Medieval Medicine c.1000-1500

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Key people

Ancient Greece and Rome

Hippocrates
Created the Theory of the Four Humours and believed in observing the body to get a diagnosis

Galen
Developed the theory of Four Humous. Dissected animals to understand the human body and proved the brain controlled the body. His ideas were favoured by the Medieval Church.

Medieval European

John Arderne
Battlefield surgeon. Believed in the importance of bedside manner and trusting judgement. Relied less on Galen and Hippocrates.. Developed cauterising ointment which improved surgical survival rate to 50%

Roger Bacon
Franciscan monk and lecturer at Oxford University. Arrested around 1277 for spreading anti-Church views after questioning the work of Galen.

Medieval Islamic

Al-Razi (Rhazes)
Stressed the need for careful observation of the patient and distinguished between Smallpox and measles. Followed Galen but believed the student should improve the work of the teacher.

Ibn Sina (Avicenna)
Wrote *Cannon on Medicine*, covered all ancient Greek and Islamic medicine at the time. Over 1 million words long. Contained chapters on anorexia and obesity. Standard medical text book in the west until the 17th century.

Key words

Amulet	A charm that brought protection from disease
Apothecary	A medieval pharmacist or chemist
Astrology	Study of the planets and their effect on humans
Autopsy/ Dissection	To cut open a human and examine the insides /look for the cause of death
Barber Surgeon	Untrained surgeon, but done apprenticeship, who practised basic surgery
Black Death	A term to describe the bubonic plague
Cauterise	To burn a wound with a heated instrument or caustic substance to stop bleeding or prevent infection
Cupping	Using glass cups to draw blood to the surface
Epidemic	A widespread outbreak of a disease
Fasting	To avoid eating or drinking
Leeching	The use of leeches for bloodletting
Medieval Church	Roman Catholic faith. Daily life and power was dominated by the Church, they controlled education and many people feared God.
Miasma	Bad air which was blamed for spreading disease
Mortality	Death rate-usually measured per 1,000 of the population
Physic garden	Garden used solely for growing herbs to treat illness
Physician	A male medically trained doctor
Pilgrimage	A journey to a religious shrine to cure an illness
Purging	To rid the body of an 'excess' like blood or vomit
Superstition	A belief, not based on knowledge, but on the supernatural. For example witchcraft or astrology
Trepanning	Cutting a hole in the skull to release pressure
Urine Chart	Used to examine urine to define an illness
Vademecum	A medieval medical book carried by doctors
Wise Woman	A female healer, who used folk medicine and herbal remedies

Key events

Influence of Hippocrates and Galen

Nearly a thousand years after the fall of Rome, medicine in Europe had regressed and returned to a more primitive outlook. Treatments continued to be a mixture of herbal remedies, bleeding and purging, and supernatural ideas. Most doctors still believed the Greek theory from Galen, a doctor during the Roman Empire, that you became ill when the 'Four Humours' - phlegm, black bile, yellow bile, blood - became unbalanced. During the medieval era dissection of human bodies was banned so doctors didn't properly understand what went on inside the body

Causes of disease

- Medieval doctors ideas about disease were governed by superstition and religion. For example, the will of God, the stars, demons, sin, bad smells, charms and luck, witchcraft or astrology.
- During epidemics, people would blame witches, nobility or groups who were culturally different such as Jewish people, and attack them

The Black Death

- Doctors were powerless to stop it killing half the population. There were both supernatural and natural explanations for it, for example, some people said that God had sent it as a punishment, others that the planets were in the wrong conjunction, or that it was caused by 'foul air'.
- The impact of this epidemic was long lasting. Crops rotted in fields, village animals escaped, the economy crashed. Laws were passed to try and restore order. The Statute of Labourers (1351) put limits on wages to keep the feudal system in order.
- Land owners switched to sheep farming, further increasing food shortages and reducing the number of jobs available.

Treatments

- Treatments were varied. Some are now seen as successful, those that relied on herbal remedies have now been prove successful. Others were less so, for example;
  - bleeding, applying leeches, smelling strong posies or causing purging or vomiting
  - cutting open buboes, draining the pus and making the patient hot or cold, e.g. by taking hot baths
  - trepanning - cutting a hole in the skull
  - praying, or whipping themselves to try to earn God's forgiveness
  - lighting fires in rooms and spreading the smoke, tidying rubbish from the streets and banning new visitors to towns and villages

Surgery

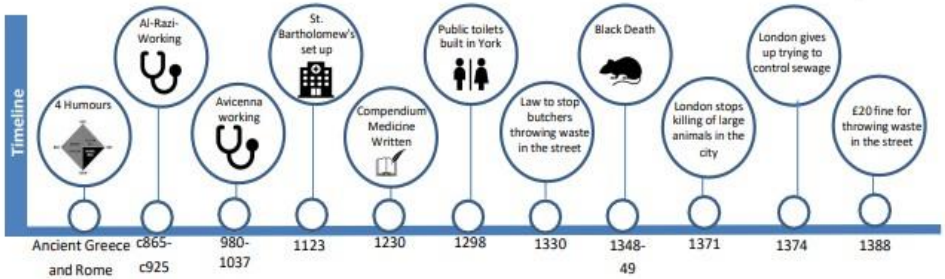
- There was some progress in the area of surgery. The Middle Ages was a time of constant warfare, so surgeons got lots of practice and:
  - realised that wine was a mild **antiseptic**
  - developed a range of painkillers, including opium
  - Medieval surgeons were very good at practical first aid and even attempted some internal surgery. They could:
  - heal wounds with honey and vinegar and mend broken bones
  - carry out external surgery on problems like ulcers and eye cataracts
  - carry out internal surgery such as bladder stones

Public health

Governments and Kings took no responsibility for public health. It was left largely to the local governments to make laws and intervene. It used to be thought that medieval towns were filthy, without drains, sewers or rubbish collections. Some of this was true as it was a struggle to keep town clean. However, modern historians have found out that:

- Parliament passed the first law requiring people to keep the streets and rivers clean in 1388.
- Medieval people washed and exercised. Many towns had bath houses.
- Towns paid 'gong farmers' to clear out human waste from cesspits.
- Many towns had quarantine laws, boarded up the houses of plague victims, and isolated people with leprosy in 'lazar houses'.
- Monasteries had running water and good toilet facilities.
- Hospitals were built e.g. St Bartholomew's in London in 1123.

Nowadays, historians think that medieval towns were not as dirty as Early Modern towns – but the sights and smells of a medieval town would still probably have made you feel sick.



Renaissance Medicine c.1500- 1800

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Surgeons

Ambroise Pare
Army surgeon. Made a new mixture to cauterise wounds and found it to be much more effective than hot oil. Also used Galen's methods with ligatures to tie-off wound after amputation rather than cauterise. Later helped to develop artificial limbs.

Andreas Vesalius
Trained at Paris and Padua. Carried out his own dissections and believed anatomy was key to understanding how the human body works.

John Hunter
Most famous as a teacher of anatomy and strong belief that deep wounds should be left as much as possible for nature to heal.

William Harvey
Discovered circulation and wrote *An anatomical account of the motion of the Heart and Blood.*

Physicians

Edward Jenner
Developed vaccination for Smallpox from the Cowpox virus

James Lind
Discovered a cure for Scurvy (killed more sailors than war). Used Vitamin C form lime juice

Nicholas Culpepper
Published his *Complete Herbal*(Which is still in print today) to help ordinary people. It was written in English, not Latin.

Thomas Sydenham
Known as the English Hippocrates. Based his treatments on observation of the whole person and minimal intervention.

Other notable people

Lady Johanna St. John
Lady of the manor who looked after local people and compiled recipes for herbal cures.

Leonardo Da Vinci
Artist who studied the human body and corpses to help him draw accurately. He also used dissection to see how muscles worked.

Anatomy	The study of the human body and how it works
An Essay on Health and Long Life	George Cheyene published in 1724 and argued that people should take responsibility for their own health.
Continuity	Things or ideas that stayed the same over time
Inoculation	Introducing a mild form of disease through a small scratch on the body to make the person immune to that disease.
Laissez-Faire	Style of government. To not interfere in peoples lives
London Treacle	A medicine that was solve to cure the Plague. It contained herbs, spices, honey and opium
Mortality Bill	A document in each parish in London which recorded who had died and what had killed them.
Pesthouse	A hospital for people suffering from infectious diseases, e.g. the Plague.
Physiology	The workings of the body
Quack	Sold medicines fully understanding they did not do what they said they would.
Renaissance	– this was a time of change (re-birth) when people became interested in all things Greek and Roman.
Royal College of surgeons	Had to have a licence to practise surgery, you couldn't practise within 7 miles of London without one. Marks the start of the regulation of surgeons.
Royal Society	A group of people interested in science who met weekly. They had a laboratory with microscopes. King Charles II was a patron.
The King	People still believed that the King could cure diseases such as **scrofula** (a skin disease). Being touched by the King was as close as you could get to being touched by God.
The Midwives Book	Written by Jane Sharp Combined medical knowledge with an argument that only women should be midwives
The Printing Press	Introduced to England by William Caxton enabled the more rapid spread of ideas across Britain.
Vaccination	Injection of a mild form of disease to give immunity to that disease

Causes of disease

There were some connections being made between dirt and disease. This was seen in the way the Plague was responded to. The keeping of large animals in London was banned, as was the assembly of large crowds at events such as plays.

Treatments

During this time, there were significant scientific discoveries such as William Harvey's discovery of the circulation of the blood in 1628, and Anton van Leeuwenhoek's observation of bacteria in 1683. However, despite these discoveries:

- doctors still did not know that germs caused disease – until the middle of the 19th century, they blamed a 'miasma' (a bad smell)
- doctors were too expensive for most people

Many people resorted to using quack doctors (someone without real medical knowledge or qualifications.
New drugs/herbs came from newly discovered lands like America. For example, Tobacco. It was prescribed for everything from wind to snake bites. A lot of treatment was about making the room and the patient smell nice. They also continued odd superstitions like touching the King to cure Scrofula.

Surgery

There was some progress in surgery on a 'trial-and-error' basis.
Ambroise Paré's *Treatise on Surgery* (1564) published his ideas on how surgeons should treat wounds and amputations. Paré also invented surgical instruments and the first artificial limbs. The discovery of circulation by Harvey and the increased accuracy of anatomical drawings pioneered by Vesalius increased understanding of what was inside the body. The problem was that there was no anesthetic or antiseptic. As such, death rate was still high.

Public health

In the area of public health, however, many historians believe that conditions in Early Modern times were worse than medieval times as towns were larger.

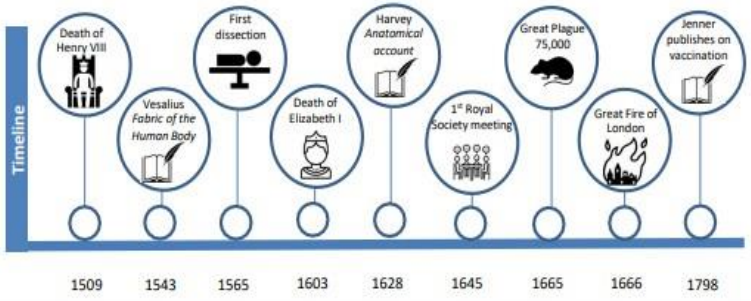
- People did not take much care of their personal cleanliness – **Queen Elizabeth I** bathed four times a year, whether she needed it or not.
- Towns were filthy and rubbish and human waste was thrown into the streets.

However, it would be wrong to think that people did not care about dirt and disease:

- Henry VIII insisted that everyone at court was healthy, and courtiers were sent away even if they had a cold.
- Although people thought bad smells caused disease, this led them to do things which improved health – eg cesspits were cleared regularly, and housewives spent a lot of time boiling underclothes, to keep them smelling nice.
- The Government provided funding for the work of Edward Jenner. This funding pushed forward the work on vaccination. It was also the first time the government passed direct laws about people's health.

Hospitals

There was a boom in hospital building. Five new hospitals were added to the existing 2 in London and nine more were built throughout the country. Most of these hospitals had a religious or charitable supporter behind them. It was about getting into heaven rather than actually driving medicine forward.
There was also a move towards specializing hospitals. Some focused on women and children for example. There were those who started to use hospitals as centres of learning.



Revolution in Medicine c.1800- 1900

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Men

Edwin Chadwick
Used statistics to prove the link between ill health and poverty. 1842 published *Report on the Sanitary Conditions of the Labouring Population*. In which he argued that improvements in public health would be essential to the continued growth of the economy.

Dr Barnardo
Appalled by east end poverty, he set up a 'Ragged School' to train boys and girls to help them find work when they left school.

John Snow
Epidemiologist who focused on battling Cholera. He is most famous for his work on the Broad Street Pump.

Louis Pasteur
Discovered Germ Theory. In 1861. His work took time to reach its potential but when it did, his ideas replaced miasma theory and led to much development in sanitation and surgery.

James Simpson
Credited with the discovery of anaesthetics. His work led to theuse of Chloroform in surgery.

Joseph Lister
Credited with the discover of antiseptic surgery using carbolic acid to clean the operating area.

Women

Mary Seacole
British-Jamaican nurse who independently travelled and set up the "British Hotel" behind the lines during the Crimean War for sick and convalescent officers and servicemen. Historically, overshadowed by Florence Nightingale.

Florence Nightingale
British nurse who travelled to the Crimean War to provide care for wounded soldiers. She became a writer on medical issues and wrote two books. Notes on Nursing and Notes on Hospitals.

Elizabeth Garrett Anderson
Female medical pioneer. Faced adversity to become the first female medical doctor. Gained membership of the British Medical Association in 1873.

Sophia Jex-Blake
Managed to get in and train in Edinburgh as part of the 'Edinburgh Seven'. Marks a turning point in some male attitudes.

Anaesthetic	Drugs given to make someone unconscious
Antiseptic	Chemicals used to destroy bacteria and prevent infection
Aseptic surgery	Prevent contamination from pathogens. strict rules to minimize the risk of infection
Bacillus	Bacteria that cause disease
Breakthrough	A scientific discovery that dramatically alters the way people understood disease – e.g. the discovery of bacteria. This then helps the problem to be solved.
Cholera	A bacterial infection caused by drinking water
Chloroform	A liquid whose vapour acts as an anaesthetic and produces unconsciousness
Contagion	The passing of disease from one person to another
Dispensary	A place where medicines are given out
Epidemic	A widespread outbreak of a disease
Germ Theory	The theory that germs cause disease rather than the prevalent belief that disease causes germs.
Industrial Revolution	A period of British history when industries (e.g. coal, steel) transformed society
Medical Officer	A person appointed to look after the public health of an area
Public Health	When the government takes measures to prevent diseases spreading and to help the population become healthier.
Sanitation	Providing disposal of human waste and dispensing clean water to improve public health
Serum	Part of the blood that can be separated out and used to provide immunity from a specific disease
Sterile	Totally clean; free from bacteria or other living organisms
Voluntary hospital	Hospitals supported by charitable donation
Workhouses	Accommodation for poor people who could not afford to pay for rent and food.

Causes of disease

This was a turning point for knowledge in this area. In 1861, Germ Theory was developed by Pasteur. This was slow to take off but ultimately replaced miasma theory and led to significant developments in the understanding of infection and consequently increased the safety of surgery. This work also led on to an understanding that individual microbes cause individual diseases. Koch and Ehrlich were instrumental in this work.
Germ Theory was not accepted quickly. This did hold back progress, but the idea did eventually catch on.

Treatments

Although understanding of disease was developing, treatment was not as fast. Many every day treatments remained the same as in the previous period. Work was being done to identify disease but work to treat was several steps behind. Many Quack remedies continued to exist, and the availability of money continued to determine what standard of medical care you could access. Vaccinations did continue to develop, the smallpox vaccine was compulsory, and anthrax and rabies vaccines were developed.

Surgery

From 1840 onwards surgery turned a corner as a result of two key discoveries.

- Anaesthetics were developed. Largely due to the work of Simpson. His work led to the discovery of Chloroform. This was after several other substances had been tried, for example Nitrous Oxide. The discovery of Anaesthetic allowed more complex surgery and slower surgery, resulting in more accurate surgery.
- Antiseptics were also developed in this period. Lister's work on Carbolic Acid led to the eventual use of sterile operating environments. It also led to the development of Aseptic surgery, still in use today.

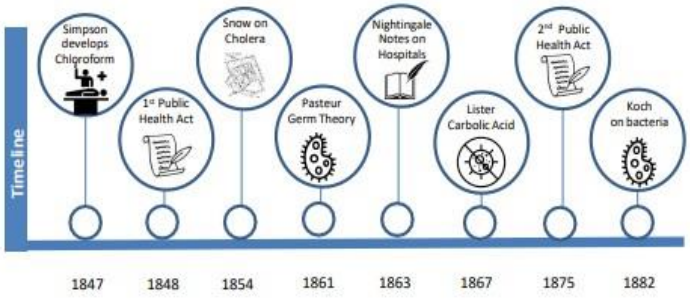
These two combined greatly reduced the death rate in surgery and increased the ability of medicine to intervene.

Public health

- 1848 was the first time a Public Health Act was passed. This provided for all sorts of improvement including the appointment of medical officers, however, it was not compulsory.
- In the 1860s Bazalgette started the creation of London's first organized sewage system. Parts of this system are still in use today.
- 1875 Second Public Health Act consolidated all that 1848 had attempted and made it compulsory. Councils were made to take responsibility for local issues.
- Outbreaks of Cholera dominated this period. The work of John Snow led to the connection of water to the disease. However, his work was pre–Germ Theory and as such his ideas centered around water miasma. Despite this, his methods of studying and tracking disease became much more popular. The Epidemiological society was formed as a result. His methods of mapping disease are still used today.

Communication

During this period there was wide reading of theories and idea. Reports were published and used by subsequent physicians and researchers. For example, Jenner's work was read and used by others to develop further vaccinations. Pasteur's work was read and developed by many. For example, Lister read the work that Pasteur had published and used it to create antiseptic methods for surgery.



Modern Medicine c.1800- 1900

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Key people

Politicians

David Lloyd George
Prime Minister responsible for the Liberal Reforms 1906-1911

William Beveridge
Wrote the 1942 Beveridge Report that would become the starting point for the Welfare State. 600,000 copies of the report were sold.

Aneurin (Nye) Bevan
Appalled by east end poverty, he set up a 'Ragged School' to train boys and girls to help them find work when they left school.

Social reformers

Charles Booth
Surveyed London and published *Life and Labour of the People* in 1889. Found 35% of London's population was living in poverty. Findings reported to the Government.

Seebohm Rowntree
Did the same as Booth but in York. Published *Poverty, A study in Town Life* in 1901. 146,000 citizens were interviewed. Found that half the working class people of York lived in Poverty.

Maud Pember-Reeves
Published *Round about a pound a week* in 1913. Wanted to prove the working class wasted money on drink. Instead she found workers struggled to survive on the average wage of £1 a week.

Scientists

Alexander Fleming
Accidentally discovered Penicillin in 1928 by leaving an experiment uncovered but did not realise the true potential of it.

Howard Florey
Developed the use of Penicillin as a mass produced antibiotic. This work was spurred on by the Second World War and used American industry to produce.

Ernst Chain
Developed the use of Penicillin as a mass produced antibiotic. This work was spurred on by the Second World War and used American industry to produce.

All three men mentioned above shared the Nobel Prize for their work. They started a movement that has since created countless antibiotics.

Key words

Alternative medicine	Yoga, homeopathy, acupuncture. No chemical intervention given. All about balance.
War	WW1 and WW2 had a huge impact on medical development e.g. plastic surgery and transfusions.
National Health Service	Government run healthcare for all people.
Skin graft	Taking skin from one area of the body to cover another.
X-Ray	Light rays used to locate items within the body e.g. bullets. Used in WW1
Transplant	Replacing a damaged organ with one from another body.
Radiotherapy	Treatment of disease, especially cancer, using radiation.
Chemotherapy	Treatment of disease by the use of chemical substances.
Superbugs	Antibiotic resistant bacteria e.g. MRSA
Gene therapy	Replace defective genes in DNA with normal ones
Dialysis	Technology that replaces the kidneys
Polio	Contagious disease. Causes paralysis or death. FDR had it. (See USA unit)
Penicillin	First mass produced antibiotic.
Magic bullets	Chemical that kills a particular bacteria, nothing else.
Electron microscope	Developed 1931. Allowed close examination of cells.
DNA	Deoxyribonucleic acid – molecule that genes are made of
Shell shock	Psychological condition caused by exposure to war. Today called PTSD
Transfusion	Transferring donated blood, blood products, or other fluid into the circulatory system of a person

Key events

Treatments

During the 20th Century British companies such as Beechams became worldwide businesses, manufacturing drugs. They:

- Invested in research and development and did careful research to look for better treatments
- Used industrial technologies to make huge quantities of each new remedy.

For example, Aspirin, from willow bark, had been used for centuries but nobody knew why it worked. Scientists were able to find out which chemical it was that actually worked and then manufacture it. In the 1970s it was discovered it thinned the blood and we now use it to reduce the risk of heart attack.
However, not all treatment was successful. For example. Thalidomide was a 'safe' sleeping tablet given to pregnant women to reduce morning sickness. It hadn't been tested and led to children being born without limbs. It was banned in 1961 but by then 10,000 children were already affected.

Alternative treatments

This was a growing area. Some people think that medical drugs are damaging and would prefer to use more traditional medical ideas. Very similar to the Four Humors. A good example is Acupuncture that has been used in China for 4000 years.

War

The twentieth century had two world wars. These created huge medical advancements.
World War One saw:

- Plastic Surgery pioneered by Harold Gillies
- Broken bones mended with the Army Leg Splint (traction)
- Blood transfusions led by Landsteiner who worked on blood types and then Hustin who discovered how to store blood by using Sodium Citrate making blood banks possible
- X-Rays were used to their full potential.

World War Two saw:

- Further plastic surgery developments led by McIndoe
- Heart surgery progressing led by Harken who was able to operate on a beating heart
- Blood banks ready to use in anticipation of injuries
- Government involvement in the nation's food supply
- Drugs such as Penicillin mass produced

Public Health

The wars highlighted a need to intervene in the general health of the public. This was started with the Liberal Reforms (1906-11) but there was more to do. In 1942 the Beveridge report found that huge swathes of the population still lived in a condition that made Britain backward in comparison to other countries. By 1948 the largest scale government action was underway. The Welfare state catered for education, benefits and crucially a National Health Service. This all still exists today and is one of the mot comprehensive systems in the world. The downside to this is the spiraling government spending that is required. £129 billion was spent in 2018/19