The British Sector of the Western Front, 1914-1918 (Part I: the War)

20 June 1914	Assassination of Archduke Franz Ferdinand	Trigger for the war
4 August 1914	Britain declares war on Germany	
Oct-Nov 1914	First battle of Ypres	British casualties were over 50,000 but kept control of Channel ports.
Apr-May 1915	Second battle of Ypres	Germans move 2 miles closer to town of Ypres; first use of chlorine gas; British losses of 59,000.
July 1916	Battle of the Somme	The Allies advance 5 miles using artillery bombardment to break through enemy lines. This leads to much higher casualties (400,000 men).
6 April 1917	America enters the war	Blow to German morale and a decisive turning point in the war.
Apr-May 1917	Battle of Arras	British advance 8 miles; 160,000 casualties.
July 1917	Third battle of Ypres	Moved the edge of the salient back 7 miles; 245,000 casualties.
Oct 1917	Battle of Cambrai	First large scale use of tanks.
July 1918	Hundred days offensive	Allies launch a series of sustained attacks against the Germans which leads to Germany's surrender.
11 Nov 1918	Germany surrenders	End of World War I at 11.00 am.
6 April 1917	America enters the war	Blow to German morale and a decisive turning point in the war.

Barbed Wire	Metal wire with sharp points used in no-man's-land to protect from enemy attack. It made it difficult for men to get through without being trapped by the wire.
Blighty Wound	A wound serious enough to get a soldier away from the fighting and back to Britain.
Brodie Helmet	Steel helmet held with a strap. Introduced in 1915, it reduced fatal head wounds by 80%.
Chlorine Gas	Causes burning pain in throat and eyes and can lead to death by suffocation. First used by Germans in the second battle of Ypres, 1915.
First Aid Nursing Yeomanry (FANY)	A women's voluntary organisation which provided medical services on the frontlines such as driving ambulances and emergency first aid.
Machine Gun	Guns that could fire 450 rounds a minute; their bullets could fracture bones or pierce organs.
Mustard Gas	Odourless gas which passes through clothing to burn the skin, causing internal and external blisters. Gas masks offer little protection against mustard gas, as it goes through clothing. First used by the Germans in 1917.
No Man's Land	The area between two opposing lines of trenches.
Phosgene gas	Similar to chlorine gas but faster acting and can kill exposed person within 2 days. First used end of 1915.
Royal Army Medical Corps (RAMC)	The branch of the army responsible for medical care.
Salient	An area of a battlefield that is surrounded by enemy territory on 3 sides.
Trench system	A complex network of trenches in which men could live and fight. Trenches were dug to a depth of about 2.5m in a zig-zag pattern to confuse the enemy. Trenches were built over a distance of 400 miles all the way from the northern French coast to Switzerland.
Shrapnel	Fragments of metal from exploded shells.
Mustard Gas	Odourless gas which passes through clothing to burn the skin, causing internal and external blisters. Gas masks offer little protection against mustard gas, as it goes through clothing. First used by the Germans in 1917.

The British Sector of the Western Front, 1914-1918, part II: injuries and treatments

X-Rays	● A type of electromagnetic radiation that can provide imaging of the inside of the body. ● Discovered by accident in 1895 by Wilhelm Roentgen, a German physicist. ● X-rays were used in the war to identify shrapnel and bullets in wounds.
Blood Transfusions	Blood taken from a healthy person and given to another person. Developed as follows: ● Almroth Wright, a British scientist, prevents blood from clotting in 1894 by using a solution of acids. ● Discovery of blood groups in 1901 by Karl Landsteiner followed by the identification of type “O” blood by Reuben Ottenberg in 1907 as the universal blood group. ● In 1916, Francis Rous and James Turner develop a method for storing blood for up to 4 weeks by adding a citrate glucose solution to it. Stored blood was used to treat injured at the battle of Cambrai in 1917.
Brain Surgery	● 20% of all wounds on the Western Front were to the head, face and neck. These were often fatal. ● Harvey Cushing, an American neurosurgeon, developed new techniques in brain surgery using a magnet to remove metal fragments from the brain. ● He also operated using local rather than general anaesthetic, to reduce the risk of swelling in the brain.
Plastic Surgery	● Developed by a New Zealand doctor called Harold Gillies who was sent to the Western Front in January 1915. ● Gillies saw many head injuries that caused severe disfigurement and became interested in facial reconstruction. ● Plastic surgery was carried out in Britain, mainly at the Queen’s Hospital in Sidcup. ● By the end of the war, nearly 12,000 plastic surgery operations had been carried out there.
Thomas Splint	● Created in the late 19th century by Robert Jones and his uncle Hugh Thomas in their medical practice, this splint was designed to stop joints from moving. ● The introduction of the Thomas splint to the Western Front in December 1915 helped increase survival rates for fractures from 20% to 82%.
Treatment of Wounds to Prevent Infection	● Wound excision or debridement: The cutting away of dead, damaged or infected tissue from a wound to stop infection spreading. After excision, the wound would be closed by stitching. ● Carrel-Dakin Method: A method for treating wounds with a sterilised salt solution through a tube. ● Amputation: This was done as a last resort to stop infection from spreading.
Aseptic Surgery	Surgery performed under sterilised conditions to prevent infection from germs. By the start of the 20th century, aseptic surgery was achieved by: ● medical staff washing hands and face before operations ● wearing rubber gloves and gowns ● sterilising air by pumping it through a heating system ● sterilising instruments using an autoclave

The British Sector of the Western Front, 1914-1918, part II: injuries and treatments

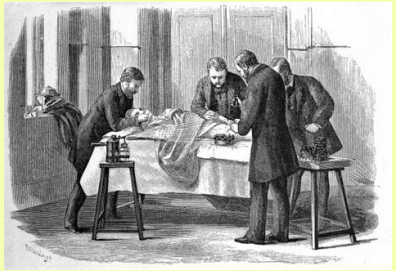
Chain of Evacuation
The main stages in the chain of evacuation were:
1. Regimental Aid Posts (RAP) 2. Dressing Stations 3. Casualty Clearing Stations 4. Base hospitals

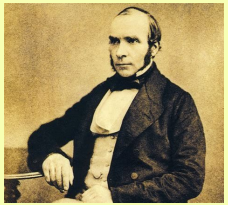
Regimental Aid Posts (RAP)	Located within 200m of the front line, in deserted buildings or communication trenches. Manned by a medical officer and stretcher bearers with first-aid knowledge. Its purpose was to give immediate first aid and to get as many men back to the fighting as possible. It could not deal with serious injuries.
Dressing Stations	Located in abandoned buildings or dugouts about half a mile from the front line. Staffed by medical officers, stretcher bearers and nurses. Injured men would walk to the dressing station or be carried there by stretcher bearers.
Casualty Clearing Stations	Located far enough from the frontline to provide safety against attack but close enough to be accessible to ambulance wagons. Medical officers would operate on critical injuries at the CCS. When arriving, wounded soldiers were divided into 3 groups (triage) to help medical staff make decisions about their treatment: 1) walking wounded 2) those in need of hospital treatment 3) those unlikely to recover from their wounds
Base hospitals	These hospitals were located near the French or Belgian coast so that the wounded could be easily transported back to Britain. As the war progressed, soldiers' wounds were increasingly dealt with at Casualty Clearing Stations and not at base hospitals because wounds had to be dealt with quickly before gangrene set in. This meant base hospitals were responsible for continuing the care of the wounded before they were either sent back to Britain or returned to the battlefield.

Key Medical Conditions & Terminology

Gangrene	A condition where a loss of blood supply causes body tissue to die. Gangrene can occur as a result of an injury and typically starts in toes, feet, fingers and hands. Treated by surgical removal (or amputation) of the affected area. Gas gangrene is an infection that produces gas in the gangrenous wound. The bacteria for gas gangrene spread from the soil on the Western Front, which had been heavily farmed with fertiliser before the war.
Shellshock	A condition that was little understood at the time of the war. Soldiers experienced headaches, nightmares, loss of speech, shaking and complete mental breakdown. Many men were treated for shellshock at the Craiglockhart hospital in Edinburgh.
Shrapnel Wounds	When shells exploded, shrapnel (metal fragments from the shells) travelled at fast speeds over wide areas, causing injuries to anyone in their way.
Trench Fever	Flu-like condition spread by lice in the trenches.
Trench Foot	Painful swelling of the feet caused by standing in cold mud and water, which could lead to gangrene. Prevention included keeping feet dry, changing socks regularly and rubbing whale oil on the feet to protect them.
Autoclave	Machine invented in 1881 which sterilised surgical instruments in boiling steam.

Knowledge Organiser: Medicine 1250 - 1500





Knowledge Organiser: Medicine 1250 – 1500

Key Dates		Key People	
1348	Outbreak of the Black Death	**Hippocrates**	Ancient Greek physician, created the theory of the four humours.
1440	Johannes Gutenberg creates the world's first printing press.	**Galen**	Physician in ancient Rome who developed Hippocrates' theories further and wrote more than 350 books about medicine. His teachings were promoted by the Church because they fitted with Christian ideology.

Key Terms

Apothecaries – People who mixed herbal remedies and had good knowledge of the healing powers of plants.

Astrology - The study of the alignment of the planets and stars, used for diagnosing illness. Many people believed the Black Death was caused by a bad alignment of the planets.

Barber surgeon - Barbers worked with sharp knives and, as well as cutting hair, they often performed surgical procedures. Barbers would do surgery and not physicians.

The Black Death - An outbreak of the bubonic plague, spread by fleas on rats. Usually fatal within 3-5 days.

Decaying matter - Material, such as vegetables or animals, that has died and is rotting.

The Four Humours - The theory that ill health is caused by an imbalance of the four humours in the body. These are blood, phlegm (what is coughed up or sneezed out of the nose), black bile (excrement) and yellow bile (pus or vomit).

Mass - Roman Catholic service where bread and wine is given.

Miasma - Smells from decaying matter that were believed to cause disease.

Phlebotomy or bloodletting - A common treatment for imbalance of the humours. This was done by cutting a vein, using leeches or cupping (piercing the skin with a knife)

Knowledge Organiser: Medicine 1250 – 1500

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Key Terms

Physicians - Medieval doctors were known as physicians. They would diagnose illness and recommend a course of treatments but rarely got involved in treating the patients themselves

Printing Press - A machine for printing text or pictures

Purging - Inducing people to vomit or giving them a laxative to clear out their digestive system; used to balance out the humours.

Quarantine - Separating the sick from the healthy to stop the spread of disease. During the Black Death outbreak, the government imposed quarantine of 40 days on people new to an area and quarantined houses where plague had broken out.

Regimen Sanitatis - A set of instructions by physicians to help a patient maintain good health. This would have included bathing, not over-eating and taking moderate exercise.

Remedies - Herbal infusions used to treat illness. A common remedy of the time was called Theriaca, which could contain up to 70 ingredients.

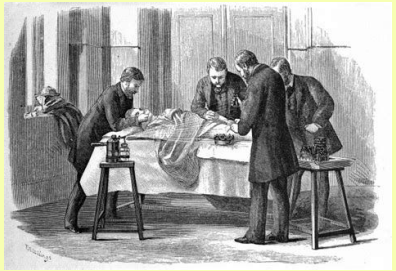
Supernatural cures - Religious cures such as healing prayers, paying for a mass, fasting and going on pilgrimages.

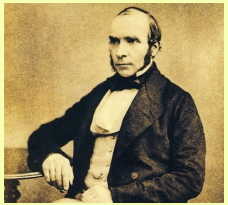
Urine charts – Physicians would examine people's urine, checking colour, thickness, smell (and even taste) to diagnose illness.

SUMMARY OF THE PERIOD

Very few scientific advances in this period. People believed disease was sent from God as a punishment for sin and it was not possible to question these teachings. The Church used ancient texts by Hippocrates and Galen to explain illness. These put forward the theory of the four humours. People also looked to astrology and urine charts to diagnose illness. Physicians would give patients a personalised diagnosis but treatment was often given by midwives and barber surgeons. People would also go to apothecaries for herbal remedies. The invention of the printing press was perhaps the most significant innovation of this period as it would encourage the spread of new ideas.

Knowledge Organiser: Medicine 1500 - 1750





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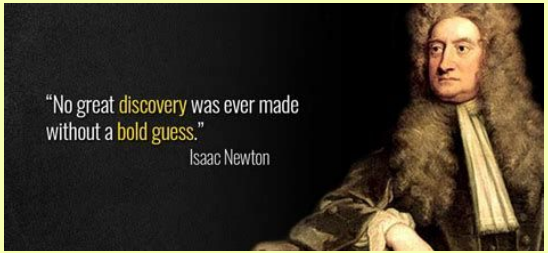


Key Dates		Key People	
1543	Vesalius publishes On the Fabric of the Human Body.	**Thomas Sydenham**	Believed that diseases could be organised into groups and not individual to the patient. He valued close observation of symptoms rather than relying on medical books to make a diagnosis. Also known as "the English Hippocrates".
1628	William Harvey proves that blood circulates around the body.	**Vesalius**	Author of one of the most influential books on human anatomy. He carried out many dissections on the bodies of executed criminals and discovered over 300 mistakes in Galen's original works on anatomy.
1660	First meeting of the Royal Society.	**William Harvey**	Discovered that blood circulates around the body rather than being made in the liver, as had been taught by Galen.
1665	Thomas Hooke develops powerful microscope	**Paracelsus**	Rejected Galen's theory of the four humours. Used chemical substances to treat illness, for example, metal mercury for the treatment of syphilis.
1665	The Great Plague arrives in Britain.	**Robert Hooke**	An English scientist and head of experiments at the Royal Society. He developed a powerful microscope and published a book of images from his observations.
1676	Thomas Sydenham publishes Observationes Medicae.	**Van Leeuwenhoek**	A Dutch scientist who observed tiny "animalcules" under the microscope. This was the first observation of bacteria.

Key Terms

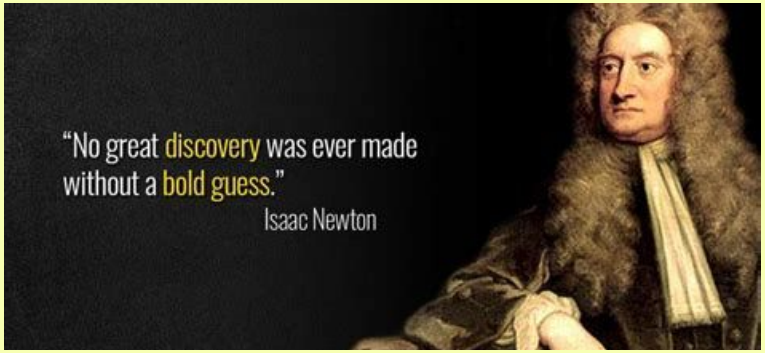
Alchemy An early form of chemistry. Alchemists tried to turn one material into another, mainly with metals.

Anatomy The science of understanding the structure and make-up of the body.

Dissection The dismembering of a body to study its anatomical structure.

Iatrochemistry A way of treating disease using chemical solutions. Pioneered by Paracelsus.

Knowledge Organiser: Medicine 1250 – 1500



Key Terms

Renaissance The French word that means rebirth. The Medical Renaissance refers to a period in the 16th and 17th centuries when new ideas were beginning to influence medicine.

The Royal Society - A group of people who promote scientific experiments and the sharing of knowledge. The Society received a royal charter from Charles II which gave it more credibility.

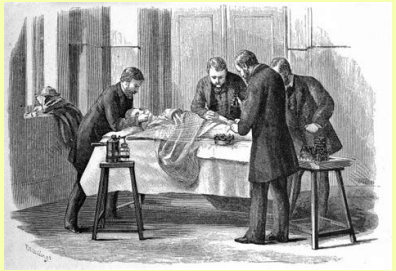
Secular Not religious; not connected with spiritual beliefs.

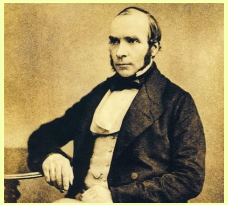
Syphilis A sexually transmitted infection, also known as the Great Pox. Can cause blindness, paralysis and madness.

SUMMARY OF THE PERIOD

The Renaissance was a period of scientific discovery, with several philosophers and scientists coming up with new ideas. The printing press helped the sharing of these ideas across Europe and organisations like the Royal Society encouraged experimentation and the search for knowledge. The influence of the Church on medicine was reduced and many people now recognised that God did not send disease. There was a greater understanding of anatomy, thanks to Vesalius and Harvey, and most physicians, by the end of the 17th century, no longer believed in the theory of the four humours or in diagnosis using urine. Despite all these changes, there was also a great deal of continuity. Ordinary people still believed in the four humours and miasma, and were slow to accept new ideas. While the practice of medicine did not change much at this time, ideas were starting to change. Therefore this period laid the foundations for changes in medicine to come.

Knowledge Organiser: Medicine 1750 - 1900





Knowledge Organiser: Medicine 1750 - 1900

Key Dates	
1796	Edward Jenner successfully tests out his smallpox vaccine.
1628	James Simpson identifies anaesthetic qualities of chloroform.
1848	First Public Health Act (ineffective).
1852	Smallpox vaccination made compulsory.
1854.	Snow proved cholera spread through water.
1676	Thomas Sydenham publishes Observationes Medicae.
1859	Nightingale wrote her book Notes on Nursing.
1861	Pasteur publishes his germ theory.
1865	Lister first uses Carbolic acid as an antiseptic.
1875	1875 Second Public Health Act (effective)
1881	Pasteur develops anthrax vaccine
1882	Koch first stains microbes.

Key People	
Edward Jenner	Pioneered the smallpox vaccine.
Louis Pasteur	Disproved spontaneous generation with his germ theory; developed vaccines for anthrax and rabies; pioneered pasteurisation.
Henry Bastian	Influential doctor in Britain who believed in spontaneous generation.
Robert Koch	Used Pasteur's germ theory to identify which germs caused anthrax. He developed a way of dying germs to find out which diseases they were responsible for.
Florence Nightingale	Helped establish nursing as a respectable profession for women; improved the sanitation and standard of care at military hospitals in the Crimea (became known as "the lady with the lamp"); founded school of nursing at St Thomas hospital.
Joseph Lister	British surgeon who pioneered antiseptic surgery using Carbolic Acid spray.
Robert Liston	Surgeon known for the speed of his amputations. Once accidentally amputated a man's testicles.
James Simpson	Discovered the anaesthetic properties of chloroform.
John Snow	Proved that cholera is spread by water, not miasma. Made chloroform and ether safer to use by working out correct dosage. Administered chloroform to queen Victoria at the birth of her last 2 children.

Knowledge Organiser: Medicine 1750 - 1900

Key Terms

Amputation The removal of a limb by surgery.	**Chloroform** A liquid whose vapour acts as an anaesthetic and produces unconsciousness.
Anaesthetic A drug or drugs given to produce unconsciousness before and during surgery.	**Diarrhoea** A symptom of a disease (such as cholera); frequent, fluid bowel movements.
Anaesthetic A drug or drugs given to produce unconsciousness before and during surgery.	**The Enlightenment** A European intellectual movement of the 18th century emphasized reason and science over religion and tradition; also known as the “Age of Reason”
Germ theory The theory that germs cause disease, often by infection through the air	**Inoculation** Putting a low dose of a disease into the body to help it fight against a more serious one.
Laissez-faire Belief that governments should not interfere in people’s lives.	**Microbe** A living organism that is too small to see without a microscope.
Pasteurisation A way of preserving food or drink by heating to 55 degrees C and thus killing the bacteria.	**Public Health Act (1875)** Government legislation that made it compulsory for city authorities to dispose of sewage, build public toilets and provide clean water. New houses had to be built to better quality and food sold in shops had to be checked for safety.
Spontaneous Generation The theory that decaying matter turns into germs.	**Vaccination** Injection into the body of weakened organisms to give the body resistance. Comes from the word vacca which means cow in Latin. This was because the first vaccination involved injecting cow pox samples into people to develop immunity against smallpox.

SUMMARY OF THE PERIOD

Significant changes in medicine occur in this period. By 1900, there was a better understanding of how germs cause disease and work was being done to develop new vaccines and treatments. The government, which started out with a laissez-faire attitude to public health, began to become more involved, with compulsory small pox vaccination and the Public Health Act of 1875. Hospitals developed into clean, modern institutions thanks to the work of Florence Nightingale and more surgery became possible through the use of anaesthetics. Fewer people died as a result of surgery because of Joseph Lister’s pioneering work with antiseptics.