the Theory of Opposites. Both of these men are significant as they show a shift from supernatural causes of disease to natural causes within the body.

Theory of opposites

In the 2nd century CE, Galen took the idea of the Four Humours further. Besides bleeding and purging to reduce the excess humours, his theory aimed to restore the balance of the humours by giving the patient the 'opposite' of their symptoms. For example, if you had too much phlegm (water and cold) you should eat hot peppers.

Natural approaches to disease	Supernatural approaches to disease
Apothecaries (medicine-makers) used herbs to make medicines.	Praying to God or saints – they believed disease was punishment from God.
Burning herbs to create a sweet smell to get rid of **miasma** (smells they believed caused diseases).	**Flagellation** (publicly whipping themselves) – to show they were sorry for their sins.
	Astrology – people believed the stars and planets could be responsible for illness.

The Medieval Doctor

Hippocrates and Galen

- Most medieval doctors would have accepted Hippocrates' **Theory of the Four Humours** and Galen's **Theory of Opposites** without question.
- Unfortunately these weren't always useful and patients got worse.
- Most doctors believed in supernatural causes for disease.

Methods of treatment

Some doctors would carry a toolkit for treating people, including:

- The **vademecum** (go-with-me) diagnosis book.
- **Leeches** for balancing the humour of blood.
- **Posies** and other highly smelling objects to ward of miasma (the smells they believed caused disease)
- **Herbs** for mixing natural remedies.
- A **zodiac chart** to predict illnesses and suggest cures.

Training

New universities of physicians were set up in places like Bologna and Padua. In Padua students had to visit sick people as part of their training. At these schools doctors debated the best treatments for diseases and even began to watch people dissect bodies to better understand how they worked. The medieval period also saw some licencing for doctors returning from the new medical schools. New books were being produced for them to read by scholars such as **Rhazes**.

Observation

Medieval approaches weren't completely unscientific. Some doctors followed Hippocrates' methods and clinically observed their patients in an effort to understand what as wrong with them. Doctors might try to work out what was wrong by taking their patient's pulse or tasting their urine.

Anatomy lecture, 1483.

Notice the professors stays in his chair and the student's aren't taking part in the dissection. Dissection would have been done by a low-paid employee. Doctors were encouraged to learn by reading the books of Hippocrates and Galen, not by hands-on activities like dissection and experimenting.

Religion and Medieval Medicine

Medieval medicine in Britain and the **Christian Church** were very closely linked. The effect was mainly negative but there were some positives. Medicine in the medieval **Islamic** world was very different and made greater leaps forward.

Christianity and medicine: negatives
The most negative was the belief in supernatural causes of illness.
The Church taught that disease was a **punishment** from God for sin.
People were encouraged to rely on **prayers** to cure them.
This meant that doctors didn't make the effort to investigate new ideas about the causes of disease or new treatments.
Dissection of human corpses was forbidden, so many wrong ideas about **anatomy** continued.
The Church insisted that people believe in the work of Galen without question.
The emphasis was on **care**, not **cure**.
Religious wars like the **Crusades** cost lots of money, which might otherwise have been spent on public health.

Christianity's contribution to medical progress
The Church set up and ran most of the new hospitals, like the Hotel Dieu in Paris.
Encouraging people to go on wars like the **Crusades** to the Middle East put them in touch with Muslim doctors who were much more skilled and knowledgeable.

Islamic medicine

During the reign of **Harun al-Rashid** (786-809) Islamic medicine and surgery really moved forward. The books of **Hippocrates** and **Galen** were translated into Arabic by doctors like Al-Razi (also known as **Rhazes**), who preserved their ideas. Later, Islamic doctors such as **Ibn al-Nafis** started to challenge the ideas of the Ancients. Knowledge was slow to get to Britain but one book, the ***Canon of Medicine*** by Ibn Sina (also known as **Avicenna**), spread quickly. Islamic medicine was the first to have pharmacies and a system of weighing and measuring ingredients in medicines was invented.

Developments in medieval Islamic medicine reached Britain via European doctors coming home from the **Crusades**.

The Crusades put many European doctors in touch with the ideas and practises of Islamic doctors like Avicenna.

The medieval period was the first time that **pharmacy** (the science of preparing and giving out medicines) was seen as a separate medicine.

This topic can be used to discuss the roles of **superstition**, **religion**, and **war** in moving medicine back or forwards.

The Black Death

The Black Death was an **epidemic** (widespread outbreak of disease) that first came to Britain in 1348 and killed thousands. Most people believed it was cause by supernatural factors and treatment and prevention were mainly based on this.

What was it?

The **Black Death** was actually an outbreak of the **bubonic plague**. It is called this because the main symptoms is **buboes** (swellings) in the groin and armpit. Other symptoms are fever and coughing up blood. There was no cure and most of those who caught it died within days. The bacteria that caused it were actually carried by infected fleas that came into the country on rats on ships. Dirty conditions in towns meant that it spread quickly and easily.

What did people think caused it?

- **Supernatural** explanations: punishment from God for sin; misalignment of the planets.
- **Natural** explanations: miasma; imbalance of the Humours, water wells poisoned by Jews.

Medical knowledge about the causes of disease had not advanced beyond these widely believed explanations.

Shift away from God:

Crucially, many people began to turn away from God as a cause of and cure for disease and begin to explore more natural remedies due to the idea that God had sent this awful disease to punish them.

Social and economic impact

- **Rich and poor** – being rich was no guarantee of protection and the disease killed **30-40%** of the population. In some villages, it killed 100%.
- **Panic** – in some places the Black Death caused panic and rioting. In Durham in 1349 the epidemic combined with the threat of invasion by the Scots led to a mass riot in the town.
- **Increased wages for peasants –** Due to so many peasants having lost their life the wages for those left had to rise. This led to more peasants being able to afford to see a doctor leading to an increase in public health.
- **Religion** – the Black Death had killed lots of religious clergy too: replacements were hard to find and many churches were left empty. When new clergy were found, they often demanded much higher wages. Many people began to become angry with God for having sent this disease to them.

Supernatural treatment and prevention	Natural treatment and prevention
Pray for forgiveness of sins	Correct the imbalance of the Humours through bleeding and purging (this made things worse)
Self-flagellation (whipping yourself to show you are sorry for your sins)	Smelling or burning strong smelling herbs and boiling vinegar to avoid the miasma.
Accepting God's will.	Escape!- Some people fled their homes and moved from the towns.

New Methods of Treatment (Renaissance)

The Renaissance had brought some new treatments but most people still had to rely on doctors who had little or no training such as **quacks** (dishonest medical practitioners) and barber surgeons.

Traditional approaches	New approaches
Religious, such as praying for forgiveness, pilgrimage and giving money to the Church	Growing number of hospitals, which started to treat the sick rather than just providing hospitality
Wise women, who used herbs and charms	Many towns had a pharmacy
Herbal remedies	New herbs and ingredients from around the world
Astrology	Books on medicine for treating the family at home
Quackery	Scientific approaches

King's Evil and the Royal Touch: It was believed that the touch of a royal (especially the King) could cure the skin disease scrofula which was known as 'King's Evil'.

Quackery

- **Quackery** (dishonest medical practise) had always happened but in the 17th and 18th centuries there was a huge increase. During the Great Plague of 1665 **quack doctors** were widespread.
- Quacks sold their own medicines, which they said would prevent or cure disease, knowing they would have no effect. Most were travelling salesmen who moved on before people realised.
- Quack medicines were often a combination of alcohol and opium, which sometimes gave patients the impression that they were getting better, but made no difference at all.

The Printing Press:

- In the 1430s, Johannes Gutenberg invented the printing press.
- This was significant as people no longer had to rely on the church to copy out and distribute information. The church would refuse to distribute anything that did not align with the teachings of Galen.
- The printing press meant that individuals could do their own research and distribute it across Europe leading to an increase in shared ideas and a development of medical knowledge.

Microscopes began to be developed during the Renaissance. In 1665 the book *Micrographia* by **Robert Hooke** showed detailed images from magnified images for the first time and by 1683 microscopes were made more powerful by **Antonie van Leeuwenhoek**.

Inoculation + Vaccination

Smallpox is a **contagious** disease – a disease spread from one person to another through direct contact. It was widespread in Britain in the 18th century and spread very quickly, killing many people. Ideas about what caused the disease started to change and people like Edward Jenner began to look for new ways of preventing disease, eventually coming up with **vaccinations**.

Timeline

1796 Major outbreak kills around 35,000.

1796 Jenner tests his theory by inserting pus taken from the cowpox pustule of a milkmaid into a cut on a young boy's arm. Days later the boy is exposed to smallpox and is shown to be immune (resistant).

1797 Jenner tries to publish his findings but is told he hasn't enough evidence. He continues experimenting (including on his own child).

1798 Jenner finally publishes his idea.

1802 Jenner is awarded money from the government to research further.

1807 Jenner is offered more money by the government. (£30,000 overall across both funding offers)

1837 Major outbreak kills around 42,000.

1840 Vaccination against smallpox made free to all children.

1853 Vaccination against smallpox made compulsory in England and Wales

Smallpox

- One of the world's greatest killers and most feared diseases. There is evidence of its existence in Ancient Egypt.
- By the 17th and 18th centuries smallpox was **endemic** (regularly found) in Britain.
- The disease was highly contagious and around 60% of people who caught it would die.
- Jenner used the rumour that milk maids never caught smallpox to help to develop the first vaccination injecting the pus from a cowpox sore into James Phipps, an 8 year old boy. He injected Phipps with smallpox a few weeks later and found he did not catch the disease. He was immune due to the vaccination.
- This method of vaccination (named after the Latin word 'vacca' meaning cow) was initially opposed but over time Jenner's discovery could not be ignored.
- Smallpox was finally **eradicated** (eliminated) in 1980 after a huge vaccination campaign all over the world.

Reasons for opposition to change

- People who charged to provide vaccinations were worried they would lose income.
- People thought smallpox was a punishment from God and should just be accepted.
- Cowpox was a disease of cattle and people thought it was unnatural to put an animal disease into humans.

In 1866 the **Anti-Compulsory Vaccination League** was set up to protest the idea of forced vaccination.

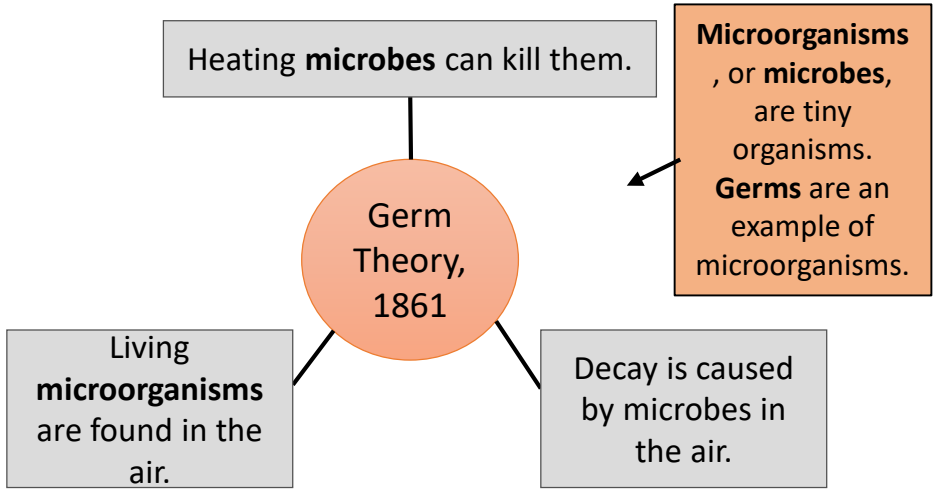
Edward Jenner (1749-1823) was a country doctor who studied medicine in London. As a doctor he had **vaccinated** patients against smallpox. Working in the country, Jenner heard milkmaids didn't catch smallpox and set out to know why. He discovered that they did catch **cowpox** (a much milder disease than smallpox) and reasoned that this must make them immune to smallpox. He experimented and proved this true, calling his new idea vaccination.

Louis Pasteur + Germ Theory, 1861

The 19th century saw great changes in understanding about the causes of diseases. The discovery by **Pasteur** that **germs** (bacteria) caused disease changed everything. This became known as **germ theory**.

Pasteur was a French chemist who used experiments with beer and milk to discover small organisms that made these liquids go off, which he called **germs**. He invented **pasteurisation** by working out that a lot of these germs could be killed by heating them. His work went on to be used by other scientists to develop vaccinations (Jenner) and **magic bullets** (Ehrlich).

Before Pasteur discovered germs caused disease, doctors realised bacteria existed but thought they were created by the disease, not the other way around. This was known as **spontaneous generation**.



The importance of Pasteur

- Pasteur's work on Germ Theory didn't have much impact on British medicine at first, as he wasn't a doctor and his work was based on studies of liquids, not disease.
- Most doctors continued to believe the theory of spontaneous generation. While Pasteur's studies laid the foundations, it was the work of people like **Koch** and **Lister** that resulted in Germ Theory being accepted.

The role of science and technology

- None of the new research would have been possible without the development of **microscopes**, which allowed scientists to see images of bacteria.
- In 1830 Joseph Lister (not the Lister that you study in surgery) developed a microscope that could magnify by 1000x without distorting the image. Without this Pasteur and Koch would never have been able to observe and study germs.

Germ Theory

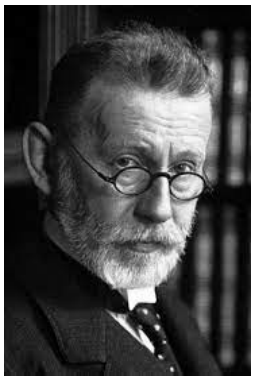
- Germ Theory was a major breakthrough. Through a combination of **experimental science** and the **role of individuals**, the way that people thought about and treated disease was forever changed.
- Pasteur was first to uncover the link between germs and disease. He saw that microbes in the air caused disease and that if they could be identified then vaccines could be produced to target specific diseases.
- Pasteur mainly worked in food and drink, so it was the work of later doctors and surgeons which really got germ theory accepted.

Most people still believed that miasma, God, astrology or an imbalance of the Four Humours caused disease. Germ Theory eventually changed this, but it took a while for it to be accepted and even longer for it to change medicine practise.

Robert Koch

Many scientists use germ theory as a springboard for their own work. One example was Robert Koch, who proved bacteria caused disease.

Koch was a German doctor who is considered to be the founder of modern **bacteriology**. Koch used experiments to prove that specific microorganisms (bacteria) were responsible for causing disease. He also developed a way of staining bacteria so they could be seen under a microscope. He was awarded a Nobel Prize in 1905.



Lead scientists in germ theory: **Koch**, **Pasteur** and **Ehrlich**.

Koch vs Pasteur:

- In the 1870s France and Germany had fought a war, the Franco-Prussian war. During the course of this war both nations lost many men to disease.
- In the aftermath of the war both France and Germany invested money in science to try and combat diseases.
- Nowhere was this more prevalent than in the work of Louis Pasteur and Robert Koch. Both nations gave them large amounts of money, science labs and teams to help them to progress their work. It was competitive between the two nations.
- This was an example of the government investing in individual scientists due to the impacts of war.

Problems identified, not solved

It is important to remember that Koch's work helped to identify the bacteria that caused disease, proving that germs were the cause of disease in humans. This did not mean that these diseases had been cured or prevented yet. The significance of Koch was not that he cured diseases but that he allowed us to identify and study them.

Koch and anthrax

- Koch used scientific experiments to prove that the germ or bacteria *Bacillus anthracis* caused anthrax.
- He took the **bacillus** from a sheep which had died of the disease and injected it into a mouse, which then also caught the disease.
- Once Koch had done this many times he was able to convince people that bacteria caused disease.
- Following this discovery he was able to go on to identify the bacillus that caused **tuberculosis**. Also known as TB, tuberculosis was a highly infectious disease affecting the lungs, one of the biggest killer diseases in Britain at the time.

Discoveries made possible by Koch's work

- Staining bacteria so it could be viewed under microscope.
- Koch's assistant invented the Petri dish (to observe bacteria more easily).
- Ehrlich developed **magic bullets** (chemicals that attach to germs and kill them).
- Koch himself identified the bacteria causing: anthrax (1876), septicaemia (1878), tuberculosis/TB (1882), and cholera (1883).
- Koch's identification of different bacteria led others to identify: typhus (1880), pneumonia (1880), tetanus (1884), diphtheria (1884) and the plague (1890).

Germ Theory + Vaccination

Germ theory had a huge impact on the development of vaccinations. A century after Jenner's discovery about smallpox, Pasteur found a way of creating vaccines in his lab. This changed the fight against disease forever.

Timeline of vaccines

439BC Thucydides observed that people surviving the smallpox plague in Athens didn't get infected again.

1700s Variolation (an ancient form of vaccination from China) spreads to Britain.

1798 Jenner publishes his findings about smallpox vaccination

1853 Vaccination against smallpox made compulsory in England and Wales.

1880 While working with Pasteur, Charles Chamberland discovers that injecting chickens with a weak form of chicken cholera gives them immunity.

1881 Pasteur discovers effective vaccine against anthrax.

1885 Pasteur discovers effective vaccine against rabies.

1906 Alber Calmette and Camille Guerin develop the BCG injection to protect against TB.

1913 Emil von Behring discovers anti-toxins against diphtheria and tetanus.

1920s Vaccines become widely available

1955 Polio vaccination begins in the UK.

1980 Smallpox eradicated through WHO vaccination programme.

2008 NHS introduces vaccination against cervical cancer for school-age girls.

2015 NHS vaccinates babies against meningitis B.

Pasteur and vaccination

- Pasteur had always said that germ theory would lead to a way of vaccinating diseases.
- He started to study chicken cholera in 1879. Pasteur and Chamberland experimented by injecting chickens with an old culture of bacteria in the lab. The chickens were ill but didn't die. They became immune to the disease. They had discovered that weak forms of a disease could help people build immunity to that disease. In 1881 Pasteur began experimenting with a vaccine for **anthrax** and in 1885 a vaccine for **rabies**.
- Pasteur took a risk and injected the vaccine he had created in the lab into a young boy bitten by an animal infected with rabies: the boy survived. The first trial of a man-made vaccine had been a success.
- Germ theory paved the way for vaccines in the lab which have eradicated some of the biggest killer diseases in the world.

You don't need to know all these dates! But its important to know the LONG TERM SIGNIFICANCE of vaccination

Not everyone was convinced of vaccination. By the 1880s there was a strong **anti-vaccination league** which still exists today.

Ehrlich + Magic Bullets

The discovery of 'magic bullets' by Paul Ehrlich is one of the most important discoveries in treating specific diseases. It was the **first time** a disease could actually be cured and meant that germ theory was finally making an impact on the way people treated diseases.

German chemist Paul Ehrlich joined Koch's research team as a young scientists. His aim was to use his expertise in chemistry to advance medicine. It was Ehrlich who came up with the term '**chemotherapy**' and discovered the process for using chemical dyes to stain and kill **specific** bacteria but not harm anything else in a patient's body. In 1908 he was awarded a Nobel prize in Medicine.
He is a good example of the role of an individual encouraging change.

Magic Bullets

- Ehrlich started out by dyeing microorganisms so he could see them better under a microscope. He had the idea that if he could attach a chemical to germs to stain them, maybe he could find chemicals that would attack and kill them.
- He called these chemicals **magic bullets** after the old superstition that a bullet could be charmed to make sure it hit the right person.
- In 1909 he discovered **Salvarsan 606**, which was a tablet (pill) that cured **syphilis** (a sexually transmitted disease). He had attempted this 606 times in all.
- In 1932, Domagk used Prontosil to create the second magic bullet (pill) targeting blood poisoning.

Remember it was **Koch** who taught Ehrlich to stain microorganisms. Without this technique magic bullets may have never been found.

Impact of Ehrlich's work

- The work formed the foundation of the modern pharmaceutical industry.
- Impressed by their work, many other doctors and scientists, such as **Emil von Behring**, thought researchers should give up developing drugs to that the symptoms of disease and concentrate on finding drugs to kill the disease itself.
- This was also the first time anyone had really done large-scale experimenting in drug research.
- In 1932, a scientist named Domagk used Ehrlich's work to create a Magic Bullet to cure blood poisoning using Prontosil.

Germ Theory + Everyday Medicine

Germ theory solved the mystery of what causes disease. It took a lot of work before it was widely accepted, but eventually had a huge impact on everyday medical treatments and remedies in Britain.

Beliefs in the 19th century

At the beginning of the 19th century, beliefs about what caused disease included:

- Miasma
- Spontaneous generation
- Imbalance of the Four Humours.
- Religious or supernatural causes.

Beliefs in the 20th century

At the beginning of the 20th century, beliefs about what caused disease started to include germs. The traditional ideas still carried on for a while but gradually everyone came to accept germ theory.

Even influential figures like Florence Nightingale believed in miasma until convinced of germ theory.

Acceptance of germ theory

- The work of many people played a crucial role: Pasteur, Koch, Lister and Ehrlich.
- Remember it was only **after** the work of these people and others that germ theory was accepted.
- By the 20th century, Germ theories impact on everyday medical treatments and remedies was huge.

How treatments available to ordinary people in Britain changed:

During the last 20 years of the 19th century doctors were persuaded to believe in germ theory by people such as **William Roberts** and began to change their practises as a result.

Eventually in the 20th century, germ theory would lead to the development of drugs (particularly antibiotics) to treat disease that would be available to everyone.

Vaccinations for more diseases such as anthrax and tuberculosis became available and grew in popularity; many immunisations were made mandatory for soldiers during WW1 and some diseases such as diphtheria became almost non-existent.

Surgery became safer thanks to the work of people like **Joseph Lister** and **Sir William Roberts**.

Developments in microscopes meant that diseases could be identified more easily and quickly. They could also be treated with more accuracy and effect.

Hospitals became cleaner and safer thanks to the work of hospital reformers (inspired by the work of Florence Nightingale).

Development in Drugs

At the start of the 20th century the focus was still on **treating** diseases because doctors could do little to actually **cure** them. This changed with the discovery of **penicillin** and its development by the **pharmaceutical industry** (which researches, produces and sells medicine).

Penicillin

1928: Tidying his lab after his holiday, Alexander Fleming finds a petri dish with mould growing on it and realises that the mould has killed some of the bacteria surrounding it. He works out which bacteria the penicillin mould can kill. Fleming writes about his discovery in a medical journal.

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1938: Scientists Howard Florey and Ernst Chain discover a method of purifying and producing penicillin. They test it on a police officer but are unable to grow enough for continued use

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1940: The Second World War means there isn't enough money for British companies to produce the drug. They are offered £25 to continue their research.

↓

1941: Florey and Chain turn their lab at Oxford University into a penicillin factory; trials have positive results. Florey seeks assistance in the US. The US government sees its potential and offers significant funding.

↓

1943: Florey trials the drug, using small doses to treat soldiers' war wounds in North Africa. Many lives are saved. Mass-production begins in Britain. 2.3 million doses given on D-Day in 1944.

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1945: Margaret Hutchinson Rousseau develops a mass-production method. This produces 650bn doses in 1945.

Factors in the development of penicillin

War: Fleming initially started to study how to treat infection due to the horrific levels of infection in WW1. The US government then saw the potential of penicillin to treat their injured soldiers in WW2/

Chance: Fleming saw the penicillin mould by chance after leaving his dirty petri dish.

Government: The US government funded Florey and Chain's research.

Science and technology: Hutchinson Rousseau's method meant penicillin could be mass-produced.

The role of the **individual**: Without the vital work of Florey and Chain, penicillin may not have been developed for years.

Communication: Florey recorded his findings in his journal which Florey and Chain used to read about and continue to research penicillin.

Drug development

- Before penicillin, drugs had been researched, tested and even manufactured, but not on such a large scale.
- After WW2 a large pharmaceutical industry grew. Today the industry researches, develops, tests and procures many types of drugs.
- Drug companies are still looking for cures for illnesses like cancer, AIDS, or the common cold.

Drug safety

- Drug development hasn't always been successful. Until the 1960s every new drug was seen as a positive discovery until the **thalidomide disaster**, when a drug aimed at helping pregnant women with morning sickness caused babies to be born with malformed limbs.

New Diseases + Treatments

New treatments for some diseases have emerged as a result of developments in science and technology. Being better at finding treatments is not without its problems and antibiotic resistance provides one of the greatest challenges to modern medicine. Some people prefer to use **alternative medicines** to treat illness.

Antibiotic resistance

- An **antibiotic** is a medicine used to kill microorganisms and treat infectious diseases. Penicillin is an antibiotic.
- One of the greatest problems of modern medicine is **antibiotic resistance** (also known as antimicrobial resistance or AMR).
- Over time, some of the bacteria that has been treated by antibiotics have become resistant to these treatments. This is partly due to overuse of these antibiotics and partly due to people not completing their course of treatment.
- **The World Health Organisation** (WHO) said in 2016 that the danger to the world from antibiotic resistance was now so great that it was making fighting diseases such as TB, AIDS and malaria much harder and would soon make things like chemotherapy treatment for cancer too high risk.

MRSA

One of the biggest problems in hospitals in Britain today is the '**superbug**', MRSA. The infectious caused by MRSA can be life-threatening. A **superbug** is a type of bacteria that is resistant to most antibiotics, making it difficult to treat.

Due to strict cleanliness and hand-washing in British hospitals, cases of MRSA have dropped.

HIV and AIDS

AIDS is a recently recognised disease caused by the HIV virus. HIV attacks the immune system, and weakness the body's ability to fight infections and disease. It was first discovered in 1981 but it wasn't until 1983 that scientists worked out that it was a viral infection. Like most viral infections there is no cure for HIV, but treatments have been developed to allow most people with HIV to live a normal life for may years after diagnosis. AIDS is the last stage of the HIV infection, when the body has no resistance to simple infections.

Alternative medicine and treatments

Alternative treatments use approaches that may not be scientifically proven, but many people find them effective. They include:

- Acupuncture (inserting fine needles into the skin with the aim of assisting the body to balance itself).
- Hypnotherapy (using hypnosis as a treatment for illness).
- Herbal medicines ('natural' medicines made from plants, trees or fungi).

You'll need to be able to **compare** treatments across different periods for **Q3** in the exam and say what is similar about them. For example you may be asked to compare quackery in the Renaissance with alternative medicine today.

Surgery in Medieval Times

Surgery made some great progress in medieval times. In Europe, this was thanks to **barber surgeons** treating battlefield injuries. Islamic surgery made great leaps forward and recorded knowledge was shared. Useful discoveries in **antiseptics** and pain control were made during this time.

Pain control – new methods (opium) were often so strong they would kill the patient.

Bleeding – patients would often bleed to death.

Infection – doctors had no idea that dirt carried disease.

Problems in medieval surgery

Shock – patients' bodies would go into shock because of pain or blood loss.

Early success in surgery

- **Al-Zahrawi** (Albucasis) was a famous Islamic surgeon and doctor born around 936CE. He had a lot of experience treating war casualties and wrote many important books on surgery, including how to treat battlefield injuries. He even invented new surgical instruments. His books and ideas were used for many centuries by both Islamic and Western doctors and surgeons. This helped surgery in Britain move forward as doctors returning rom Crusades brought back his ideas.
- **John Arderne**, said to be the first English surgeon, worked as a surgeon on the battlefields where he developed his own pain-killing ointment made from hemlock and opium. Arderne wrote books which were read by many surgeons.
- **Hugh of Lucca** was a famous surgeon who served in the army during the Crusades and noticed that wine was very good for cleaning wounds. Other surgeons used **cauterisation** (burning the wound), which was ineffective against infection. Hugh and his son Theodoric observed patients and saw that pus in wounds was harmful, whereas other surgeons thought it was good for cleaning the blood. We know now that it is a sign of infection. Hugh and Theodoric wrote many books challenging traditional surgiacal methods.

Medieval Surgeons

- Medieval surgeons weren't surgeons as we would think of them today. Most were '**barber surgeons**' who travelled the country treating soldiers who had been wounded in battle. They also did simple procedures such as tooth extractions and bloodletting.
- Surgeons didn't have any formal training and mainly learned on the job, apprenticed to other surgeons. At this time, women couldn't become doctors but could become surgeons, as it was considered to be a lower profession.

Reliance on Galen:

One issue that held back medieval surgery the most was the churches promotion of Galen as the source of all knowledge. His ideas that all organs had a perfect use lined up with the belief that God created humans. Because of this the church encouraged doctors to not dissect bodies and instead learn from the teachings of Galen. This meant that for hundreds of years we did not learn anything more about human anatomy and so the progress of surgery was held back significantly.

Alcohol and herbs such as hemlock or opium were used as simple **pain control**.

Medieval surgeons worked out how to use alcohol as an **antiseptic** (to clean away germs).

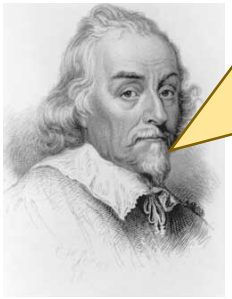
Progress in medieval surgery

New instruments and techniques were developed as a result of treating soldiers' battle wounds from the many wars at the time.

Some complicated surgery became possible, including mending a broken skull.

Vesalius, Pare + Harvey

During the Renaissance there were some important individuals who really challenged authority in **anatomy** (study of the make-up of the human body), **physiology** (study of working of the human body), and surgery. **Vesalius**, **Pare**, and **Harvey** made new discoveries with a big impact but not everybody welcomed their ideas and there was a lot of opposition to change.



William Harvey

Harvey studied medicine in Padua and came back to England in 1602 as a physician. He was interested in **physiology**, particularly blood, and using experiments and dissection he proved that blood circulates around the body using **arteries** and **veins** with valves. He also showed that the heart acted as a pump for the system. His understanding of the **circulatory system** is the basis of what we know today but it took many years for his ideas to be accepted.

Andreas Vesalius

Vesalius studied medicine in Padua where he later became Professor of Anatomy and Surgery. He was convinced that anatomy was the best way to understand the human body and unlike people before him **he did his own dissections**. In his book *On the Fabric of the Human Body*, 1543, he corrected over 300 of Galen's mistakes and argued the importance of doctors learning from dissections rather than books.

Ambroise Pare

Pare was a **barber surgeon** who learned much of what he knew from being an army surgeon. He invented a new way of sealing wounds on the battlefield using turpentine and rose oil, he also used **ligatures** to tie blood vessels for the first time.

Key individuals for the exam!

The Renaissance (c1400-c1700)

- The Renaissance was a time of new ideas and interest. New scientific ideas started to have an impact on medicine and public health.
- In 1440 the **printing press** was invented, meaning that new ideas could spread much more rapidly, especially with new universities being set up all around Europe.
- New thinkers, led by **Paracelsus** (1493-1541), began to challenge the work of Hippocrates and Galen.
- In the 1600s people started doing experiments to prove that the old ideas were wrong.

Opposition to change

Some people embraced more scientific methods but others were not convinced. Many people did not agree with experimenting to prove theories and there were still many people who believed in Galen's work and were reluctant to accept that he might have been wrong. They believed that going against Galen was going against God. English textbooks for doctors continued to publish the ideas of Galen until the 1650s and people like Harvey were ridiculed for their ideas at the time. In everyday medicine very little changed.

Anaesthetics

The two main issues with surgery was pain and death from infection. The second half of the 19th century saw big discoveries in both. Modern anaesthetics (a substance that makes people unable to feel pain) were pioneered by James **Simpson** to great effect.

Timeline of anaesthetics

1525 Paracelsus use ether (a gas) on animals)

1774 Joseph Priestley publishes his work on nitrous oxide (laughing gas)

1799 Sir Humphrey Davy experiments on himself with nitrous oxide and discovers it makes him laugh. He experiments on friends too and concludes it could be used to dull pain

1842 Crawford Long uses ether as an anaesthetic during a complicated operation but doesn't publish his experience

1845 Horace Wells uses laughing gas to have one of his own teeth removed

1847 James Simpson first uses ether for pain relief during childbirth

1847 Jean Pierre Flourens discovers that chloroform has the same effect on animals as ether

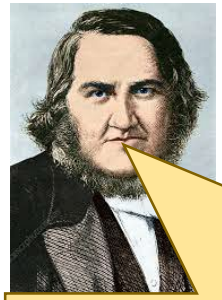
1847 Simpson first uses chloroform in an operation

1848 A woman in Newcastle dies from overuse of chloroform – widely reported

1853 John Snow uses chloroform on Queen Victoria for the birth of her 8th child

1872 Pierre-Cyprien Ore gives first **intravenous** (injected into vein) anaesthetic. Before it had always been gas

1884 Carl Koller discovers cocaine can be used as **local** anaesthetic – numb a small area of the body



James Simpson

Simpson (1811-1870) was an **obstetrician** (specialist in childbirth) and the pioneer of using chloroform as an anaesthetic. He became physician to Queen Victoria in 1847 and was the first person to deliver a baby using anaesthetic. He was notorious for experimenting on his friends and at one party he gave everyone a decanter of chloroform to test dose rates: the guests were found unconscious on the floor the next morning. Simpson worked tirelessly to make chloroform safer and more effective and his discovery was taken up all over Europe within weeks of him proving it worked.

Acceptance of chloroform

Modern anaesthetics took some time to be accepted:

- Some people still said that the pain was sent from God.
- Doses of chloroform varied and some patients died form having too much of the drug.
- Acceptance by people like Queen Victoria in 1853 encouraged others.
- Previously people had been too scared to have operations due to the pain. The introduction of anaesthetics changed this.
- Anaesthetics allowed doctors to conduct surgeries more carefully with more time to complete them. More complex surgeries were being attempted.

Antiseptic + Aseptic Surgery

Death from infection was one of the main problems for surgery going into the 19th century. In the second half of the 19th century Lister made a huge impact with antiseptics and **aseptic surgery**.

Timeline

1536 Ambroise Pare uses turpentine on the battlefield to clean wounds.

1847 Ignaz Semmelweis makes doctors on his maternity ward wash their hands in calcium chloride, reducing the number of women and babies who die

1854 Florence Nightingale begins to influence standards of cleaning hospitals.

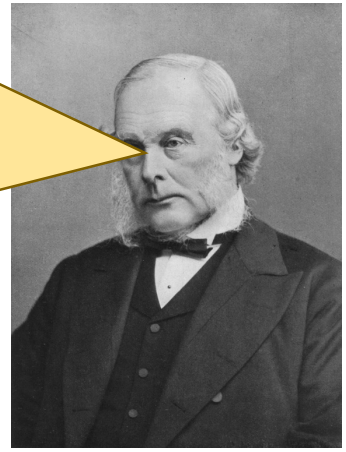
1863 Nightingale publishes *Notes on Hospitals* in which she discusses cleanliness of hospitals.

1865 Joseph Lister begins using **carbolic acid** on surgical instruments and to cover wounds, drastically reducing deaths among his patients.

1890 James Halstead starts to use protective clothing (gloves, masks) during surgery, beginning aseptic surgery.

Joseph Lister

Lister introduced new ideas on cleanliness in surgery in the later 1800s leading to what some historians call the Revolution in Surgery. Before he introduced **sterile surgery** (surgery free from germs) many people died due to infection. After reading Pasteur's germ theory, Lister started to use carbolic acid to cover wounds and spray on surgical instruments to keep them clean. He also insisted on hand-washing in surgery. His ideas were taken on by many surgeons and infection rates dropped greatly as a result. This showed that germ theory was correct and that patients' lives could be saved with attention to cleanliness, something other reformers such as Nightingale had long been campaigning for.



War

War played a big part in getting anaesthetics, antiseptics and aseptic surgery accepted.
Battlefield surgeons used all of these techniques with success in the Crimean War and later during the First World War. This showed sceptical doctors and surgeons that the techniques were valid and could reduce the loss of patients through pain and infection.

Antiseptic and Aseptic surgery

Lister introduced the idea of **Antiseptic surgery**. This was through surgeons continually using carbolic acid to clean their hands and surgical tools. This led to a significant drop in infection. However, many surgeons still believed surgery should be done as quickly as possible and did not appreciate the time taken to disinfect tools as they worked.
This was then replaced in later years by **Aseptic surgery.** This was the process of ensuring that germs are never present in an operating theatre to begin with. Doctors would wear gloves, masks and aprons. Tools and surgical rooms would be cleaned thoroughly before and after surgery. As well as this surgical theatres were greatly reduced in size and viewing galleries were removed, this greatly reduced the risk of infection.

Aseptic Surgery	Antiseptics
Germs are prevented form getting near patients.	Substances that prevent the growth of germs, preventing infection.

War and Surgery

War and Surgery

- War in the 20th century involved much bigger weapons, which did much more damage, requiring the development of new surgical techniques.
- The First World War had a particularly big impact on surgery. There were new developments in **orthopaedic surgery** and **neurosurgery** on the battlefield which were later used to treat civilians. Developments during the First and Second World Wars made blood transfusions widespread.

Surgery is performed on a wounded soldier at a Mobile Army Surgical Hospital (M.A.S.H) during the Korean War. M.A.S.H units were set up close to the front so that soldiers could be treated much more quickly.

Blood Transfusions

- ❑ In 1901 Karl Landsteiner discovered blood groups making transfusions safer. Previously it was not clear why some patients would die when receiving donor blood. Now it was clear and the correct blood needed to be given.
- ❑ During WW1 sodium citrate was discovered as an anticoagulant, this meant that it stopped blood from clotting when it was stored. This meant that blood could be kept for longer and transported to where it was needed.
- ❑ During the First World War surgeon Geoffrey Keynes developed a machine to store blood and carry out transfusions.
- ❑ By the Second World War refrigeration technology meant blood banks could be set up saving millions of lives.

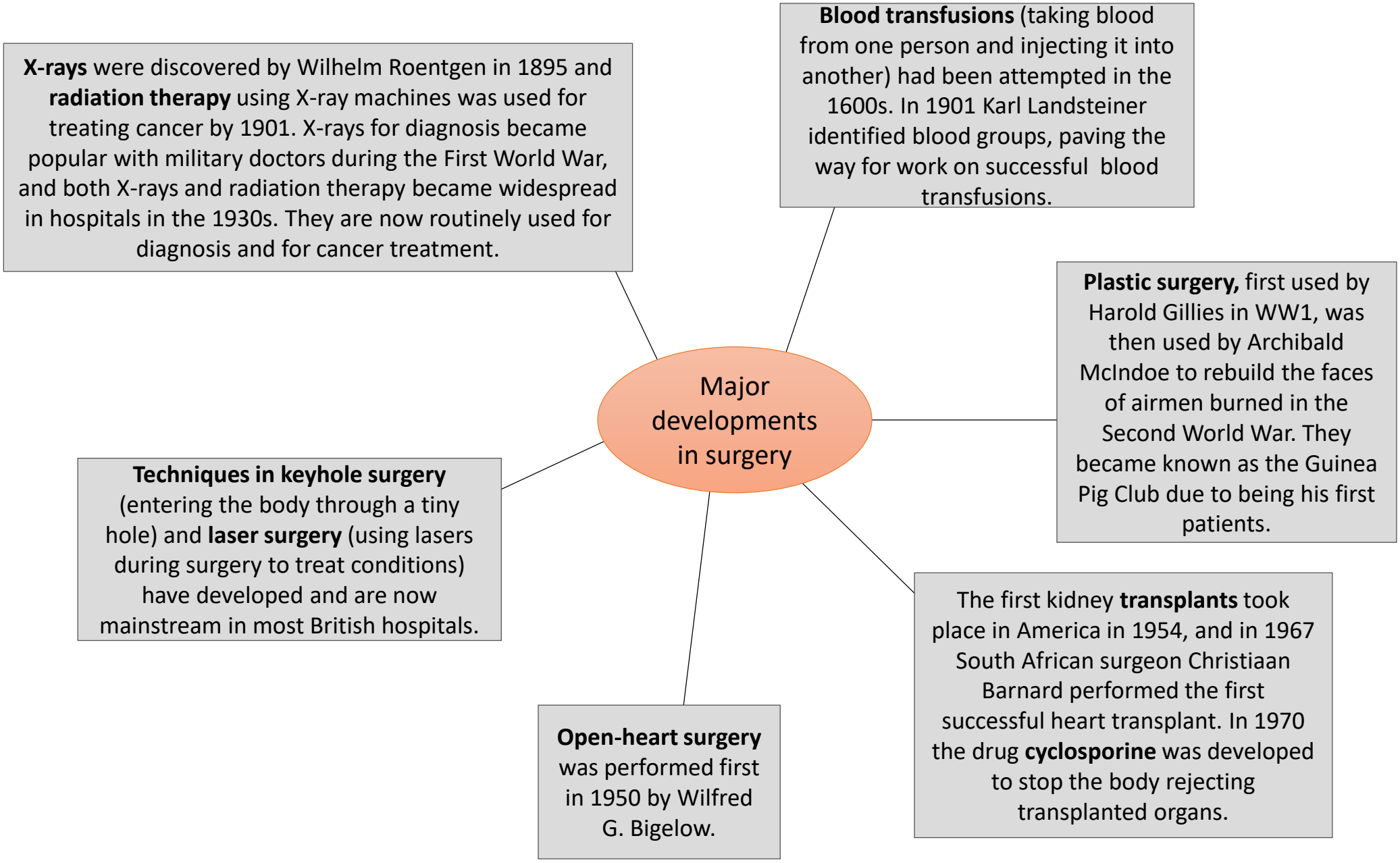
Plastic Surgery

- ❑ During the first world war a London based doctor named **Harold Gillies** developed **plastic surgery**. He set up a clinic to graft skin of men suffering severe facial wounds.
- ❑ By 1921 Gillies and his team had treated 5000 soldiers were sever wounds. He is considered one of the first doctors to consider a patience appearance with regards to wounds.
- ❑ During WW2 Gillies cousin, **Archibald McIndoe**, continued his work on plastic surgery treating men who were the victims of burns during the war. His patients became known as the **Guinea Pig Club** as they were the McIndoe's first patients using a new method of plastic surgery. He took his patients out to local pubs, helping their mental health moving forward.

X-Rays

- ❑ X-Rays had been developed prior to WW1 but the war revolutionised how they were used.
- ❑ During war surgeons needed to identify shrapnel and bullets lodged in soldiers bodies in order to remove them.
- ❑ The government ensured that X-Ray machines were installed in all major hospitals on the western front.
- ❑ In France, the scientist Marie Curie convinced the French government to have portable machines on battlefields in order to ensure treatment was available quickly.

Developments in Surgery



Medieval Hospitals

Most sick people were cared for at home by their female relatives but, for the first time since the Roman era, hospitals were now being built and used. These hospitals were very different to those of today: often they didn't treat the sick but just offered **hospitality** to travellers and pilgrims (how they got their name).

Hospitals in Medieval Britain
Funding mainly came from rich donor's endowments (large amount of money to pay for setting up and continuing support).
Hospitals and patients were kept very clean.
The Church wanted to show people that charity could help cure disease and earn you a place in heaven.
Pregnant women and people with infectious diseases weren't usually admitted.
Some specialist hospitals were built for patients with infectious diseases or mental health problems.
Most patients had to share a bed unless they were very close to death.
The number of hospitals increased during the medieval period for the first time since the Roman Empire.
The emphasis in hospital was on **care, not cure.**
About a third of hospitals were set up by the Church and run by monks and nuns, **not professional doctors**.

Examples of medieval hospitals

- **Bedlam**, London, is one of the oldest mental hospitals in the world. It was founded by the Christian Church in 1247 to look after homeless people but before long began to focus on people who were considered 'mad'.
- The **Hotel Dieu** in Paris is one of Europe's oldest hospitals. It was founded in 651 by Saint Landry. It offered medial care as well as food and shelter for the sick and poor. At its busiest patients would be six to a bed.

Towns + Monasteries

Medieval towns weren't always clean but they did take some measures to improve **public health**. Religious house were cleaner. People knew there was a connection between being clean and having good health, even if they did not know the scientific reasons behind it.

Lifestyle in a Medieval town

They were very unhealthy places to live.

- A lot of people lives so close together that diseases spread very quickly.
- There were no sewers and no rules for getting rid of waste.
- Most people got their water from streams and rivers, which were often contaminated with human waste that was just thrown into the streets.
- Where there were water wells, **cesspits** (pits for the disposal of sewage) were often built close by, so this water was also contaminated.
- Butchers slaughtered their animals in the streets and left the waste.
- Towns were usually so dirty that they smelled very bad. This is why **miasma** (bad smell) was believed to be the cause of disease.
- Some **councils** did try to clean up towns, although they weren't clear about the effects this could have on public health.

Lifestyle in a Medieval monastery

Most were much cleaner than towns.

- Usually, monks and nuns knew it was best to take water from upstream for drinking, brewing and washing, rather than from downstream where it would be **contaminated** by water from the toilets.
- Monasteries often had running water systems and **sewers**.
- Monks and nuns were usually the only medical practitioners in the area and would have to keep their cupboards well stocked with herbs and wine for treating the sick.
- Most hospitals were attached to religious houses at this time and monks and nuns would work in both the monastery and the hospital as part of their Christian duty. Monasteries were often kept very clean. The monks and nuns understood the importance of cleanliness for health even if they did not know the science behind it.
- As most hospitals were attached to and run by religious houses, monasteries would grown herbs in their **physic garden** and a **herbalist** or **apothecary** would offer the herbs to patients for treatment.

Some towns were better than others at trying to improve public health. **Leadership, money**, and **initiative** were big factors to whether a town was successful.

→ Some medieval towns like Coventry, did make efforts to clean up. The town council banned dumping rubbish in the streets and river, and in 1421 ordered that all toilets built over a local stream had to be demolished.

→ Good information for **role of government** in public health – shows local government trying to change things.

The Great Plague

The Great Plague of 1665 was the worst outbreak of the plague in Britain since the Black Death in 1348. There were some differences in how people tried to prevent and treat it, but things hadn't changed much.

What was it?

In **1665** the **bubonic plague** returned to Britain. As with the Black Death of 1348, it was caused by the *Yersinia pestis* germ, which lived in the digestive system of fleas. The fleas were carried by rats, which were attracted to the cramped and dirty conditions in towns, meaning that the germs spread very quickly. At its worst point in September 1665 over 7,000 people died in one week in London.

Beliefs about the causes

- People still didn't really understand what was causing the plague.
- They still believed it was a punishment from God.
- They still believed that disease could be caused by miasma.
- For the first time it was noticed that people living in the poorer (and therefore dirtier) areas of the city were worst affected. This was also because houses were so close together in these areas.

Treatments

- Balancing the **humours** by bleeding patients with leeches.
- Burning herbs to try to banish the foul air.
- Sniffing sponges soaked in vinegar.
- In some cases a live puppy was cut open and placed on the sores.

The **Lord Mayor's orders** were some of the first examples of governments intervening in the interest of public health. Whilst the measures were not hugely impactful, they **represented a change** in how things were done.

Preventative measures

- Trade with affected towns was stopped.
- Infected houses were locked up by guards.
- The border with Scotland was closed.
- The King published very strict orders about the movement of people and animals, treatment of infected houses and where people could buried.
- Each town had to have a house for the sick on its borders where they could send victims.
- Bodies were only collected at night to stop the spread of infected people.
- Plague doctors wore special suits with sweet-smelling herbs in the nose to protect them against miasma and **amulets** (jewellery or ornaments) to ward off evil spirits.

The Lord Mayor's Orders

The Lord Mayor's orders were designed to stop the spread of the plague in London in 1665 and included:

- People were employed to kill stray cats and dogs.
- Plague graves had to be at least 6 feet deep and no public gatherings were allowed around them.
- Searchers sent to identify houses where people had died of the plague.
- Two watchmen were to supervise an infected house to stop people going in or out.
- Alehouses (pubs) were to close where possible to stop large gatherings.
- People were not able to buried in churches and funerals were not allowed.

Although the number of deaths continued to rise, some think it would have been even worse without some of these measures.

Growth of Hospitals

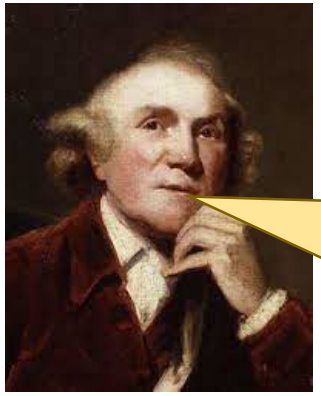
The late 18th and early 19th centuries saw big changes in hospitals, which began to change focus from care to treatment and learning. Important hospital reformers, such as **Florence Nightingale**, also made a big difference. The training and status of surgeons changed in this period too.

- Due to the work of reformers like Florence Nightingale, hospital cleanliness and organisation improved, and nurses were better trained.
- Nurses were given a more central role caring for patients and assisting doctors. They were also trained for the first time, often alongside doctors, in hospitals.
- Many new hospitals were built. By 1860, London alone had 36 specialist hospitals.
- Hospitals now trained doctors and surgeons and often had a dispensary for preparing and giving out medicines.
- Specialist hospitals (such as asylums for the mentally ill and fever houses for infectious diseases) developed.
- Public pressure led to infirmaries (spate from workhouses) being set up for the poorest in society.

Florence Nightingale

Florence Nightingale was significant in bringing about change in hospitals. After witnessing high death rates in military hospitals during the Crimean War, she challenged the standards and cleanliness of hospitals. Changes developed during her time there saw death rates plummet from 42% to 2%. Her work was widely reported in newspapers and she published books such as *Notes on Nursing* and *Notes on Hospitals*, which discussed hospital organisation.

After her experience in military hospitals, Florence Nightingale went on to set up Britain's first nurse training school.



John Hunter

Hunter was a Scottish surgeon who started off working for his brother who was a successful doctor. He was heavily interested in dissection and was gifted at anatomy. In 1760 he became an army surgeon and saw many casualties in war.

Wars were much bigger than they had been previously and weapons were more destructive so doctors needed better training and skills to cope with this change.

Hunter set up a practise which trained many new doctors (including Edward Jenner). Hunter is known as the 'father of scientific surgery'.

Industrial Britain

Public Health

As a result of the Industrial Revolution (1780-1850) people in towns lived close together in poor conditions. This led to terrible public health problems. During the 19th century, theories on causes and treatment of disease began to change and great improvements were made to public health.

Impact of the industrial revolution

- ❑ The population grew an after 1850 there were more people living in towns than in the countryside for the first time.
- ❑ Most working people were employed in the new industrial jobs rather than in agriculture.
- ❑ Wages were low and hours were very long.
- ❑ Children as well as adults worked in dangerous conditions with frequent accidents.

Theories about the causes of disease

- ❑ Most of the theories about the causes of disease that had been around since medieval times were still in place during the industrial revolution. By the 19th century the most widely believed theory about the cause of disease was still miasma.
- ❑ The first public health measures were based on miasma and though the idea was wrong, the measures had some effect because they focused on making towns cleaner.

Epidemics

In the 1820s, 1830s and 1840s there were frequent and deadly waves of epidemic disease including:

- Influenza
- Cholera
- Typhus
- Typhoid
- Smallpox

Medieval public health

- ❑ A lot of people lived so close together that disease spread quickly.
- ❑ There were no sewers and no rules for getting rid of waste.
- ❑ Most people would get their water from streams and rivers, which were often **contaminated** (polluted) with human waste.
- ❑ Butchers would slaughter their animals in the streets and leave the waste.
- ❑ Towns were usually so dirty that they smelled bad.
- ❑ Some councils did try to clean up towns.

19th century public health

- ❑ Most towns were very overcrowded with many poor quality houses crammed into a small area.
- ❑ Pay was low so it was difficult to afford to see a doctor.
- ❑ There were often no systems or rules for getting rid of waste: it was left in streets and got into water supply.
- ❑ Clean water was in very short supply, because of this outbreaks of diseases such as cholera and typhus were frequent and deadly.
- ❑ Different groups agued about whether the government should interfere or not. Mostly the government took a **laissez-faire** (leave it alone) attitude.
- ❑ In 1848 a terrible cholera epidemic scared the government into action with the first public health measures.

Public Health Reformers

As the 19th century progressed, public health in industrial Britain was completely transformed by the work of public health reformers and, eventually, the government.

Cholera as an agent of change

- **Cholera** arrived in Britain in 1831. the symptoms were horrific and the disease spread through cramped and dirty towns at an alarming pace, killing both the rich and poor.
- The cholera outbreak of 1848 was worse than any other and became an **agent of change** as people demanded something be done, forcing the government to act.
- After this the government introduced Public Health Acts to improve living conditions and people's health.

What is cholera?

Cholera is an infectious disease that can kill very quickly if it isn't treated. It is caused by eating contaminated food or drinking contaminated water. Not everyone infected with the bacterium – which is called *Vibrio cholera* – develops symptoms. However, symptoms can be nasty and include severe diarrhoea and dehydration.

Edwin Chadwick

Chadwick investigated the living conditions of the poor. After the outbreaks of **influenza**, **typhoid** and **cholera** the government asked Chadwick to write a report about living conditions. He was able to show a direct link between poor living conditions and disease. The government could not ignore this and his findings inspired the **1848 Public Health Act.**

William Farr

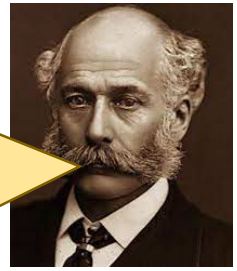
Farr pioneered the idea of medical statistics. He set up a system of recording the causes of deaths, which meant people could better understand the public health problems that led to people dying. His statistics were vital in helping Snow to prove that cholera came from water.

John Snow

Snow was a leading doctor in Victorian Britain. He worked out that the 1854 cholera outbreak in London was caused by contaminated water. He did this by recording deaths from the disease and showing they were centered around one particular water pump. He took the handle off the pump and the number of deaths fell. Later scientists realised this was early poof of germ theory.

Joseph Bazalgette

The Great Stink of 1858 was a very hot summer in which the heat made the smell of untreated human waste in the River Thames unbearable. This, along with frequent and deadly cholera outbreaks, meant the problem of how to get rid of all waste in London could no longer be ignored. Bazalgette engineered a huge, complex and expensive **network of sewers** to move waste through massive pipes under the city and out to the tidal parts of the River Thames, where it would be swept out to sea.



Government Involvement

During the 1800s the government had to abandon its laissez-faire attitude to public health and introduced a series of Public Health Acts and interventions.

Reasons for change

Before the 1840s the government's policy was not to interfere in situations, so that people would learn to help themselves (laissez-faire approach). There was a number of reasons why this slowly changed:

- Epidemics - people demanded action following a deadly cholera outbreak in 1847.
- Extension of the franchise – more people voting meant more people to put pressure on the government.
- The work of individual reformers such as Farr, Snow, Chadwick and Bazalgette.

1848 Public Health Act

- This was the first real Public Health Act, and the first time the government had really changed its policy of the laissez-faire approach.
- It created a Central Board of Health and **encouraged** setting up of local Boards of Health.
- These were **supposed** to appoint a medical officer, to provide sewers, inspect houses and check that food offered for sale was actually fit for humans to consume.

Remember, the government was pushed into this Act by yet another terrible cholera outbreak.

1875 Public Health Act

- The bringing together of a number of Acts covering clean water, improvements to housing and control of disease.
- Local authorities now **had** to appoint medical officers to oversee public health. Local inspectors were supposed to inspect abattoirs and stop contaminated food from getting into the food chain.
- Local authorities were now **required** to arrange for sewers to be maintained and to supply fresh water and rubbish collections.

Types of government involvement

Areas:

- Housing.
- Working Conditions.
- Medical Care.
- Sanitation.

How Acts were enforced:

- Mandatory/Compulsary (forcing people).
- National Standards (encouraging people)
- Reinforcing (backing up an Act that hadn't previously worked).

Other government involvement

1834 Poor Law Amendment Act – appointing medical officers to provide basic medical care for the very poor (National Standard).

1853 Compulsory vaccination – vaccination against smallpox made mandatory (although no one was given the authority to enforce this).

1855 Nuisance Removal Act - trying to make overcrowded housing illegal (National Standard).

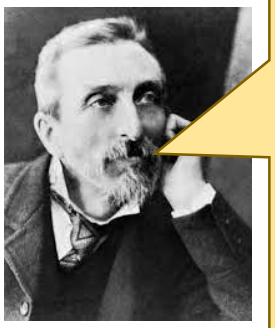
1864 Factory Act – aimed at improving conditions in factories (National Standard).

1866 Sanitary Act - forcing local authorities to take responsibility for sewerage and providing clean water (National Standard).

1871 Vaccination Act – aimed at backing up the previous Act in 1853 (Reinforcing).

The Liberal Reforms

In the late 19th and early 20th centuries the government accepted that they needed to have a much bigger role in helping people, thanks to the work of individuals like **Booth** and **Rowntree.**

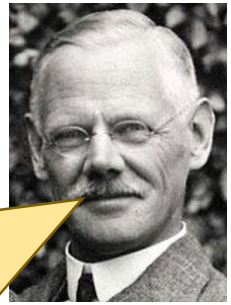


Charles Booth

Booth was a wealthy businessman and social researcher who produced a report on poverty among the working classes of London in 1892, called *Life and Labour of the People in London*. Unlike writers of earlier reports, he had actually spent time with the poor and medical professionals in the area and concluded that 30% of London lived in poverty. Importantly, his report challenged the idea that the poor were to blame for their situation.

Seebohm Rowntree

Between 1899-1901 Rowntree worked with Booth on a study of poverty in York called *Poverty, A Study of Town Life*. Together they used statistics to prove that poverty was not unique to London but widespread across the country. They showed that 30% of York lived in poverty too. He came up with the term '**poverty line**' to describe the amount of money people had to earn to simply stay out of poverty. Like Booth's *London* report, it stressed that people couldn't help being poor.



The Liberal Government 1906-1914

At the start of the 20th century some people still struggled with terrible poverty. The only help they got was from charities like **Barnardo's** or **Salvation Army**. The Liberal Government decided it had to help more people. The Boer Wars and worries about the efficiency of workforces led to a number of social reforms:

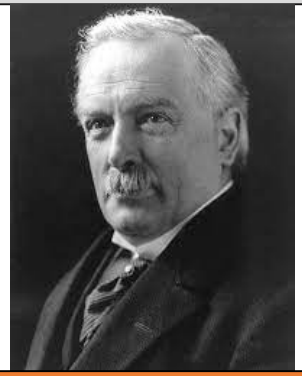
- **Children's charter**: In **1906** the government introduced school meals and in **1907** introduced school medical inspections.
- **Old-age pensions**: In **1908** the government brought pensions, paying 5 shillings a week to people over 70 living below the poverty line unless they hadn't worked or been to prison.
- **Health and unemployment Insurance**: Poor people still struggled to pay for medical treatment and those out of work often lived in extreme poverty. **The National Insurance Act**, **1911**, tried to help with this.

The Second Boer War

- The **Second Boer War** in South Africa lasted from 1899-1902 and many young British men volunteered to fight.
- However, many of these men didn't pass the medical tests, around a third of all recruits weren't healthy enough, many were malnourished.
- There were worried that if Britain was involved in a bigger war, there wouldn't be enough men fit enough to fight. The government had to act.

The National Insurance Act 1911

- National Health Insurance was given to workers earning less than £160 a year, funded by workers, employers and the government putting money in.
- It gave people sickness benefits, maternity benefits and free medical treatment (to a limit).
- Unemployment benefit was given to workers in some trades who lost their job, funded by contributions from the worker and government.



David-Lloyd George was a central figure behind the Liberal Reforms

Impact of War

The two World Wars in the first half of the 20th century had a huge impact on public health. Changes were made to housing and the government introduced new measures to tackle poverty, which was still a problem.

The First World War

- Despite the efforts made by the government after the Second Boer War, many young men signing up for the First World War were still too unhealthy to serve.
- The country wanted its heroes from the war to come back to a better life.
- The First World War was supposed to be the 'war to end all wars'. The experience of war was terrible for many people. The government had to act to improve public health.

Interwar Health Measures

- Some big changes were made to public health between the World Wars.
- Changes were made to the training of doctors and nurses, and hospitals were reorganised to become better value for money.
- The **Ministry for Health** was created in 1919, run by a minister who had been a doctor.
- Local authorities had to set up special hospital called **sanatoria** to look after people with **tuberculosis**.
- In **1934** the **Free School Milk Act** gave free milk to children in schools every day. This was removed by Margaret Thatcher (the milk snatcher) in 1971.

Home fit for heroes

- After the First World War, the Prime Minister David **Lloyd George** promised soldiers returning from war '**homes fit for heroes**'. Most people rented their homes, which were of very poor quality. The government set a target of 500,000 healthy homes for ex-soldiers by 1922.
- During the Second World War the government had to rebuild areas which had been damaged by bombing and also deal with the problems in housing identified by the **Beveridge Report** so again decided to build lots of houses: this was the beginning of **council housing**.

Impact of the two World Wars on poverty

The **First World War** had a big impact on poverty and greatly improved the lives of many of the nation's poorest citizens. It also saw changes to the status of women who had to work to help the war effort – they could work more easily after the war too, reducing poverty.

The **Second World War** led to the Beveridge Report and eventually to the creation of the **Welfare State**, which was supposed to end poverty in Britain. It was not entirely successful but it did reduce poverty and its associated problems.

The Second World War

- During the war the country was run by a **coalition government** made up of Labour, Conservative and Liberal politicians.
- People faced many challenges, including **bombing**, **rationing** and **evacuation**.
- In these hard times the government organised many aspects of daily life and the public welcomed this.
- These challenges of the Second World War led to the **Beveridge Report**.

Welfare State + the NHS

The Beveridge Report 1942, led to the creation of the Welfare State, intended to prevent anyone living in poverty. Part of this was setting up the NHS, which aimed to provide free healthcare to all when needed. The NHS wasn't popular with everyone.

The Beveridge Report

- **William Beveridge** was the expert appointed to lead a committee looking into **social security** (financial assistance from the state for people with low/no income) in Britain during the Second World War. He had been involved in the Liberal Government and helped it come up with its social policies and reforms.
- The committee decided there were five main problems with British society that stopped people making a better life for themselves. These were known as the Five Giants.
- The *Report on Social Insurance and Allied Services* was published in December 1942 and quickly became known as the **Beveridge Report**.

Recommendations of the report

The report said that Britain needed a proper system for welfare which would be:

- Available to all **at the point of need**.
- **Non-means tested** – even if people couldn't afford to pay they would still get help.
- **Comprehensive** – covering all the problems poverty caused.
- **Contributory** – paid for by the people in their wages.
- **Compulsory** - everyone paying into the system.

The system that would provide social security for all became know as the **Welfare State** and still exists today.

The Five Giants

Want (caused by poverty).

Ignorance (from a lack of quality education).

Squalor (cause by poor housing conditions).

Idleness (from unemployment).

Disease (caused by a poor quality health system).

The NHS

- In 1948 the **NHS** (**National Health Service**) was set up by **Aneurin Bevan** as part of the Welfare State.
- Healthcare was provided 'from cradle to the grave'.
- People had had free healthcare during the war and wanted it to continue.
- In the first year the service was very popular and great improvements were made in public health.
- New hospitals followed as part of the plans and the rate of many killer diseases began to fall for the first time.

Opposition to the NHS

Not everyone was convinced the NHS was a good idea. A lot of doctors disliked it as they wanted the right to keep charging patients for treating them privately, rather than being employed by the government. They feared they would lose money.

Healthcare in the 21st Century

The NHS was seen as the greatest achievement of the Welfare State. It has helped many people. However, it almost immediately ran into problems that continue to this day.

Successes	Challenges
Improvement to maternity services and services for children reduced illness and death among babies and children by a huge amount.	Hospitals were not able to care for the amount of people coming forward for treatment. Bevan got doctors to agree to the NHS by promising new hospitals. This was expensive and many took a long time to build - the system struggled.
New hospitals were built with modern equipment and much better treatment facilities.	The plan to pay for the NHS from National Insurance contributions didn't work - it only covered about 10% of the cost.
Education campaigns designed to prevent illness rather than treat it had great successes.	The cost of the new system was so high that by the 1950s changed had to be made, such as introducing prescription charges and rethinking which treatments were free.
The NHS vaccination campaign got rid of some of the most deadly diseases, such as polio and tuberculosis.	

Questions facing the NHS today

Cost
- How does the NHS pay for everything it needs as population grows?
- Which treatments should the NHS pay for?
- Should everything be free?
- How do we pay for expensive hospitals?

Effectiveness
- Should there be targets for the NHS to meet?

Litigation (legal action).
- Should people be allowed to sue the NHS when treatment goes wrong?
- How can the NHS pay for legal action brought against it?

Ethics (questions of right or wrong).
- What illnesses should the NHS treat?
- Should illnesses that are often self-inflicted (such as those caused by smoking) be treated for free?
- Should people be made to change their lifestyle before getting treatment?

The **pharmaceutical industry** makes very big profits. Sometimes drugs are so expensive that the NHS cannot afford them and people can only access them privately, by paying a lot of money.