

Summary: Medieval Britain or the Middle Ages is the period following the Dark Ages and before the Renaissance. During the Dark Ages lots of the knowledge about medicine from Ancient Rome and Greece had been lost, however the Galen’s medical books survived and dominated the ideas about the cause of disease and well as treatments. The Catholic Church dominated society – in some ways they helped the development of medicine by building hospitals but in other ways they hindered medical development by banning dissection; teaching that the power of God could make you sick and cure you; and punishing anyone who challenged Galen. The wealthy would visit physicians you used the theory on the four humours for diagnosing and treating the sick and ordinary people would visit a local wise woman or barber surgeon

| Key concepts |
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| The Medieval Church: The official religion of medieval Britain was the Catholic Church. Daily life was dominated by the Church who owned much of the land and was incredibly wealthy. They controlled education and highly influenced people’s beliefs. The Church promoted to work of Galen; banned dissection; copied medical books; and sins lead to illness and that god could cure disease |
| The Theory of the Four Humours: First suggested by Hippocrates in Ancient Greece who said that the body is made of four humours – black bile, yellow bile, blood and phlegm. Hippocrates said that if these became imbalanced then you became sick, therefore to treat illness the humours need to be balanced. Galen, a Greek doctor in Ancient Rome built on this to create the ‘Theory of Opposites’ to heal illness |
| Beliefs about the cause of illness and disease: Ideas and beliefs that people held about what made them sick. During the Middle Ages people held both natural beliefs such as the <i>Four Humours and miasmas</i> and supernatural beliefs such as <i>punishment from god</i> |
| Treatments for illness and disease: The actions people took to treat illness and disease. During the Middle Ages people use a combination of natural treatments such as blood-letting and cupping as well as supernatural such as praying to god for forgiveness |
| Diagnoses: Actions taken to work out why someone is sick. In the Middle Ages doctors used urine charts, astrology |
| Public Health: The actions taken by the government to prevent and treat the health of a country. Because there was not a centralised government, there was very limited provisions for public health during the Middle ages |
| The Black Death: An epidemic that killed 1/3 of England population. It lead the a decrease in the popularity of the four humours and an increase in beliefs about miasmas |
| The power of the King: The King had total power, but the Church has considerable control over the King. Challenging the king or the church meant risking your life |
| Education: Most people could not read or write and most of their knowledge of the world came from attending church. Because of this they accepted what they were taught about the world around them |

| Key developments |
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| 1123 St Bart’s – Britain first hospital -was set up in London |
| 1350 the average life expectancy was 35 years old |
| 1348-49 the Black Death kills 1/3 of England’s population. Quarantine laws are introduced |
| 1388 Parliament passes the first law requiring streets and rivers to be kept clean the people in urban areas |
| By 1500 there were approx. 1,000 hospitals in Britain |

| Key words | |
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| Galen | A Greek doctor in Ancient Rome who built on the Theory of the Four Humours by developing the Theory of Opposites. He wrote many famous books about medicine that were used in the Middle Ages |
| Hippocrates | A doctor from Ancient Greece who developed the Theory of the four humours |
| Purging | To rid the body of an ‘excess’ like blood or vomit |
| Leeching | Using leeches to remove blood |
| Blood letting | Cutting the body to get rid of ‘excess’ blood |
| Cupping | Using a glass cup to draw excess blood out of the body |
| Fasting | To avoid eating and drinking |
| Urine chart | Used to diagnose/define an illness |
| Apothecary | A medieval pharmacist or chemist who sold herbs |
| Barber Surgeon | Untrained surgeon who practices basic surgery and amputations as well as blood-letting for ordinary people |
| Physician | A medically trained doctor, only men worked in this job during the Middle ages |
| Wise women | A female healer, who used a combination of natural and supernatural treatments to cure illness |
| Dissection | To cut open the body and examine the insides |
| Miasma | Bad air which was blamed for spreading disease |
| Vademecum | A medical book used by doctors |
| Epidemic | A widespread outbreak of disease |
| Pilgrimage | Making a journey for religious purposes |
| Flagellants | People who whipped themselves in order to seek forgiveness from god and prevent disease |
| Incense | Bunt to get rid of bad spirits or miasmas |
| Amulet | A charm worn bought to protect disease |
| Monastery | Buildings owned by the church were monks live – the medical book were copied there |
| Superstition | A belief, not based on knowledge, but on the supernatural such as witchcraft and astrology |
| Astrology | Study of the planets and their effects on humans |
| Quarantine | Separating the sick from the healthy to prevent disease |

Summary: The medical Renaissance refers to a period when new ideas were beginning to influence medicine. These ideas were slowly breaking down old beliefs about the cause of illness and lead to developments in treatments and diagnosis. The Church remained powerful; however the Protestant Reformation meant that more people began to challenge the authority of the Catholic church over medicine including the banning of dissections and Galen. Vesalius and Harvey also led to people challenging Galen and improved the understanding of anatomy and physiology. Developments in technology lead to progress in diagnosis and the printing press enabled medical knowledge to be more wide-spread. However, despite some important developments their impact on medicine was minimal. People continued to hold on to accepted natural and supernatural beliefs including the four humours and most ordinary people continued to receive treatments from wise women, barber surgeons, the church and apothecaries. Importantly, people still did not understand the cause of diseases. This period is more about laying the foundations for the change that came later.

Key concepts

The Renaissance: The period between 1250-1500 (13th and 16th century). It refers to the ‘rebirth’ of classical ideas from Ancient Rome and Greece that were discovered at the end of the Middle Ages. This led to an increased interest in challenging pre-existing beliefs and ideas about the world, including medicine.

The Reformation: The break with the Catholic Church led to more people questioning the authority or the church and a rise in ‘secular’ ideas/beliefs in medicine. More people began to challenge Galen’s ideas as well supernatural ideas about the cause of disease

The Printing Press: First invented in 1439 the printing press enabled books to be printed rather than copied by hand. This led to information spreading more widely and an increase in literacy.

Humanism and Science: Rather than believing and accepting old ideas people in the Renaissance began to question old ideas, experiment and look to evidence over tradition.

Continuity: Things or ideas that stayed the same – Four humours, miasmas, wise women, Barber surgeons...

Change: Things or ideas that changed – challenging Galen, Royal Society, microscope...

Technology: New technology such as the pump helped Harvey to understand the heart. Microscopes improved research and thermometers improved dialogue.

Artistic development: Interest in painting the human body led to an improved understanding of anatomy.

Medical training: More universities to train physicians and guild systems for apprentices for surgeons.

Key developments

1536 Henry VIII’s dissolution of the monasteries closed most of the hospitals. Only charities provided places for the sick to stay.

1543 Vesalius Publishes the *Fabric of the Human Body* which promoted dissection challenged Galen and improves anatomy.

1565 The first dissection in Britain was carried out in Cambridge.

1628 Harvey published his book *An Anatomical Account* which proved blood is circulated around the body therefore proving the theory of the four humours and blood-letting wrong.

1660 The first meeting of the Royal Society set up to share medical knowledge. In **1665** the first medical journal is published called *Philosophical Transactions*.

1665 The Great Plague in London kills 5,000. The government takes considerable measures to improve provisions for public health during the epidemic.

1676 Thomas Sydenham publishes *Observationes Medicae* promoting careful observation of symptoms rather than relying on medical books

1683 More powerful microscopes are developed.

Key words

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| Secular | Not religious |
| Alchemy | The mixing of substances to create treatments |
| On Contagion | A book that said disease was spread through seeds in the air |
| transference | The idea that diseases could be transferred through objects such as onions |
| Regimen sanitas | Book written in 13 th C but widely published during the Renaissance about hygiene and domestic medical practices |
| Apothecaries | Shops that sold herbs for medical use |
| Quack doctor | A fraudulent medical professional who sold fake medical treatments |
| Autopsy | Surgical procedure that consists of a thorough examination of a corpse by dissection to determine the cause and manner of death |
| Diagnosing | The process of identifying an illness |
| Royal society | A group set up in London where people interested in science who met weekly. King Charles II was a patron |
| Anatomy | The study of the human body |
| Physiology | The study of how the human body works |
| Microscope | A renaissance invention that allowed things to be magnified |
| Thermometer | Renaissance invention that allowed a person’s temperature to be taken |
| Pesthouse | A hospital for people suffering from infectious diseases such as the plague |
| Humanism | |
| New World | The continent of North and South America discovered during the Renaissance |

From the start of the 18th century, rapid changes began to occur in medicine. Between 1500 and 1700, many new medical theories: however it was not until later that those theories were put into place or had a significant impact on society. At the start of the 1700s the Theory of the Four Humours was no longer widely believed however bleeding or purging was no longer were still common treatments and the theory of miasmas became increasingly popular. By 1900, the medical landscape had been transformed by the discovery of Germ Theory and this led to developments in vaccinations and treatments. Hospitals were transformed after the work of Florence Nightingale and developments in antiseptics and anaesthetics meant that surgery was much less dangerous and more common.

Key concepts

Germ Theory Louis Pasteur's Germ Theory was a major medical development. He disproved the theory of miasma and spontaneous generation and laid the foundations for further developments such as Koch who used synthetic dyes to identify specific diseases; Lister's Carbolic Spray; public health reforms; and Pastures own developments in vaccinations

Public Health in 1872The government began to enforce compulsory vaccinations for small pox however the government has a laissez faire approach and there was very little provision for public health during the 19th Century. However, after the discovery of Germ Theory, the Great Stink, and the work of Edwin Chadwick and John Snow, the government was pressured into making changes. Consequently, the Public Health Act became compulsory in 1875 and the government began to take interest in improving the living conditions of the country.

Surgery In the 18th Century the three big problems in surgery were: Bleeding, Pain and infection. Simpson's work on anaesthetics solved the problem of pain. However, this initially meant the death rate rose as surgeons were performing more complicated surgery without antiseptics. Lister solved this problem with carbolic spray. Lister's work led to aseptic surgery.

Hospitals and Nursing in 1700 hospitals were unsanitary places, where you went to rest and pray rather than be treated. They generally were places for the 'deserving poor'. Florence Nightingale transformed the way hospitals were designed and training of nurses.

Key developments

1798 Edward Jenner developed the first vaccine for Smallpox

1842 Edwin Chadwick published his Report on the *Sanitary Conditions of the Labouring Classes*

1848 The Public Health Act is passed to try and improve public health conditions but it is not compulsory to follow and so has limited impact

1847 James Simpson developed chloroform as an anaesthetic

1854 John Snow's map proves cholera is spread by contaminated water

1860 Florence Nightingale establishes the first nursing school at St Thomas', London

1860 Work on London's first sewage began following 'The Great Stink' in 1858

1861 Louis Pasteur's germ theory was published

1867 Lister used carbolic acid as an antiseptic in surgery

1875 The Public Health Act is passed. It is compulsory for local councils to provide sewers, drainage and fresh water

1879 Pasteur develops a vaccine for chicken cholera

1882 Robert Koch identified bacteria that caused specific diseases using synthetic dye

1885 Pasteur creates the first vaccine for humans (rabies)

Key words

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| Anaesthetic | A drug or drugs used to elevate pain during surgery |
| Antiseptics | Chemicals used to destroy bacteria and prevent infection |
| Aseptic surgery | Surgery where microbes are prevented from getting into a wound in the first place through sterilization. |
| Cholera | An infectious disease that causes severe watery diarrhoea, which can lead to dehydration and even death if untreated. |
| Laissez faire | 'Leave alone' refers to the government's approach during the 18 th and 19 th when they did not intervene in daily life |
| Miasma | Theory that bad smells in the air cause disease |
| Spontaneous generation | A theory that disease was produced from decaying matter |
| Industrial revolution | Period from 1760-1840 which transformed Britain from a rural to an industrial society. The population dramatically increased especially in cities. |
| Chloroform | An anaesthetic developed by Simpson and made popular by Queen Victoria |
| Ether | A type of anaesthetic |
| Carbolic spray | A machine developed by Simpson to eliminate bacteria during surgery. It improved survival rates however was explosive and irritated the skin |
| 'The black period of surgery' | After the development of anaesthetics surgeons were able to experiment in longer and more complicated surgery. However, antiseptics were not developed so the death rate increased due to infection |
| Crimean war | In 1854 Britain went to war with Russia. |
| Pavilion Plan hospitals | Developed by Nightingale – separate wards were built to separate infectious patients |
| Inoculate | Deliberately infecting a person with a disease in order to avoid a more severe case later on |
| Smallpox | Disease which hit Britain as an epidemic throughout the 1700s |
| Cowpox | A disease similar to smallpox |
| Vaccine | Weakening a disease so it can be injected to prevent its spread |
| The Great Stink | 1858 the stench in London due to the pollution of the Thames was so bad that the government was forced to build a sewage network |

| Ideas about the cause of disease | Approaches to treatments and preventions |
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| <p>Genetics in the 1900s it was clear that microbes did not cause all illnesses and diseases which led to research into hereditary disease (diseases caused by genetic factors)</p> <ul style="list-style-type: none"> • Watson, Crick and the discovery of the human gene in 1953 the structure of DNA was discovered • The Human Genome Project between 1990-2000 Watson and his team mapped out the human genome. It then became possible for scientists to use this to identify hereditary diseases. For example scientists can now identify a gene that causes breast cancer and perform a mastectomy to prevent the disease in women with the gene | <p>Magic bullets were the first chemical cures that attacked microbes in the body. After Koch developed the use of synthetic dyes scientists began to experiment with chemicals that could kill microbes inside the body. The first magic bullet was developed by Paul Ehrlich who discovered a cure for syphilis, Salvarsan 606.</p> <p>Antibiotics and Penicillin Penicillin was isolated from a mould sample in Fleming and developed into a usable treatment by Florey and Chain in 1940. This inspired other scientists to search for more antibiotics. In the short-term they have been a miracle cure for a variety of diseases. However, their long-term impact has yet to be measured</p> <p>Impact of technology new technology has made it easier to create and provide drugs to treat diseases:</p> <ul style="list-style-type: none"> • Mass production of pills has made the distribution of drugs easier • Hypodermic needles allow the precise dose to be introduced into the bloodstream • Insulin pumps for people suffering with diabetes without the need for injections • The developments of capsules made taking drugs easier <p>The NHS before the introduction of the NHS many people in Britain could not afford health care and were living in terrible conditions. In 1948 the government launched the National Health Service which aimed to provide medical care for the entire population. It was paid for by national insurance contributions. This improved access to medical care, however initially the provisions had not improved as a quarter of the GPs were not satisfactory and there was a lack of hospitals nation-wide. During the 1960s the government began to improve. Plans were made to ensure hospitals were evenly spread across the country and in 1966 a GP's charter was introduced to improve the standard of GPs.</p> |
| <p>Lifestyle and health Through developments in science and technology we have gained a better understanding of the impact of lifestyle choices on the body and their links with disease and illness including smoking, diet, drinking alcohol, unprotected sex and sun exposure.</p> | <p>Hospitals - High-tech medical and surgical treatments The NHS has provided the following: Advanced x-rays to target and shrink tumours through radiotherapy; Machines such as dialysis and heart bypasses are widely available; robotics such as prosthetic limbs ; microsurgery ; laparoscopic (keyhole) surgery and robotic surgery.</p> <p>Preventing disease The government has taken significant actions to improve public health including:</p> <ul style="list-style-type: none"> • Increased understanding of the cause of disease; compulsory vaccinations for Diphtheria 1943, Tetanus 1961, Measles 1968 and Rubella in 1970 • Laws such as the Clean Air Act • Communicating health risks and healthy lifestyle campaigns |
| <p>Diagnosis developments in science and technology have led to developments in diagnosis such as: Blood tests, endoscopes, X-rays, MRI scans, CT scans and ultrasound scans</p> | <p>Government legislation The government has passed laws to provide a healthy environment for the population such as the Clean Air Act 1956 which was effective in removing the problem of smog in London. The Health Act of 2009 made it illegal to smoke in all enclosed workspaces. Government lifestyle campaign also promotes healthy lifestyles through the following: advertising campaigns warning against the dangers of smoking, binge drinking, unprotected sex.</p> |
| <p>Case study: Fleming, Florey and Chain's developments in penicillin Alexander Fleming was a British doctor who first identified the mould penicillin during the 1920s; however he did not believe it could kill bacteria inside humans. In the 1940s Florey and Chain identified a way that penicillin could be administered to humans to treat infection. Florey and Chain approached the US government who funded the mass production of penicillin. By 1944 there was enough penicillin to treat all Allied casualties.</p> | <p>Case study: Lung Cancer In 1950 Research showed conclusively that the rise of lung cancer was linked to cigarette smoking. Aggressive advertising campaigns from the 1940-1970s led to a rise in the number of smokers. One of the reasons lung cancer was so hard to treat was because it is difficult to detect through X-Ray scans. Today, improvements have been made through the use of CT scans and bronchoscopies. Treatments include transplants; radiotherapy; chemotherapy and the government has enforced a series of laws aimed at preventing smoking.</p> |

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| The British Sector of the Western Front, 1914 – 1918. | Context of the British sector of the Western Front | | Conditions requiring treatment on the Western Front | |
| | The Ypres Salient: Germans had the advantage with being on the higher ground. Tunnelling and mines were used by the British at Hill 60. First Battle of Ypres - 1914. Second Battle of Ypres -1915. Third Battle of Ypres - 1917. | The Somme: Battle of the Somme - July-November 1917. 1 st day of battle, 60,000 casualties and 20,000 died. In total, 400,000 Allied casualties and this put pressure on medical services on the Western Front. | Ill health: Trench fever: caused by body lice and included flu-like symptoms including high temperature. Treatment: Passing electric current through infected area was effective. Prevention: Clothes disinfected and delousing stations were set up. Affected 0.5 million. Trench foot: caused by soldiers standing in mud/waterlogged trenches. Treatment: soldiers advised to keep clean but worst cases, amputation. Prevention: Changing socks + keeping feet dry and rubbing whale oil into feet. Affected 20,000 in winter of 1914-1915. Shell-shock: caused by stressful conditions of war and symptoms included tiredness, nightmares, headaches and uncontrollable shacking. Treatment: Not well understood. Prevention: rest and some received treatment in UK. Affected 80,000 and some were shot! Weapons of war: Rifles: fired one at a time/loaded from cartridge case creating rapid fire. Machine guns: Fired 500 rounds a minutes. Pierced organs and fracture bones. Artillery: Bombardments were continuous, Artillery fire caused half of all casualties. Shrapnel: Caused maximum damage exploded mid-air above enemy. Killed/injured. Chlorine Gas: Led to death by suffocation. 1915, gas masks given to all British soldiers. Phosgene Gas: Faster acting than Chlorine but with similar effects. Could kill within 2 days. Mustard Gas: Odourless gas, worked in 12 hours. Caused blisters, burn the skin easily. | |
| | Arras: Battle of Arras - 1917. Before the battle, Allied soldiers dug tunnels below Arras. Tunnels led to rooms and included an underground hospital. | Cambrai: Battle of Cambrai -1917. 450 tanks used to advance on the German position, however, plan did not work because there was not enough infantry to support. | | |
| | Impact of terrain on helping the wounded: Difficult to move around, + night, communication was difficult; collecting wounded from No Man’s Land was dangerous. Stretcher bearers found it difficult to move around corners and transport of the wounded was difficult because of this. | | | |
| | Key words | | Key words | |
| | No Man’s Land: Land between Allied and German trenches in WW1. Trenches: Long, narrow ditches dug during the First World War. Ypres Salient: Area around Ypres where many battles took place in WW1. | | Gangrene: When a body decomposes due to a loss of bloody supply. Shrapnel: A hollow shell filled with steel balls or lead, with gunpowder and a time fuse. | |
| | Helping the wounded on the Western Front | | The impact of the Western Front on Medicine | |
| | Evacuation route: Survival depended on speed of treatment. Care improved as war progressed. 1914 – 0 motor ambulances but by 1915, it was 250. Ambulance trains were introduced, as well as, ambulance barges used along River Somme. Stretcher bearers: Collect wounded - 16 in each battalion + 4 for each stretcher. Regimental Aid Post: Always close to the front line and staffed by a Medical officer selected those who were lightly wounded/needed more attention. Field Ambulance and Dressing Station: Emergency treatment for wounded. Casualty Clearing Station: Large, well equipped station, 10 miles from trenches. Base Hospitals: X-ray, operating theatre and areas to deal with gas poisoning. Underground hospital at Arras: Running water, 700 beds and operating theatre. RAMC: Involved medical officers and learnt about wounds never seen before. FANY: Volunteer nurses, who helped the wounded and also drove ambulances. | | The Thomas Splint: Stopped joints moving and increased survival rates from 20 to 82%. Reduced infection from compound fractures. X-rays: Developed in 1895, X-rays used to diagnose issues before operations. But there were some problems: X-ray could not detect all problems, were fragile and overheat. Mobile X-rays: 6 operated on the front line, used to locate shrapnel and bullet wounds. Transported around in a truck and enabled soldiers to be treated more quickly. Blood Transfusions: Blood loss = major problem. Blood transfusions used at Base Hospitals by a syringe and tube to transfer blood from patient to donor. Extended to CCS from 1917. Blood bank at Cambrai: Adding Sodium Citrate allowed blood to be stored for longer. Blood was stored in glass bottles at a blood bank and used to treat wounded soldiers. Brain surgery: Magnets used to remove metal fragments from the brain. Local anaesthetic. Plastic surgery: Harold Gillies developed new techniques, skin drafts developed for grafts. | |
| | Key words | | Key words | |
| | FANY: First Aid Nursing Yeomanry. Founded in 1907 by a soldier who hoped they | | Compound Fracture: Broken bones pierces the skin + increases risk of infection in wound. | |

would be a nursing cavalry to help the wounded in battle.

RAMC: Royal Army Medical Corps. This organisation organised and provided medical care. It consisted of all ranks from doctors to ambulance drivers and stretcher bearers.

Triage: A system of splitting the wounded into groups according to who needed the most urgent attention.

Debridement: Cutting away of dead and infected tissue from around the wound.

Gas Gangrene: Infection that produced gas in gangrenous wounds.

Mobile X-ray unit: Portable X-ray unit that could be moved around the Western Front.

Radiology department: Hospital department where X-rays are carried out.

Blood transfusions: Blood taken from a healthy person and given to another person.

General anaesthetic: Putting a patient to sleep during an operation.

Local anaesthetic: Area being operated on is numbed to prevent pain + patient awake.