Medieval Medicine

Being ill in Medieval Times
- **Medieval diseases**
  - Rich more likely to afford treatment
  - Famine and war main killers
  - Diseases like dysentery, typhoid and smallpox were widespread
  - Many women died in childbirth

Ideas about the causes of disease
- Medieval people didn't understand the causes of disease and so mainly focussed on trying to cure the symptoms of the disease instead
- **The Theory of the Four Humours**
- Hippocrates said that the body was made up of four humours (black bile, yellow bile, blood and phlegm) if these became unbalanced then a patient would become ill
- Later Greeks and Romans developed the theory by linking the humours to the seasons and to the elements. Galen supported and use the 4 humours theory
- **God and punishment**
- Religion and superstition was very important in those times and most people believed that illness was sent by god as a punishment for sins
- The church supported this theory

Bad smells
- Some people began to realise the link between dirt and disease
- Towns were very dirty due to a growing population living closely together
- People thought that the smell could be the cause of disease

John Arderne
- Trained surgeon working in London
- Very high success rate (over 50% patients survived)
- Developed own pain killing ointment rather than cauterising wounds
- Wrote books including 'The Practice of Surgery'

Who treated the sick in Medieval Times
- **Barber surgeon**–Cut hair, removed teeth and simple surgery. Started as an apprentice before setting up on their own
- **Apothecary**– Would sell medicines and herbs which could then be mixed into herbal remedies. Started as an apprentice before setting up on their own
- **Wise woman**– Used old family recipes and treatments. Would already know the patient and be affordable. Often used to deliver babies.

Treatments
- **Herbal remedies**
- Bleeding to balance the humours (by cutting or using leeches)
- Purging to balance the humours
- Prayer

How would they diagnose
- Urine charts
- Star signs and star maps based on the zodiac

Role of the church
- Centre of people's lives
- Prayer important as a way of stopping disease
- People with illness might visit a shrine, relic or buy a pardon to try and gain god's favour and support
- Church limited progress of medicine as it supported Galen (e.g.. Roger Bacon was arrested for critiquing Galen and the Church)) and did not allow human dissection

Hospitals and public health
- Hospitals ran by monks and nuns
- Would not admit everybody and was mainly used as a place that people would come to die rather than be treated
- Patients would share beds and be treated with prayer, simple herbal remedies as well as food and warmth
- St Giles Hospital had strict rules for patients and nuns/ monks who worked there

Monasteries
- Knew the dangers of dirt and disease
- Kept water source for drinking separate from where the toilet waste was sent
- Had a physic garden where supplies for medicines could be grown
- Hospitals were often attached to monasteries

Towns
- Very overcrowded with a rising population
- Butchers brought live animals into town and slaughtered them
- Very little effective waste disposal system
- Hard to keep food fresh and rotten food often sold
- Cesspits often built next to wells
- Very few rules about keeping everything clean/ those that existed were hard to enforce
- BUT.. Towns like Coventry did try and take action every so often or when a disaster occurred and Bath Houses were used

The Black Death
Plague arrived 1347-1348
½ Londoners died. Treatments = Bleeding, carrying around flowers, superstition such as chickens on buboes. People buried in Mass Graves. No idea on cause of disease so blamed bad smells, The Jews or saw disease as punishment from god.

Renaissance Medicine

The Renaissance 1500-1650
- **Rebirth of ideas**
  - Reformation of religion and people began to challenge the church
  - Many universities set up and people encouraged to think for themselves
  - Development of new technology (e.g.. Printing press) and weapons: guns and gunpowder developed
  - Development of the scientific method of attempting to observe and experiment
  - Art develops which means that drawings are now to scale and accurate

Who treated the sick in the Renaissance
- **Barber surgeon**–Cut hair, removed teeth and simple surgery. Started as an apprentice before setting up on their own
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- **Wise woman**– Used old family recipes and treatments. Would already know the patient and be affordable. Often used to deliver babies.
- **Battlefield surgeons** – Performed operations on the Battlefields in France. Successful surgeons like Pare could then be appointed to be the King's physician
- **Physicians** - attended universities and would deal with mainly rich patients. Often diagnosed the disease and would send the patient to a apothecary to make up the treatment (e.g.. Nicholas Culpepper)
- **Quacks** – People who would invent/ sell medicines with no medical training. These medicines had no actual medical benefit and they were just trying to make quick money.

Surgery
- Development in skill as surgical tools improve and surgeons become faster and more accurate
- Opium used as an anaesthetic but hard to get the dosage right
- Royal College of Surgeons set up and physicians and surgeons receive training
- Human dissection now allowed
- **John Hunter famous example**

New ideas
- Used new ingredients from around the world to help treat the sick.
  (e.g.. Tobacco used after it was found by Walter Raleigh to help keep bad smells away)
- Robert Burton published one of the first studies of mental illness focussing on depression due to lack of exercise
- Jane Sharp fought to keep the job of delivering babies for female midwives after many physicians tried to take over the trade
- Sir John Floyer wrote a study of the impact of Asthma and recommended a way to improve air quality
- George Cheyne published an essay on obesity and argued that people should look after their own healthy diet
- James Lind came up with a cure for scurvy by giving sailors fruit (limes in particular)

Hospitals and public health
- Hospitals now run by various organisations and charities
- Some hospitals had a specialist focus e.g.. Thomas Coram set up the Foundling Hospital for babies who had been abandoned
- Voluntary hospitals were set up with the money from people's inheritances or paid for by private subscriptions.
- Hospitals could still choose who they would let in or not and most of the free healthcare given by monks and nuns had now gone.

HOWEVER…

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- BUT.. Local government had more power to make and enforce rules. During the Great Plague they spent lots more money trying to clean the streets
- As the idea of miasma developed more people tried to keep things clean but they were more likely to keep something that smelt nice with them than actual clean and solve the problem

The Great Plague
Plague arrived 1665

1/5 Londoners died. People locked in their houses and guards put on the door to make sure the families stayed shut in. Dogs and Cats killed and fires burnt to purify the air. No idea on cause of disease so blamed bad smells, The Jews or saw disease as punishment from god. People also blamed the stars and planets

Key individuals - See key individuals sheet
- Vesalius
- Harvey
- Pare
- Thomas Sydenham
- Johanna St John
- Nicholas Culpepper

Developing medical treatment

How did the Industrial Revolution affect health?
- Population increase
- Overcrowding and population living in cramped and dangerous conditions
- Dangerous and dirty working conditions in the mills and factories
- Poor working long hours for low wages

Who treated the sick nineteenth century
- **Surgeons**
- Often got the job based on who they knew rather than qualifications
- 40% of people operated on died
- General Medical council set up in 1858 to regulate surgeons

Ideas about the causes of disease
Edward Jenner
Jenner realised that milkmaids with cowpox did not get smallpox. He created a vaccine by giving cowpox and then smallpox to a child. This worked although he could not explain the science behind it. Eventually the government gave him money to develop the vaccine and made it compulsory but he faced opposition from inoculators who were losing money and the anti vaccine society
- **Scientific revolution**
Louis Pasteur
- Argued that micro organisms were responsible for disease.
- Argued that we should develop a vaccine to specifically target different types of micro organism and therefore different diseases.
- Worked to prevent chicken cholera and then rabies
Robert Koch
- Linked specific bacteria to specific diseases
- Found bacteria responsible for cholera and TB
- Isolated the bacteria by developing a dye to stain them so he could tell them apart
Paul Ehrlich
- Used Koch's staining technique but added serum to it so that it could be used to target specific diseases
- Came up with the idea of a 'magic bullet' to target specific organisms in the body
- Developed Salvasan to treat syphilis

Treatments
- Developed tablets and worked on making the dosage of medicine more accurate
- Most people keep Laudanum in their cupboard (90 per cent alcohol and 10 per cent opium)
- Aspirin developed by a German chemical company
- Boots the Chemist was set up
- No control over what was put into medicines and many were very dangerous
- Many drugs were very addictive e.g.. Opium

Hospitals and public health
- Many new hospitals built
- Some were build by factory owners for their workforce
- Some were built by public subscription and people would contribute a little bit each to get it up and running

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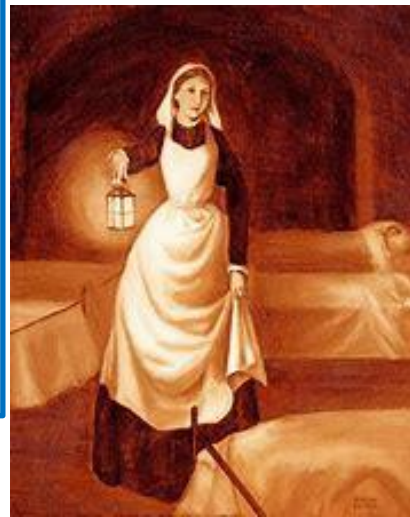

Florence Nightingale
- From an upper-class background and family did not want her to be a nurse
- Nursed soldiers during the Crimean War in the 1850s
- Wrote book '*Notes on Nursing*'
- Wanted to run clean, well ventilated, safe hospitals.
- Made the role of nurses more professional
- Some people argue that her role was exaggerated as a form of newspaper propaganda which nicknamed her 'The lady with the lamp'

C19th Public Health

The state of public health in the first half of the nineteenth century

- Industrialization caused rapid population growth in towns and cities. This was coupled with a huge rise in the general population too (9m in 1800 – 35m in 1900). Sewerage systems, clean water supplies and drainage did not keep pace with these changes.
- In these conditions diseases spread via contaminated water, lice and poor food (such as contaminated milk that spread TB to babies). Death rates were high
- Effect on the health of different social classes. Spread of diseases such as cholera, typhoid and typhus

Reasons why nothing was being done

No one knew the causes of disease, many thought that people should help themselves and not rely on others, poverty caused disease because the poor were lazy, governments were laissez-faire and didn't think they should tell people what to do, it would cost a lot of money for the local ratepayers to clean up towns.

Demands for reform and reaction to these demands

- **Impact and work of Edwin Chadwick**
- The panic caused by the Cholera epidemic of 1832 prompted the government to act. In 1842 Edwin Chadwick published a report (Report on the sanitary conditions of the labouring population) into the sanitary conditions of the country. Chadwick described the living conditions of the poor and made a link between these and the spread of disease. He was aided by the findings of William Farr who compiled statistics to prove that death rates were highest where living conditions were at their worst. Chadwick believed that miasma caused disease and proposed cleaning up towns and cities to improve public health. Ultimately he thought this would save ratepayers money in the long run as they would have to spend less on the poor.

- **Impact and work of John Snow**

John Snow was a doctor investigating the causes of Cholera. During a cholera outbreak in 1854, Snow mapped all the victims in a small area of London and traced a common cause back to a water pump in Broad Street. He removed the handle of the pump and the number of deaths decreased. Snow found that a cess pit was leaking into the water supply and contaminating it. Workers at a nearby brewery who had their own water supply were not affected by cholera. He had proved that dirty water spread the disease. This was 7 years before Pasteur's Germ Theory was published.

Sir Joseph Bazalgette

Bazelgette was an engineer who designed and built London's sewers after the 'Great Stink' of 1858. He built 83 miles of main sewers and 1100 miles of connecting sewers.

The impact of the cholera epidemics of 1831–1832, 1848, 1853 and 1866

Cholera epidemics hit London in the 1830s, 1840s and 1850s. The disease terrified people as they didn't know how it spread or how to treat it. It affected the rich as well as the poor. 53000 people died in the 1848-9 outbreak.

The Great Stink

The hot summer of 1858 caused the River Thames to smell more than normal. The stink was particularly bad under the noses of MPs in Parliament.

The Germ Theory

Louis Pasteur published his Germ Theory in 1861. This proved the link between germs and disease. This proved Chadwick, Snow and Farr were correct in their arguments

The 1867 Reform Act

By 1867 working class men in towns and cities were given the vote. Political parties now had to appeal to these voters and the best way was to promise better living conditions.

The beginnings of reform

The causes, terms and effectiveness of the Public Heath Acts of 1848 and 1875

- At first Chadwick's report had little impact on government but the spread of cholera across Europe in 1847 forced them to pass the Public Health Act in 1848. The act set up a General Board of Health who could encourage, but not force, local councils to improve their water supply and sewerage. Only 103 towns set up local Boards of Health and the act proved unpopular. The General Board was abolished in 1854.
- The 1870s saw many reforms passed to make people's lives better. One of them was the 1875 Public Health Act. This time it was made compulsory for local authorities to appoint health and sanitary inspectors to clean up their towns.

Disraeli's Reforms

Other public health acts showed how laissez-faire had been abandoned by government. These included; The Sale of Food and Drugs Act; The Factory Act; The Artisans' Dwelling Act and the River Pollutions Act.

The work of Joseph Chamberlain

Successful reforms at local government level, led by Liberals, led reforms that encouraged Liberals at national level. In Birmingham under Joseph Chamberlain who was Mayor of the city from 1873 to 1875, provision was made for gas and water supplies controlled by the government. They also cleared slums and introduced a city park system. Public works schemes to improve living conditions and public health had been established in the late 19th century, often set up and run by Liberals.

The development of model villages

Business owners (often Quakers) built model villages for their workforce. They provided clean housing but also recreation facilities such as parks. The idea was to provide temperance and better living conditions than the cities. The Lever brothers built Port Sunlight and the Cadburys built Bourneville.

The need and pressure for further reform

- Charles Booth surveyed Londoners and found that 30% did not have the money to buy basics. Many of them worked but received low wages. The elderly and sick got no help at all.
- Seebohm Rowntree discovered similar problems in York and developed the idea of a 'poverty line.'
- In 1900 it was found that 40% of the men volunteering to fight in the Boer War were unfit to serve. This was because of their poor diet and living conditions.

German reforms

German welfare reforms (Old Age Pensions, Sickness and Unemployment Insurance put Britain in a bad light. Winston Churchill and Lloyd George thought that Britain should catch up Germany.

The Liberal welfare reforms

- 1906 Liberal government introduces old age pensions
- Between 1906 and 1914, the Liberals introduced social reforms to assist the young, old, unemployed, sick and workers generally. They had a limited impact on improving people's lives
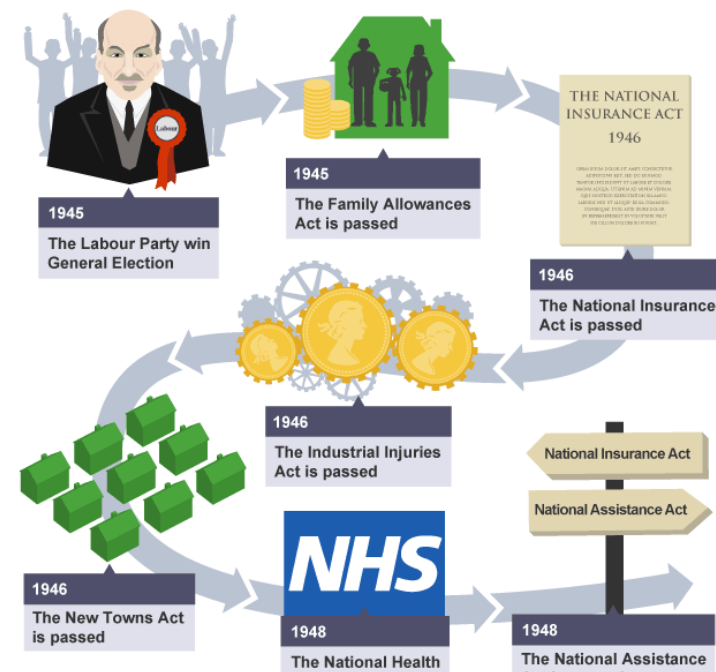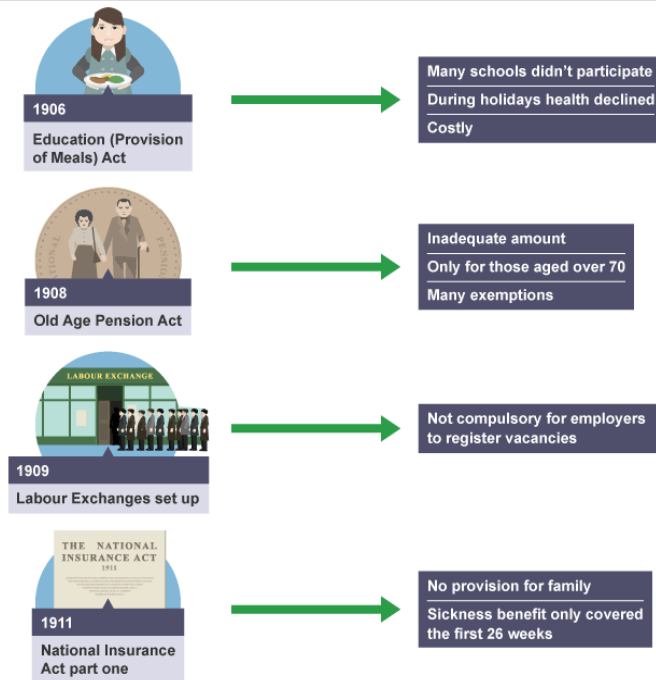
WW1 & WW2

- Impact of war made people keen to look after each other and invest in a better Britain. Soldiers voted for a Liberal gov in 1918 and a Labour gov in 1945 as they promised 'homes for heroes'.
- During WW2 Beveridge report published which outlines the 5 Giants which were problems which had an impact on health and suggests a welfare state
- 1945 Atlee's labour government adopts the welfare state and announces plans to set up the NHS

Hospitals

- NHS (1948) set up by government- healthcare more available so stop disease earlier
- Overtime the NHS has become bigger and more expensive
- Dentists, opticians and prescriptions now have to be paid for in most circumstances and this was free when NHS started.
- Hospitals staffed with the staff and advanced technology + Clean
- Better hospitals as funding has increased to provide new buildings and specialist wings
- Some privatisation of hospitals

C20th Public Health

1906 Education (Provision of Meals) Act
- Many schools didn't participate
- During holidays health declined
- Costly

1908 Old Age Pension Act
- Inadequate amount
- Only for those aged over 70
- Many exemptions

1909 Labour Exchanges set up
- Not compulsory for employers to register vacancies

1911 National Insurance Act part one
- No provision for family
- Sickness benefit only covered the first 26 weeks

1945 The Labour Party win General Election

1945 The Family Allowances Act is passed

1946 The National Insurance Act is passed

1946 The Industrial Injuries Act is passed

1946 The New Towns Act is passed

1948 The National Health

1948 The National Assistance

National Insurance Act

National Assistance Act

C20th and C21st treatment of disease

Alexander Fleming and Penicillin
- Penicillin discovered in the 19th century but no notes published about it
- WW1 showed the need for something which would treat infections
- Fleming noticed that bacteria had been killed in a Petri dish around some penicillin mould
- Published his findings in 1929 and called it an antibiotic

Florey and Chain
- **1937 – Florey and Chain** read the article and develop a way to make larger quantities of the drug. Successful first trial on a policeman in 1941 but they run out of the drug.
- 1943 Florey and Chain receive massive funding from US government to mass produce antibiotics in time for D day. Becomes widely used by 1945 and Florey and Chain receive Nobel prize.

Other antibiotics
- Streptomycin 1944
- Tetracycline 1953
- Mitomycin 1956
- Cortisone 1950 developed for arthritis.

Other developments
- New vaccines to treat polio and measles
- Tranquilisers invented
- Birth control pill to stop unwanted pregnancy
- Pills to treat depression, hypertension etc.

GP
- **From 1948** people encouraged to register with a local family doctor as a one stop shop to deal with their problems. GP oversees all cases and if needed makes hospital referral.

Limitations
- More bacteria becoming resistant to antibiotics
- Patients in hospitals picking up bugs
- Concern about surgery relying on antibiotics too much

Alternative therapy
- People looking for other ways to help with health e.g.. Hypnotherapy, hydrotherapy, herbal remedies and alternative medicine

C20th Surgery

Developments in surgery

Blood transfusions
In 1901, Karl Landsteiner in Austria discovered blood groups. This led to the developments of blood transfusions where people can donate or be given blood of their own blood group in an operation.

X-ray
- 1895 Wilhelm Roentgen, discovered X-rays
- 1972, Godfrey Hounsfield in Britain invented the CAT scanner (a powerful X-ray machine that provides a cross-section of the human body)

Keyhole surgery
Use of camera and very small incision to complete operations (see picture)
1. a shorter hospital stay and faster recovery time
2. less pain and bleeding after the operation
3. reduced scarring

Transplant surgery
Transplant surgery is where one of the body's organs is replaced with a donor organs. For example, 1967, the South African surgeon, Christiaan Barnard, performed the first heart transplant.

Laser eye surgery
Use of lasers to remove cataracts or repair eyesight

Radiation therapy
Targeted lasers to kill or stop the growth of cells or tissues. For example frequently used in cancer treatment

Cosmetic surgery
Optional surgery designed to change somebodies appearance

The impact of technology on surgery
- Machines are being designed that allow surgeons to operate without physically touching the patient.
- They control the machines, and this does all the actual surgery!
- The goal of using robots in medicine is to provide improved diagnostic abilities, a less invasive and more comfortable experience for the patient, and the ability to do smaller and more precise interventions.
- Robots are currently used for prostate surgery, hysterectomies, joint replacements, open-heart surgery and kidney surgeries. Since the physician can see images of the patient and control the robot through a computer, he/she does not need to be in the room, or even at the same location as the patient.
- This means that a specialist can operate on a patient who is very far away without either of them having to travel.

The impact of war on surgery

Plastic surgery
- Reconstruction, particularly of the face, was developed by Harold Gillies during WW1. Designed to help those who have been injured through burns or badly wounded in another war
- In the 1940s, the British surgeon, Archibald McIndoe, did the first plastic surgery on the faces of disfigured airmen. They were nicknamed the 'Guinea Pig Club'.

Factor	Examples
Government	•Smallpox vaccinations were made compulsory by the government •17th Century-Lock Up orders; government orders all cats and dogs to be killed •Public Health and Sanitary Acts cleaned up British cities •The NHS was introduced by the Labour Government •20th Century-government gets more involved-anti-smoking adverts
Science and Technology	•Printing Press improves communication during the Renaissance •Water Pump gives Harvey his idea that the heart acts like a pump •Microscopes help see germs
Individual Genius	•Numerous examples-Galen; Pare; Harvey; Fleming; Pare; Koch; Nightingale; Florey and Chain; Watson and Crick;
Experimentation	•Vesalius experiments by dissecting •Jenner experiments on a small boy •Florey and Chain experiment to mass produce Penicillin
War	•Pare creates his digestive mixtures and ligatures during wartime •Franco-Prussian war creates competition between Pasteur (French) and Koch (German) •Crimean war-Nightingale improves death rate from 42% to 2% •WW1-X-Rays used; blood banks used for the first time at the Battle of Cambrai; early plastic surgery
Chance	•Jenner discovers milkmaids who contract cowpox do not get smallpox •Fleming discovers Penicillin is an antibiotic