

Knowledge Organiser: Medieval Medicine

| Ideas on the causes of disease | |
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| What was a religious idea on the cause of disease? | Illness was believed to be a punishment from God. |
| What was a supernatural idea on the cause of disease? | Astrology – the stars and planets were supposed to influence your health. |
| What were the rational ideas on the cause of disease? | Four Humours and Miasma. |
| What was miasma? | The theory that bad smells caused diseases |
| What were the Four Humours? | Blood, black bile, yellow bile and phlegm. Fluids in your body that, if unbalanced, were thought to make you ill. |

| Key individuals | |
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| Hippocrates | Ancient Greek physician. Came up with the theory of the Four Humours & the Hippocratic Oath for doctors. |
| Galen | Ancient Roman physician. Developed the theory of the Four Humours into the Theory of Opposites, where you could treat an excess of one humour with something opposite to it. E.g. too much hot blood? Eat cool lettuce. |
| The Pope | Head of the Catholic Church – all of Western European Christianity. Controlled belief through churches & universities |
| Edward I | King of England. Touched up to 2,000 people a year because they thought the king's touch could heal them. |
| William le Paumer | Patient who died because of too much bloodletting. |
| Johannes Gutenberg | Invented the printing press in Germany in the late medieval period. At first used for printing the Bible, later for other texts including medical books |

Timeline:

| 460-370BCE | 129-216 | 1272-1307 | 1278 | 1345 | 1348-49 | 1440 | 1500 |
|-------------|---------|-----------|----------------------------|---|----------------------------|----------------|----------------------------|
| Hippocrates | Galen | Edward I | Death of William le Paumer | Unusual positioning of Mars, Saturn and Jupiter | The Black Death in England | Printing Press | 1,100 hospitals in England |

Thinking Questions:

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| Describe two ways that religion influenced people's thinking about disease in the medieval period. | Explain why medieval treatment and care were ineffective. | "The Church was the main reason why there was limited progress in the medieval period." How far do you agree? |
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| Treatment and care | |
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| How did people treat disease religiously? | Prayers for the sick, donations to the Church, flagellation (self-punishment so that God would stop punishing you) |
| What was bloodletting and purging? | Following the Theory of Opposites, removing blood or one of the other humours by cutting or making you vomit. |
| What were the risks of bloodletting? | Blood loss can lead to death. William le Paumer died in 1278 after a bloodletting treatment. |
| Why purify the air? | Following the theory of Miasma, you should cover up bad smells with sweet-smelling herbs. |
| How effective were herbal remedies? | Largely ineffective as nobody understood what the ingredients did. Some (honey, garlic) worked by accident. |
| What happened in a medieval hospital? | Care for travellers and pilgrims, not treatment. Staffed by monks and nuns so prayer was the only treatment. |
| What did physicians do? | Trained in universities. Diagnose illness according to Hippocrates and Galen, and recommend treatment. Expensive. |
| What did apothecaries do? | Trained by apprenticeships. Mixed the remedies that the physician recommended. Less expensive. |
| What did barber-surgeons do? | Limited training. Sharp knives. Pulled teeth, bled patients, set broken bones. |

| Prevention and public health | |
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| How did people avoid the Black Death? | Escape from other people. Get out of the cities. Purify the air. Pray. None of this apart from isolation was effective. |
| How did governments try to stop the Black Death? | Quarantine laws – isolate for 40 days to prove you haven't got the disease, or isolate houses that have caught it. |
| What were the symptoms of the Black Death? | Buboes: black swellings in groin and armpits. Breathing troubles. Chest pains. Fever. Coughing up blood. Death. |
| How did people explain the Black Death? | God's punishment on the world for their sins, <i>or</i> the stars and planets, <i>or both</i> : the stars warned of God's anger. |

Knowledge Organiser: Renaissance Medicine

| Ideas on the causes of disease | |
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| What was miasma? | The theory that bad smells caused disease, blamed for the Great Plague |
| What was direct observation? | Sydenham encouraged doctors to categorise diseases by noting all symptoms |
| What were the remaining traditional ideas? | People still believed in God, astrology and the Four Humours |
| Did people understand diseases were contagious? | Yes, and they used this evidence during the Plague to ban meetings, but they couldn't explain how. |

| Key individuals | |
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| Who was Andreas Vesalius? | Italian doctor, 1514-1564. Did dissections. Proved Galen wrong on the structure of the human jaw. Published <i>Fabric of the Human Body</i> with detailed diagrams of human body |
| Who was William Harvey? | English doctor, 1578-1657. Wrote a book on blood circulation. Proved Galen wrong on circulation. Proved heart pumped blood around the body. No impact in the short term because his ideas weren't accepted. |
| Who was Thomas Sydenham? | English doctor, 1624-1689. Wrote <i>Observationes Medicae</i> , used by doctors for 200 years. Promoted direct observation. Argued the Four Humours were completely wrong. Still believed in miasma. |
| Who was Antonie van Leeuwenhoek? | Dutch scientist, 1632-1723. Pioneered use of microscope to discover <i>animalcules</i> (bacteria). |
| What was the Royal Society? | Set up in 1660 to encourage science and print ideas in its journal. Translated and printed foreign books like Vesalius and Leeuwenhoek. |

Timeline:

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| 1440 | 1515 | 1536-1540 | 1543 | 1660 | 1665 |
| Printing Press | Reformation | Dissolution of the Monasteries | <i>Fabric of the Human Body</i> | Royal Society | Great Plague |

Thinking Questions:

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| How were ideas about the causes of disease similar in the medieval and Renaissance periods? | How did key individuals lead to increased understanding of medicine during the Renaissance? | Assess why despite increased understanding there were no great breakthroughs in medical treatment, 1500-1700. |
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| Treatment and care | |
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| How did herbal remedies change? | There were new herbs from America like quinine to treat malaria. |
| What was transference? | The idea that illness could be transferred to something else – rub an onion on a wart! |
| How did physicians' training improve? | Much better training in anatomy thanks to Vesalius but still couldn't explain why diseases happened. |
| Were the Four Humours still used? | Yes. King Charles II was bled and purged when he was ill. |
| How did hospital care change? | Monastery hospitals were closed in 1536-1540. By 1700 there were only 5 hospitals in England. |
| Did surgery improve? | Not much. Anatomical knowledge was better but there was still a massive risk of infection. |

| Prevention and public health | |
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| What was moderation? | Avoiding extremes (fatty food, laziness, exhaustion) to prevent disease. |
| What was avoidance? | Keeping away from physical contact to prevent disease. |
| Did the anyone do anything about miasma? | Governments tried to prevent it, removing sewage and rubbish, or just using herbs and fires to cover up the smell. People used perfumed pomanders. |
| Did the government do anything during Plague? | Public meetings banned. 40,000 dogs and 20,000 cats killed. Quarantine for plague houses. Daily collections of the dead. |

Knowledge Organiser: Industrial medicine

| Ideas on the causes of disease | |
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| What was miasma? | The theory that bad smells caused disease, used to explain the Great Stink. |
| What was spontaneous generation? | The early 1700s idea that bacteria were caused <i>by</i> disease, not the other way around. |
| How far did traditional ideas survive? | Not much – four humours, stars and God’s punishment were no longer popular ideas |
| What was germ theory? | The theory that bacteria cause decay and disease. |
| How did germ theory improve over time? | Robert Koch proved specific bacteria cause specific diseases in the 1870s |

| Key individuals | |
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| Edward Jenner | First vaccine 1798 preventing smallpox by using cowpox to inoculate 23 people. Took 50 years to be accepted. |
| Mary Seacole | Jamaican nurse and businesswoman who set up the “British Hotel” for injured soldiers during the Crimean War. |
| Edwin Chadwick | Government official, completed a report on living conditions in cities in 1842. Linked unhealthy conditions to disease. |
| James Simpson | Developed chloroform anaesthetic in 1846, used for Queen Victoria’s birth of her son. |
| John Snow | Proved that cholera spread through contaminated water in Soho but couldn’t prove why. Helped change attitudes to public health and reduce cholera. |
| Florence Nightingale | Trained a nurse, helped in the Crimean war. Reduced death rate in military hospitals from 40% to 2%. Wrote books and opened Nightingale School of Nursing 1860. Still believed in miasma. |
| Louis Pasteur | French scientist, created Germ Theory. Proved spontaneous generation wrong. |
| Joseph Lister | Developed antiseptic carbolic acid in 1865 after reading about Germ Theory. Reduced death rate in surgery by 30% |
| Robert Koch | German scientist, proved which germs caused which disease. Helped develop vaccines for tuberculosis and cholera. |

Timeline:

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| 1700-1798 | 1798 | 1848 | 1853-1856 | 1854 | 1858 | 1861 | 1865 | 1875 |
| Continuity | Vaccination | Public Health Act | Crimean War | Chloroform | Great Stink | Germ Theory | Carbolic Acid | Public Health Act |

Thinking Questions:

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| How different was medicine in 1900 from medicine in 1700? | Why did Edward Jenner’s discovery of the smallpox vaccine not lead to more progress immediately? | “Germ Theory changed everything.” How far do you agree? |
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| Treatment and care | |
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| What were “quack” remedies? | Popular remedies that weren’t based on science |
| Did everything improve from 1700? | No – from 1700 to 1800 there was a lot of continuity with Renaissance ideas |
| How did surgery improve after 1800? | Anaesthetics to put you to sleep and antiseptics to prevent infection, increased survival rates. |
| How effective was hospital treatment before 1800? | Not effective at all. Few hospitals, unhygienic but they did try some treatment of disease. |
| How did Nightingale help hospitals? | Ventilation – clean air in wards. Sanitation – clean water, proper sewage and toilets. Supplies – fresh food and clean clothing |
| How did training improve? | Nightingale opened Royal College of Nursing. Apothecaries became pharmacists, with professional qualifications. |

| Prevention and public health | |
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| What was vaccination? | Using a related or weakened form of one disease to create immunity against another. First used with non-deadly cowpox to give people immunity from deadly smallpox in 1798. |
| What did the government do about cholera? | In the 1700s, nothing. Later, Public Health Acts in 1848 and 1875 tried to improve public health by providing clean water and sewers. |
| How did germ theory influence vaccination? | Jenner’s first vaccine was a one-off and he couldn’t explain how it worked. By the 1880s both Pasteur and Koch were trying to create new vaccines now that they understood how germs worked. |
| What was the difference between the Public Health Acts? | 1848: pre-Germ Theory, not compulsory, just advice to local governments. Not widely followed. 1875: post-Germ Theory, compulsory, local governments had to follow it. |

Knowledge Organiser: Modern Medicine

| Ideas on the causes of disease | |
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| What technologies improved diagnosis? | X-Rays, CT scans, MRI and ultrasound could see inside the body without surgery |
| How did germ theory continue? | Bacteria and viruses for specific diseases discovered, and experimented on to produce new vaccines. |
| What new causes of disease were found? | Lifestyle and genetics |
| How do genetics cause disease? | Hereditary diseases like Parkinsons and Alzheimers are passed on in DNA |
| How do lifestyle factors cause disease? | Smoking linked to high blood pressure and cancer. Diet linked to obesity and type 2 diabetes. |

| Key individuals | |
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| Marie Curie | Innovated with X-Rays during WW1, expanding their use in diagnosis. |
| Paul Ehrlich | Discovered Salvarsan 606, the first "magic bullet," |
| Alexander Fleming | Discovered penicillin, first organic antibiotic |
| Howard Florey and Ernst Chain | Worked to do human trials and mass produce penicillin during WW2 |
| Francis Crick and James Watson | Discovered the chemical structure of DNA |
| Rosalind Franklin | Photographed the structure of DNA |

| Thinking Questions | | |
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| How different is the role of the government in 2000 to the role of the government in 1700? | How did technology enable better diagnosis and treatment, 1900-present? | "War was the biggest reason for medical progress, 1900-present." How far do you agree? |

Timeline:

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|------------------------|-----------|-----------|----------------|------|------------------|---------------|-------------|---------------|-------------|-------------|-------------|
| 1911 | 1914-1918 | 1939-1945 | 1942 | 1948 | 1953 | 1956 | 1961 | 1968 | 1968 | 1970 | 2007 |
| National Insurance Act | WW1 | WW2 | Diphtheria vax | NHS | Discovery of DNA | Clean Air Act | Tetanus vax | Clean Air Act | Measles vax | Rubella vax | Smoking ban |

| Treatment and care | |
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| How did antibiotics change treatment? | Penicillin killed most germs inside the body. However, bacteria evolved resistances. |
| What's the difference between antibiotics and magic bullets? | Antibiotics: biological, more than one disease Magic bullets: chemical, single target |
| How have treatments improved? | Mass produced medicines like aspirin and penicillin, easily available drugs. |
| How has technology improved treatment? | Blood transfusions, machines for dialysis (kidney), pace-makers for heart conditions. Radiotherapy to target cancer. |
| How did government involvement change? | 1911 National Insurance Act – help for ill workers' medical bills. 1948 NHS – free healthcare for all. |
| How did training improve? | Doctors and nurses now all university trained and specialised in care of patients. |
| How did surgery improve? | Keyhole and microsurgery, enable transplants and quicker healing from surgery. |

| Prevention and public health | |
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| How did the NHS improve public health? | Encouraged healthy living, administered vaccines, used checkups to prevent or identify conditions early. |
| How does DNA impact prevention? | Doctors can screen for genetic diseases and hereditary conditions, allowing people to take precautions. |
| How have the government expanded vaccines? | National vaccine campaign for diphtheria 1942. Polio eradicated 1984 thanks to compulsory vaccines. Tetanus 1961, Measles 1968. Rubella 1970. |
| What are lifestyle campaigns? | Advertising campaigns to prevent harmful behaviour – dangers of smoking, drinking, etc. |
| What laws have impacted public health? | Clean Air Acts 1956 & 1968 to improve air quality. Smoking ban inside public buildings 2007. Higher tax on more polluting cars. |

Knowledge Organiser: The British sector of the Western Front, 1914–18: injuries, treatment and the trenches

| Trench environment | |
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| What were the dangers of attacking a trench? | Machine gun fire from the enemy. Artillery fire from the enemy in front and your own artillery behind. Gas attacks. |
| What were the dangers of being in a trench? | Mud, infection, parasites, artillery barrage from the enemy. Gas attacks. |
| What happened at the Battle of Loos? | British army used chlorine gas to attack German troops. |
| What happened at the Second Battle of Ypres? | German army used phosgene gas to attack British and French troops. |
| What happened at the Battle of the Somme? | Massive casualties due to shrapnel and machine gun fire – 145,000 British and French deaths across 141 days of fighting. |
| What happened at the Battle of Arras? | Underground hospital used by the British army with electricity and running water, making it quicker to treat injured soldiers. |
| What happened at the Battle of Cambrai? | First large-scale use of tanks by British army. Blood depot used to treat 20 wounded British soldiers with shock from blood loss. |
| What happened at the Third Battle of Ypres | German army used mustard gas to attack British and French troops. |

| Care and hospitals | |
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| Who were the RAMC? | Royal Army Medical Corps. Branch of the army responsible for medical care. |
| Who were the FANY? | First Aid Nursing Yeomanry. Women's voluntary organisation. Frontline support for medical services, driving ambulances. |
| What happened at a Regimental Aid Post? | Within 200m of the front line. Immediate first aid to get men back to the fighting as quickly as possible. If not, dressing station. |
| What did Dressing Stations do? | Between 400m and 600m behind the RAP. Assessed the wounded, bandaging some, operating on others. Serious cases to CCS. |
| What happened at a Casualty Clearing Station? | Triage (sorting) for injuries: Walking wounded – patched up and returned. Hospital treatment – to base hospitals. No chance of recovery - made comfortable, but not expected to survive. |
| What did base hospitals do? | Located near the coast so wounded men could take boats home to Britain. Expert treatment of wounds in specialist wards. |

| Conditions requiring treatment | |
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| What was Trench Foot? | Foot damage from exposure to cold and damp. Prevention: keep feet clean and dry. Treatment: remove damaged tissue. |
| What was Trench Fever? | Fever, headache, eye pain, transmitted by body lice. Prevention: de-lousing. Treatment: none, usually recover naturally in 5 days. |
| What was Shellshock? | Psychological damage due to horrors of war. Some treated in hospitals in Britain, others accused of cowardice and punished. |
| How did explosives and bullets injure soldiers? | High-explosive shells caused 58% of wounds. Bullets caused 39%. Machine guns fired 45- bullets/minute. |
| What was shrapnel and how did it affect soldiers? | Shrapnel: bits of shells thrown into the air after explosions. Metal penetrates bodies, dragging mud and fabric with it. |
| How did infection make injuries worse? | Tetanus bacteria in the soil, gangrene caused by blood loss. Gas gangrene produced gas in infected wounds. Could kill in a day. |
| Why were there more head wounds in WWI? | Trench warfare meant most of a soldier's body was protected by the trench. Their head was the only target. |
| What gases were used as weapons in WWI? | Chlorine: death by suffocation. Phosgene: similar to chlorine but faster. Mustard: internal and external blisters, kills in 12 hours. |

| New techniques and technologies | |
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| How did X-Rays improve in WWI? | Marie Curie – French-Polish scientist made <i>Petits Curies</i> (mobile X-Ray vans) for French army. Found shrapnel/bullet in wounds. |
| Why were there more blood transfusions? | Sodium citrate, which prevents blood from clotting, was discovered just before WWI. However, still needed living donor. |
| When did blood transfusions improve? | By the Battle of Cambrai, sodium citrate and citrate glucose allowed blood to be stored for up to 4 weeks. |
| What was the blood depot? | Oswald Hope Robertson, American doctor, stored 22 units of blood in glass bottles packed with ice. Saved 11 lives. |
| What did the Thomas Splint do? | Kept broken legs from moving while the patient was transferred. Stopped blood loss and infection. Survival improved 20% to 80% |
| How was plastic surgery used? | Many head wounds needed reconstruction of injured faces. Harold Gillies pioneered this surgery in Britain, 1916-1917/ |
| Why did WWI lead to advances in brain surgery? | Head injuries. Bullets and shrapnel in the brain. Harvey Cushing used magnets to remove metal fragments from the brain. |

Timeline:

| 03/1914 | 07/1914 | 08/1914 | 09/1915 | 12/1915 | 07/1916 | 04/1917 | 11/1917 | 07/1917 | 11/11/1918 |
|----------------|--------------|----------------------|-----------------------------|--|---------------------|--------------------------------------|-------------------------------|---|---------------------------|
| Sodium citrate | Start of WWI | <i>Petits Curies</i> | Chlorine Gas Battle of Loos | Phosgene Gas 2 nd Battle of Ypres | Battle of the Somme | Underground hospital Battle of Arras | Blood depot Battle of Cambrai | Mustard gas 3 rd Battle of Ypres | Armistice: end of the war |

Source types:

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| Private sources: Diaries, letters, notes, postcards | Official sources: Reports, diagrams, records, instructions | Non-official sources: Newspapers, autobiographies, books, interviews |
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