Factors

What are factors?

- Factors are the causes that have made things happen in the history of medicine.
- Each historical period is characterised by different historical factors.
- Each factor plays an important role in medicine's changes over time.
- Factors combine to either cause progression, regression or continuity.

So what factors played a part in the development of Medicine?

- Science and Technology
- Government
- Individual Genius
- Superstition and Religion
- Chance
- War

Science and Technology

Science and Technology - new poor technology prevents advances, new machines, such as microscopes help it

EG. Koch and microscopes
Mass production of penicillin
Renaissance: Printing Press.

Government

A government needs to get involved in medicine if it wants to stay in power. The extent it does often depends on another factor – ECONOMY.

- Romans - aqueducts, baths
- 19th Century - Public Health act
- Mass vaccinations
- 1948 Start of NHS

Public Health means health for all, provided by the government.

- Medieval towns - Plague
- Industrial Cities - cholera, typhoid, high death rates

Individual Genius

- Hippocrates - father of modern medicine
- Galen – opposites + work on anatomy
- Vesalius, Pare, Harvey – **anatomy/physiology**
- Lister, Landsteiner – **surgery**
- Nightingale, Simpson, Lister - nursing, anaesthetic and antiseptic
- Koch and Pasteur - where does disease come from?
- Fleming, Florey and Chain - penicillin

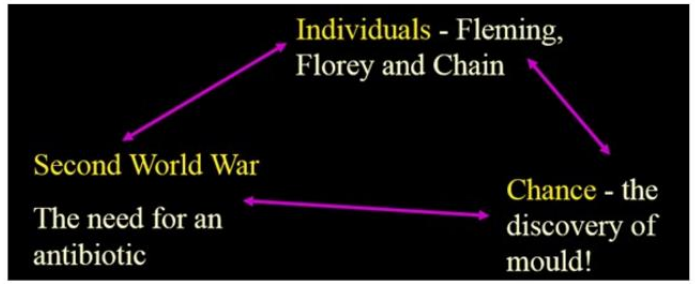
War

War increased the need for medicine - without effective medicine there would be no army to fight! Roman army hospitals

- Paré's ointment and ligatures
- Nightingale and the conditions in hospitals
- Penicillin
- X-rays & Skin grafts

Identify the factors - see how they worked together - examine which was most important, if any.

For example - Penicillin



Superstition and Religion

Helped:

- Islam preserved the works of Hippocrates and Galen
- Medieval church Provided care for the needy
- Kept the ideas of Galen
- Some helped as they were called by God

EG: Rowntree and Booth

Hindered:

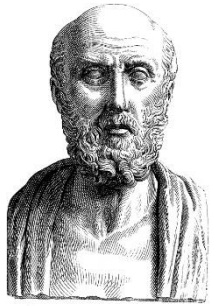
- Prevented dissection
- Prevented new ideas as Galen's fitted the Churches teachings
- Dissection allowed around 1400 - Protestantism began
- Religious belief stops people looking for natural causes

Chance

- Chance has played a large role in medicine
- What if Pare had not run out of oil?
- Pasteur's work on Chicken cholera was an accident.
- What if Fleming had not seen the mould? Or what if he had cleaned up?

How to use this poster:
Read through the information
Cover up the boxes
Then redraw the poster to help you revise.

Legacy of the Ancients.



Summary

- Hippocrates created the Theory of the 4 Humours
- Galen was used as a basis for all anatomy lessons.
- The Church supported Galen's ideas at the expense of the new.

Who: Hippocrates

Main discoveries:

- Believed in a NATURAL CAUSE of disease, the THEORY OF THE FOUR HUMOURS
- Wrote around 60 books about how to treat medicine and be a doctor.
- Came up with the "clinical method": DIAGNOSIS, PROGNOSIS, OBSERVATION, TREATMENT. This is still used today.
- Came up with the Hippocratic Oath, something else that was still used today.

Who: Claudius Galen

Main Discoveries:

- Believed in a NATURAL CAUSE of disease. Developed the THEORY OF OPPOSITES, based on Hippocrates' Four Humours Theory.
- Wrote many books on the subject.
- Worked in ANATOMY. Studied bones in Alexandria and DISSECTED ANIMALS, like dogs and monkeys. This made many of his ideas wrong.
- Discovered that the BRAIN CONTROLS THE BODY not the heart.

Why do they impact the Middle Ages?

- Both the Theory of the Four Humours and the Theory of Opposites were used to diagnose patients
- Galen's books and findings were taught at CHURCH RUN UNIVERSITIES.
- Used Hippocrates' "clinical method"
- The Church did not allow anyone to complete any other dissections and to only use Galen's teachings
- Galen believed in one God which was supported by the Church as his ideas were similar to their own.

Medieval Surgery

- This was quick and brutal.
- Mainly involved lopping bits off or cutting its out
- There was little anaesthetic used.
- Sometimes alcohol was used but this thinned the blood and made the patient bleed more.
- Did use Hemlock to knock people out BUT this could cause death if people were overdosed.
- Surgery was mainly performed by barber surgeons

Medieval Treatments and Surgery

Background

When the Romans left Britain in 450ad they took all of the knowledge that they had with them. This led to medicine going backwards as WARS prevented people from discovering knew ideas. The CHURCH played a vital role in bringing back knew ideas from the Islamic Empire, which had kept much more of the Roman ideas.

Summary

- Surgery was dangerous and painful
- There were five main types of healers
- The Islamic Empire increased its knowledge
- The Church played a vital role in Western medicine.
- Dissection was not allowed.

Healers

Healer	What they did and who they worked for
Physician/Doctor	University trained Used Galen's and Hippocrates' ideas Used mainly herbs Were expensive so mainly treated the rich
Barber Surgeon	Trained with an apprenticeship Cut hair and amputate infected limbs and warts. Cheap so used by all
Wise Woman/Midwives	No formal training, learnt from mothers etc. Cured using herbs etc. Very cheap so everybody used them
Quack Doctor	No training Created their own cures and sold these at fairs Very cheap but unlikely to work.
Monks	Used cures they learnt from books Mainly cured used herbs and prayer. Treated all as part of their Christian duty.

The Christian Church

- Treated people with non-infectious diseases at HOSPITALS as part of their Christian duties.
- They used a mix of herbs and prayer to cure patients
- They did not understand about the need for hygiene so people shared beds.
- Only 10% of hospitals treated the sick. The rest looked after the poor and needy.
- They did NOT treat, pregnant women, the insane, wounds or infectious diseases.
- Supported the work of Galen above all others
- Banned dissection so knowledge of the anatomy was limited.

Vs

The Islamic Empire

- Believed in treating illness as part of their religious duty.
- Cairo hospital could treat 8000 people.
- Based their ideas of Galen but moved forward.
- Avicenna and Ibn-Sina re-wrote old texts and added their knew ideas
- Albucassis invented the curved surgical needle and plaster castes (both of which we use today)
- Banned dissection so the knowledge of anatomy was limited.
- Used opium to knock out patients for surgery.
- Doctors and Surgeons were highly educate

Medieval Black Death: **1348**

What

The Black Death spread across Europe in the 1340s, having been introduced by Italian traders early in the decade. It finally hit Britain in 1348 and spread quickly throughout the country. It was carried in the fleas of Black Rats who lived on ships. Once the rat died of the Plague the flea would jump onto the nearest living thing, which given the poor state of Public Health was generally a human.

The disease seems to have had two ways of attacking the body. One became known as the Bubonic Plague which left the victim with a high fever and black swellings in the armpits, neck and groin. The second form of attack hit the lungs and left the victim coughing blood and eventually drowning in their own fluids as their lungs filled with phlegm. This became known as the Pneumonic Plague (Despite being from the same disease).

The Black Death killed between 1/3 and ½ of the population of Europe.

It slowly died away as people became more immune to it but it came back each summer and tended to kill the old and the young.

Beliefs About Causes

Due to the strong Christian influence there were two main ideas about how the Black Death was being spread.

The first was **SUPERNATURAL** and the second was **NATURAL.**

Ultimately because no-one knew about germs or vectors (the rats) this led to much speculation.

Supernatural Causes

- God was sending the plague as a punishment for the sins of the people (such as children disobeying their parents and women wearing high heels).
- The Devil had sent it as a way to turn souls to his evil ways.
- This was the beginning of the end of days and God was coming to deliver his final judgement on mankind.

Natural Causes

- It was caused by bad smells (miasma).
- It was caused by foul air thrown up by Volcanic eruptions and earthquakes.
- The planets were causing the Plague
- It spread through touch (close!)
- The humours were out of balance.

Cures

Again, due to the lack of knowledge people came up with both **NATURAL** and **SUPERNATURAL** cures for the disease. Most would have been fairly ineffective.

Supernatural Cures

- Build a candle the height of yourself to burn as an offering In your local church to show how holy you were.
- Flagellants walked from town to town whipping themselves to show how sorry they were for their sins, hoping to prevent the plague by appeasing God (this may have actually helped spread the plague!).
- Paying for prayers to be said on your behalf in Church.

Natural Cures

- Eat crushed emeralds (ineffective and only for the rich!)
- Clean up the streets to avoid the bad smells (this worked!)
- Runaway or quarantine your town to stop plague carriers from coming in!
- Burst the Buboes (this may have worked)
- Bleed the patient to balance the humours.

Short-term impact

- Killed many (up to half the population)
- Led to a shortage of workers and an increase in wages
- Some peasants became richer as they bought land that had been left empty

Long-term impact

- Led to the peasants winning their freedom from the Feudal System as their work was more important than keeping them on the land.
- Led to the Peasants' Revolt in 1381 as the government tried to stop wage rises.
- Led to new ideas about medicine, such as quarantining people who were ill.
- Towns got bigger as more peasants bought their freedom

Medieval Public Health

Medieval Towns

Medieval towns had seen a massive growth in the numbers of people living their after the Norman invasion. This got worse after the Black Death as more peasants bought their freedom.

The old systems that had been used during the Roman era were forgotten or not used as the Saxons believed them to be built by giants and so had fallen into disrepair by the time of the Norman Conquest in 1066.

This led to filthy streets as people through their rubbish straight into the gutters.

There were open sewers to take human waste straight into the river where most people got their drinking and washing water.

Some people were lucky enough to have access to clean water in a local well but most people drank Small Beer (a very weak ale) as the water was so dangerous.

This led to fewer baths for people as well as if you washed in the dirty water you may also get sick.

Did things start to change?

During the Black Death mayors and even the king ordered the streets to be cleaned of rubbish in order to stop the spread of the bad smells.

Many laws were introduced to encourage people to clean up their part of the streets and severe fines were put in place for making the streets dirty.

Butchers in London were ordered not to throw their waste into the streets but to take it straight to the river.

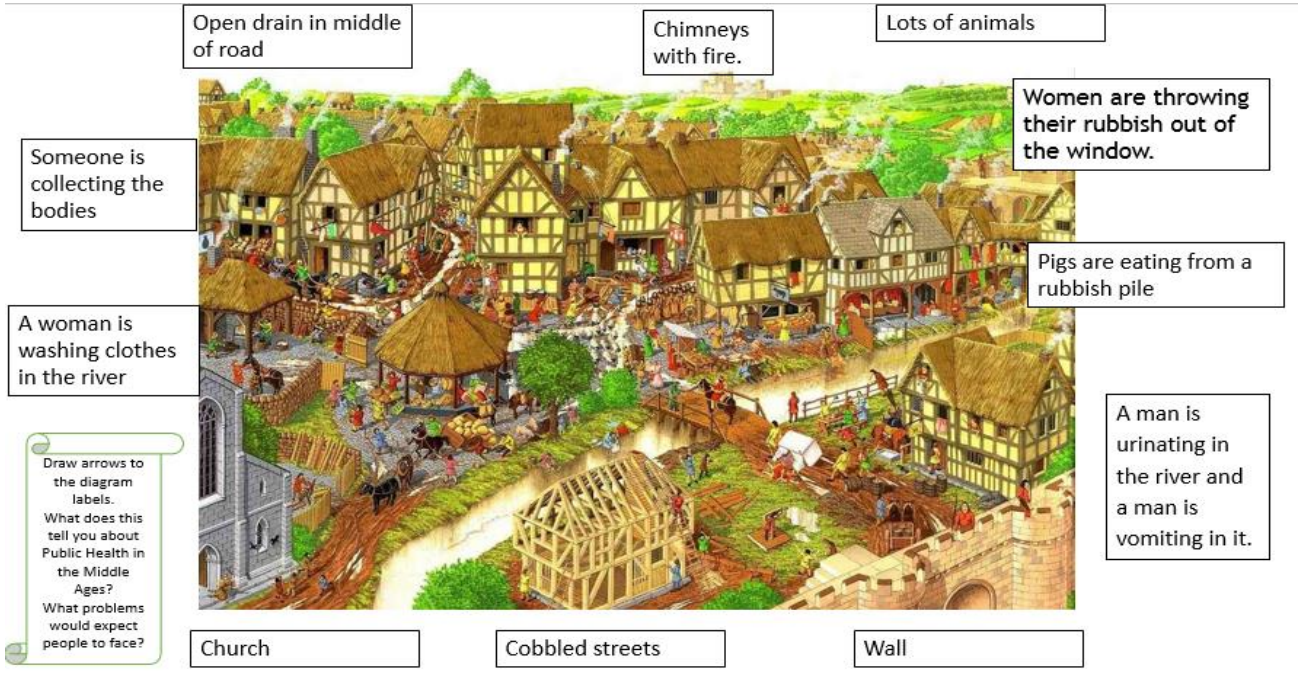
However, in general the streets remained narrow and full of general filth as there was no regular rubbish collection as the government was more interested in fighting wars than sorting out public health.

Medieval Monasteries and Public Health

It was part of the Christian religion to keep yourself clean, especially if you were going into pray. This led monks to be somewhat cleaner than their secular counter-parts, they had an enforced bath every 3 months! However, most bathed more frequently than this.

The monks also knew about the importance of not mixing waste with drinking water and so most monasteries got their drinking water from upstream and had flushable toilets that entered the water system downstream.

Monks also provided free healthcare for the sick and old as part of their charity work as the government did not believe it was their job to help these people.



Renaissance Surgery

- This was quick and brutal.
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- Did use Hemlock to knock people out BUT this could cause death if people were overdosed.
- Surgery was mainly performed by barber surgeons

Renaissance Treatments and Surgery

Background

By the end of the Medieval Period people were becoming less religious and starting to look for new explanations. This was partly due to the fact that the Reformation had taken down some of the power of the Catholic Church. This led to more freedom to stud anatomy and challenge Galen's ideas.

Summary

- Surgery was dangerous and painful
- There were five main types of healers
- The Islamic Empire increased its knowledge
- The Church played a vital role in Western medicine.
- Dissection was not allowed.

Healers

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Quack Doctor	No training Created their own cures and sold these at fairs Very cheap but unlikely to work.
Monks	Used cures they learnt from books Mainly cured used herbs and prayer. Treated all as part of their Christian duty.
Apothecary	Like a pharmacist, would make up treatments for you to use. Relatively inexpensive so used by all but the poor.

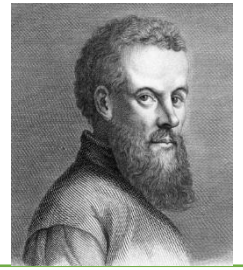
Hospitals

New hospitals were set up after the Church Hospitals were closed by the Reformation.
They were funded by charitable donations and mainly treated the poor.
You could still not enter if you had contagious disease.
Conditions were generally unhygienic
Things began to improve after the APOTHERCRIES ACT in 1815

Beliefs about Causes and Cures

Despite an increase in study and knowledge that this bought in terms of treatment there was very little change.
The four humours was still widely used as were Barber Surgeons.
This lack of change was easily seen in the treatment of Scrofula.
This was supposedly the "King's Disease". If the king laid his hands on someone with Scrofula he would be cured.
The other way of proving that medicine had not changed was the treatment Charles II received as he was dying. He was bled many times and fed the crushed skull of a human being to try and save his life.
It didn't work.

Renaissance Key People Impact



Andreas Vesalius 1514-1564

Key Discovery: Changes in Anatomy, Wrote On the Fabric of the Human Body 1543

Before: Everyone believed in Galen as he was supported by the Church. Very few people did their own dissections. This led to mistakes being passed on and a lack of knowledge on Anatomy.

After: Vesalius' work continued to be used. Even today most doctors complete dissections to help them learn about the body.

During: His work was recognised but some people were unsure of his ideas as it meant undoing centuries of learning.

Ambroise Pare 1510-1590

Key Discovery: Changed the use of cauterisation to an ointment, Re-invented ligatures, created prosthetic limbs. Became surgeon to the king.

Before: Cauterisation (burning with hot oil or steel) was used on wounds. This led to painful wounds and many dying of shock.

After: Pare's ideas were used by Joseph Lister when he used Cat Gut in his ligatures.

During: Pare's ideas were not used for centuries as he was not aware he needed to wash his hands between patients which spread infection. Ligatures also caused greater blood loss and death.

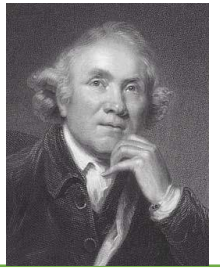
William Harvey 1578-1657

Key Discovery: Blood circulated around the body, wrote an 'Anatomical Study of the Motion of the Heart' 1628, became doctor to the king

Before: People believed in Galen's ideas that the blood flowed

After: His ideas were used to help in the invention of blood transfusions.

During: Whilst he did put the nail in Galen's coffin bleeding was used well into the 19th century.



John Hunter 1728-1793

Key Discovery: helped in the dissection of over 2000 bodies, became a member of the College of Surgeons in 1768, became surgeon t the king George III. Published 'the anatomy of the Gravid Uterus' in 1774,

Before: Anatomy was only for trained doctors and not the common man and women were rarely dissected. Surgeons were considered to be less than doctors.

After: Hunter's book was used for many years to help doctors and surgeons understand the pregnant female.

During: Surgeons became more respected.

Great Plague 1665

What

After the Black Death in 1348 the Plague never really went away. The disease came back most summers but killed only, the young, the weak and the old.

However, in **1665** the Plague struck London with a very virulent form of the disease. It killed over 60,000 people a week at its height and the estimated death toll is 200,000.

The symptoms were the same as the Black Death with many suffering the Pneumonic version of the Plague.

The outbreak was eventually bought under control by the Great Fire of London in 1666 which led to many of the infected houses being burnt down and the rats that were spreading the disease dying.

Beliefs About Causes

There were two main ideas about how the Black Death was being spread.

The first was **SUPERNATURAL** and the second was **NATURAL.**

Ultimately because no-one knew about germs or vectors (the rats) this led to much speculation.

Supernatural Causes

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Cures

Again, due to the lack of knowledge people came up with both **NATURAL** and **SUPERNATURAL** cures for the disease. Most would have been fairly ineffective.

Supernatural Cures

- Paying for prayers to be said on your behalf in Church.

Natural Cures

- Clean up the streets to avoid the bad smells (this worked!)
- Runaway!
- Quarantine those infected for 28days to prevent the spread.
- Burst the Buboes (this may have worked)
- Bleed the patient to balance the humours.

Government Intervention 1665

Possibly because this outbreak was contained in London the government had a greater impact on the Plague

- They hired street cleaners to clean the streets
- Paid for Bonfires to clear the air
- Paid for Watchmen to keep people under quarantine
- Paid doctors to check all the dead for Plague and quarantine those who had come into contact with Plague victims.
- Culled stray Cats and Dogs.

Similarities with 1348

- Belief in natural and supernatural causes and cures
- Don't know the cause
- Quarantine

Differences with 1348

- Less religious impact (no flagellants in 1665)
- Co-ordinated Government intervention
- Mortality rates kept a record of in 1665

Short-term impact

- Abolished open sewers
- Wider streets and Pavements introduced.
- Wooden buildings abolished
- Greater sense of community

Long-term impact

- This was limited because despite immediate improvements as London continued to grow the Government lost interest in Public Health.

People believed that Germs were created by dirt. This is spontaneous generation

Fighting Disease

Doctors could try drugs out on patients without telling them it was experimental!

Fight Against Disease Timeline

1799 Jenner discovers vaccine for smallpox

1861 Pasteur discovers that Germs are linked to mould and disease

1860s Koch discovers link between HUMAN disease and germs

1909 Paul Erlich Discovers Salvarson 606 a the first 'MAGIC BULLET' against syphilis

1920s Domagk discovers the sulphonamides cure blood poisoning

1928 Alexander Fleming notes that Pencillium mould kills bacteria

1930s-40s Florey and Chain work on creating an antibiotic. In 1944 Pencillin is used at D-Day

1961: Thalidomide Scandal leads to greater regulation on the sale of medicinal drugs.

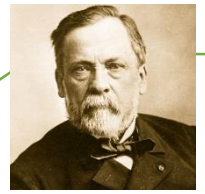
Edward Jenner 1749-1823

Key Discovery: Created the smallpox vaccine

Before: Smallpox killed thousands of people a year. There was some INNOCULATION but this was quite dangerous.

After: His vaccine became the first compulsory vaccine in 1853. Was used to wipe out smallpox from the world by 1980

During: His work was recognised but there was opposition due to religion, his lack of position and the fact he couldn't explain why it worked.



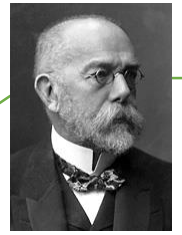
Louis Pasteur 1822-1895

Key Discovery: Made the link between Gers and Disease, created many vaccinations

Before: Belief in Miasma and Spontaneous Generation was rife.

After: His ideas accepted an still used today. Began changing surgery and led to cures for germs.

During: Took 20 years for his work to be recognised with Germ Theory. Most accepted it. Vaccines were widely used. Had a great rivalry with Robert Koch



Robert Koch 1822-1895

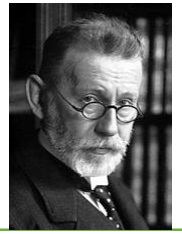
Key Discovery: Proved the link between HUMAN disease and germs. Discovered specific germs such as Tuberculosis, Cholera and Anthrax.

Before: Belief in Miasma and Spontaneous Generation was rife.

After: His ideas accepted an still used today. Led to cures for germs.

During: His ideas were well accepted and used throughout the period. Had a great rivalry with Pasteur.

Fighting Disease
Key People



Paul Erlich
1854-1915

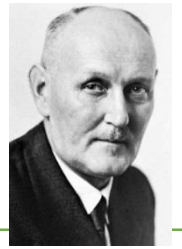
Key Discovery: Created the Chemical Magic Bullet Salvarson 606

Before: Treatments for disease had been fairly dire. Mercury was used to treat Syphilis but could lead to poisoning including teeth and hair loss and even death.

After: Salvarson quickly became a very popular treatment and was used widely. The idea of a Magic Bullet to cure illness was used by Domagk and Florey and Chain and even into today. Salvarson was quickly overtaken by antibiotics.

During: His work was widely accepted.

Factors: Chance, Individual Genius (he used Koch's work), technology



Gerhard Domagk
1895-1964

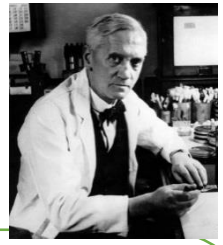
Key Discovery: Created Protosil against Blood Poisoning.

Before: Salvarson 606 had been widely used. Domagk thought there would be other cures.

After: Sulphonomides would go onto be the precursors to antibiotics. They were widely used and very popular. Quickly surpassed by antibiotics

During: Ideas widely accepted.

Factors: Chance (he tested this out on his daughter when she caught blood poisoning whilst playing in his lab), Technology, Individual Genius



Alexander Fleming
1881-1955

Key Discovery: Discovered that Penicillium mould killed bacteria

Before: Chemical cures were widely used but little has been done on natural cures. Lister had noticed that some mould killed bacteria in the 1870s.

After: His work was used by Florey and Chain to discover and mass produce Penicillin. We still used Penicillin today

During: Work was forgotten as he only wrote a few lines about his discovery in another paper. Collected the Nobel Prize alongside Florey and Chain after the mass production of Penicillin.

Factors: Chance (he went on holiday mould contaminated his samples), Technology, Individual Genius

Florey and Chain
1898-1968, 1906-1979

Key Discovery: Mass produced Penicillin

Before: Fleming had discovered Penicillium mould and Lister had said some mould killed bacteria.

After: Penicillin is widely used today and more antibiotics were produced. There are still problems around antibiotic resistance though.

During: The work was recognised and they shared the Nobel Prize with Fleming. It is possible they helped us win WW2 as Penicillin was produced in time for D-Day meaning we had more soldiers remaining fit for fighting.

Factors: Government, War, Technology, Individual Genius

Despite advances in anatomy Surgery still had three main problems: PAIN, INFECTION and BLOOD LOSS

Surgery

Surgery has improved greatly and now we use things like Key Hole Surgery and have very low death rates

Surgery Timeline

- 1799 Humphrey Davy discovers Laughing Gas
- 1847 Ignaz Semmelweis makes the link between doctors not washing their hands and deaths in patients.
- 1847 Liston uses Ether in an operation.
- 1848 Simpson uses Chloroform in operations
- 1870s Lister is using Carbolic Spray in operations
- 1901 Landsteiner discovers human blood groups
- WW1 1914-18 Blood separated into Plasma and blood to allow for easy storage
- WW2 1939-45 Blood bank set up (1938). Blood is freeze dried to allow for better storage
- 1982: Heart/Lung Transplant performed

Anaesthetics

Humphrey Davy 1778-1829

Key Discovery: Laughing Gas

Before: Pain relief was uncommon. Surgeons were quick. Lister could take off a leg in 2.5 minutes BUT he had a 200% death rate (he killed his patient and one of the men holding him down).

After: Laughing Gas is still used today for minor injuries and labour

During: His work was not really accepted as the Gas did not last long enough to complete full surgery.

Robert Liston 1794-1847

Key Discovery: Used Ether in the UK

Before: Laughing gas had been used and Ether had been used for operations in America.

After: Ether continued to be used

During: Ideas were generally well accepted. Surgery began to pick up.

Problems: Ether was uncomfortable for the patient as it led to them coughing, and feeling nauseous.

James Simpson 1811-1870

Key Discovery: Discovered and used Chloroform (1848)

Before: Ether was used but was generally unpopular.

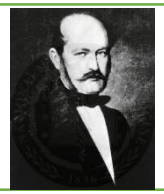
After: Chloroform was used into the 20th century.

During: Chloroform was well used and much better as it did NOT cause the patients to cough.

Problems: Chloroform is very dangerous as 1/3 of a teaspoon will put you to sleep but 1/2 a teaspoon will kill you. Many young people died as they needed more to put them under. This was made safe by JOHN SNOW who used it on Queen Victoria

Factors
Individual Genius, War, Technology

Surgery



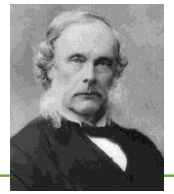
Ignaz Semmelweis 1818-1865

Key Discovery: Put forward the idea of ASEPTIC Surgery

Before: Doctors rarely washed hands or instruments. A bloody apron was the sign of a good doctor.

After: ASEPTIC surgery was accepted and is still used today, operating theatres even have filtered air to keep things clean

During: He worked out that Doctors who went to the morgue then saw patients were likely to kill their patients. He was unpopular and his ideas were not accepted.



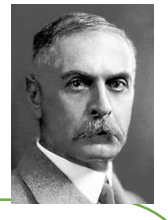
Joseph Lister 1827-1912

Key Discovery: ANTISEPTIC Surgery, through Carbolic Spray.

Before: Doctors rarely washed hands or instruments. A bloody apron was the sign of a good doctor.

After: His ideas were mostly accepted but it took up to 20 years for them to be fully used nationwide. People started to adapt his ideas and called for the use of gloves and different gowns for surgery

During: He worked with his ideas and cut his death rates from 30%-3%. He later started to use Aseptic surgery and steam to sterilise his instruments.



Karl Landsteiner 1868-1943

Key Discovery: Blood Groups

Before: Work had been done on Blood Transfusions before but these were mostly unsuccessful as people did not understand the body's immune response.

After: His work was taken forward into WW1 and 2 where the storage of the blood improved greatly, allowing for the setting up of the first blood banks in 1938

During: His work was accepted and used carefully.

Opposition

There was much opposition to anaesthetics in particular for many reasons:

- Religion: people believed that women should give birth in pain as this is what God ordered in the bible.
- Chloroform was unsafe and untested, no-ne could explain why it worked.
- The army in particular felt that pain should be felt to encourage men to fight to stay alive.

These arguments were overshadowed when Queen Victoria used Chloroform I the birth of her 8th child.

There was some opposition to antiseptics too. This was generally because people did not completely sterilise instruments and their hands so they did not see the results.

Blood Transfusions still have opposition from religion today. Jehovah's Witnesses will refuse blood transfusions as it is against the teachings in the bible.

The government has paid little attention to Public Health. As the **Industrial Revolution** bought more people into the cities people's health declined, due to overcrowding and poor sanitation

1800s Public Health

Public Health had begun to improve but people were still expected to live for themselves.

Public Health Timeline

1750- Beginning of the Industrial Revolution. People start to move into the cities for work. Sanitation and public health decline

1832- First Cholera epidemic.

1842- Chadwick publishes his Working conditions of the Working Poor which encourages the government to spend money on the poor to improve their health

1848 1st Public Health Act. Councils CAN set up Health Boards but they are NOT COMPULSORY

1854- John Snow connect Cholera with dirty water.

1858 – The Great Stink. The Thames dries up leaving the stinking mud to foul the city. Parliament decide to solve this problem by building sewers.

1866- Joseph Bazelgette finishes the sewers in London.

1875 – 2nd Public Health Act. Councils MUST set up Health Boards and improve sanitation

1889- Booth shows that 1/3 of the population of London were living below the poverty line

1899- shows that 1/3 of the population of York were living below the poverty line

In the Beginning

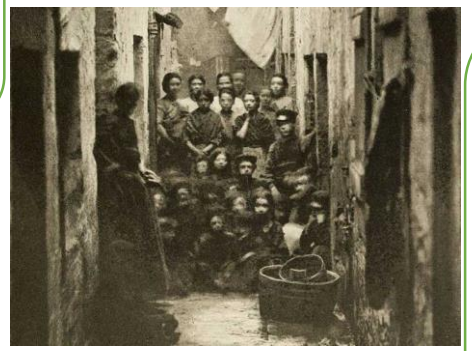
Many people lived in cramped conditions with little access to good sanitation. Back to Back housing was common and the government attitude was '**Laissez-Faire**' (let it be) which meant they did nothing about it. It was believed that the poor were poor because they did not work hard enough.

Why did things begin to change?

Slowly people's attitudes began to change.

People like Joseph Chamberlain who was the Mayor of Birmingham started to think that the poor needed help. He created a much cleaner city before the 1875 Public Health act came into force.

The fact that Working class men got the vote in 1867 also saw a big shift in the views of Laissez-Faire because the politicians now had to appeal to more of the people, not just the ratepayers (taxpayers).



Factors in improving Public Health

Government, Individual Genius, Religion (both Booth and Rowntree were Quakers), Communication

Opposition to Public Health

People thought it would make the poor lazy as they wouldn't have to work their way out of the slums.

They were worried about the cost

Very little of the poor conditions affected the ratepayers lives so they didn't want to change anything

It was considered the poor's own fault if they were poor.

Modern Public Health

After the Boer War of 1899-1902 proved that people were unfit for military service, there was a massive change in government and the Liberal party won the election, promising to improve Public Health

The NHS continues today but with ever more strain on its finances.

Public Health Timeline

1906- Free School Meals Act. This allowed schools to provide meals to the most poor.

1908- Old Age Pensions Act. This gave provision for the poorest have some help after the age of 75.

1911 – National Insurance Act. This allowed mainly MEN in the important jobs (mining, shipbuilding, servants) access to health care if they fell ill. It also allowed for Labour Exchanges so they could find work. They paid from their wages, as did the rich and government,

1918 – Homes for Heroes This was a popular campaign t build new homes after the war to get soldiers out of the slums. It was not that successful however as slum clearances continued into the 1950s.

1946- National Health Service introduced.
After the Beveridge report (1944) it was considered right that the state should help people from 'Cradle to Grave'. This led to the NHS which is ;Free at the point of delivery'. This included both men and women as well as children. At the beginning it included dentists and glasses but due to cost these were quickly dropped for adults.

Factors in improving Public Health

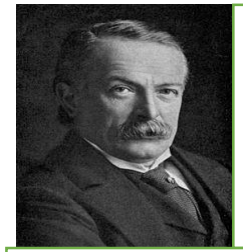
Government: National Government saw that people needed to have some help to get out of poverty.

War: Not having a strong army in the Boer War worried the government. 1/3 of recruits were unfit for military service. After WW2 the government needed to help ALL of the people affected by war, including the civilians injured as part of the Blitz.

Individual Genius: David Lloyd George was vital to the Liberal reforms and the Bevan report by Beveridge called for people to be looked after from 'Cradle to Grave' to improve their standard of living and government funds.

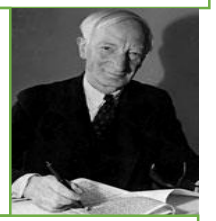
The Liberal Reforms

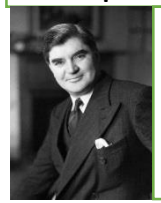
These were bought in partly due to the Boer War. They were very popular and won the Liberal Party a landslide election.
The 1909 People's Charter (which led to the National Insurance Bill), caused problems as the Conservative Lords refused to let it pass. This caused a political crisis, known as the constitutional crisis.



David Lloyd George Liberal Reforms

William Beveridge The Beveridge Report 1942





Aneurin Bevan Creator of the NHS 1946

Opposition to the NHS

People believed it would make the poor lazy (especially the benefits)
Doctors were worried they would lose money because of the loss of private patients (doctors can still work privately today because of this).
People were worried by the cost

Modern Treatment

Pharmaceutical Industry

In the late 1800s the major chemical industries started to look for cures for disease through chemicals. They produced; aspirin (1899), insulin (1921), Sulphonamides like Prontosil (1932). This large scale production of drugs was fantastic as it meant that more people could afford treatment. Perhaps the most successful drug produced was Penicillin.

Chemotherapy (actually invented as companies tried to stop the effects of Gas Poisoning), is another big success for the Pharmaceutical Industry which continues to produce most of the medicinal drugs we use today.

Problems

In the 1950s the Pharmaceutical Industry was basically unregulated. This was key to the **Thalidomide Scandal**. Women with morning sickness were given a new drug Distaval to help cure the symptoms. However, the drug had not been tested on pregnant mice or women. It led to a rise in birth defects with as many as 10,000 children being born with under-developed limbs and organs.

This led to greater regulation and the promise that doctors had to tell a patient if the drug was experimental.

Further Problems

Despite advances in antibiotic drugs, with new strains being discovered, **antibiotic resistance** is a growing threat. This means that bacteria evolve so they are not affected by anti-biotics anymore. Around 25,000 people in Europe die of antibiotic-resistant bacteria every year. This was caused by over-use of antibiotics.

Modern Surgery

Surgery has changed a lot since the end of the First and Second World War. This has been partly due to **technology**. Allowing for more complex but also more recoverable surgery.

Key-Hole surgery is a good example of this. A tiny hole is cut into the patient and small surgical tools, including cameras are put through these holes to complete the surgery. This allows for a very quick recovery time.

Transplants have also evolved greatly. The first transplant was of the Cornea in 1905 with the first heart transplant performed in 1867. The use of immunosuppressants has meant that more and more of these surgeries are successful.

A final way technology has helped the treatment of diseases is that of **Radiation therapy** used for cancer. Without a true understand of types of radiation this treatment would not have been possible.

Alternative Treatments

Some people are in fact resorting back to Alternative Treatments. These are treatments that have not undergone full medical testing. This means that some doctors see them as doing more harm than good whilst others believe that a mix of both modern and alternative treatments can benefit patients.

These include **Acupuncture**, where tiny needles are placed into specific points in a patients skin. It is most commonly used to relive pain.

Another alternative therapy is **Homeopathy** which uses natural cures, sometimes diluted with lots of water, to treat a range of illness.

New Diseases

As the human race evolves, so do the diseases that attempt to infect it.

The most famous of these new diseases is **HIV/AIDs** which was first recognised in 1981. This disease was new as it attacked the immune system which made curing it very difficult. Companies started to use a drug called **AZT** and have since found many more ways of treating HIV. However, a cure is still being sort.

In 2002 a new disease called **SARS** was seen in China. This disease is effectively a respiratory illness but can lead to many deaths. There is no cure but again treatments are used to reduce the symptoms.

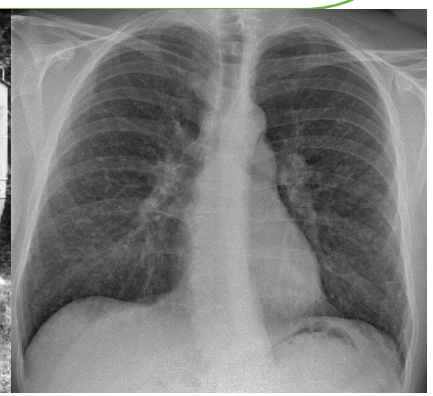
Impact of War

X-Rays

Wilhelm Roentgen discovered that X-Rays could pass easily through skin but less easily through bone, which meant that if captured in an image it showed the bones in the body.

During WW1 X-Rays became invaluable as a diagnostic tool. However, they were quite unreliable and the machines were often miles away from the front so soldiers missed out on life/limb-saving treatment.

By the end of the war X-rays had become more reliable with the invention and use of the **Coolidge Tube** and mobile as Marie Curie invented a mobile X-Ray machine that could fit into a van which allowed more people to gain access to the X-Rays they needed.



Plastic Surgery

Due to new types of weapons, including the large numbers of artillery shells and the sheer number of troops the need to fix damaged limbs and faces became pressing during the war.

Doctors in France and Germany had already been working on skin-graft techniques before the outbreak of war.

Harold Gillies set up a plastic surgery unit for the British Army, used their techniques In his treatments.

Gillies was interested in reconstructing facial injuries so that patients could have a normal appearance. He developed pedicle tubes, grafts of skin that went from the arm to the damaged part of the face that allowed for the skin to heal and grow onto the damaged section with limited scarring.

Gillies' work was continued during the WW2 by Archibald McIndoe who worked with many pilots who had been burned in air-craft crashes.

Blood Loss

Blood Loss was a problem that was beginning to be solved before WW1. Karl Landsteiner discovered **Blood Groups** that allowed for safe transfusions. However, the blood could not be stored which meant many soldiers during the war died of blood loss as there were not enough healthy people to give blood on the front line.

In 1914 doctors discovered that **Sodium Citrate** stopped blood from clotting so it could be stored. This allowed the first Blood Depot to be set up at the Battle of Cambrai in 1917.

During WW2 it was discovered that you could **Freeze Dry** blood to allow for quick transport and longer storage.

This eventually led to the setting up of the **British National Blood Transfusion Service** in 1946.

Penicillin

War impacted the mass production of Penicillin greatly. Having been discovered in 1928 Penicillin had been forgotten about until 1938 when Howard Florey and Ernst Chain started to think about producing a pure antibiotic. Despite being successful they could not produce enough in England due to the war. They went to the American government who could see it was important and supported them in mass producing it. By 1944 there was enough Penicillin to be used as D-Day. It is possible that this helped the Allies win the war as more soldiers were fir to continue fighting after injury because of this discovery.