

# MEDICINE THROUGH TIME, C1250-PRESENT

## KNOWLEDGE ORGANISERS



KEY TOPIC 1: C1250-C1500: MEDICINE IN MEDIEVAL ENGLAND

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**KNOWLEDGE ORGANISER: KEY TOPIC 1, 'C1250-C1500: MEDICINE IN MEDIEVAL ENGLAND'**

1	Pre-Medieval medicine	Which theory is Hippocrates famous for creating?		The Theory of the Four Humours (liquids)	
2		What were the 'four humours'?		Blood, phlegm, black bile and yellow bile	
3		What did this theory claim caused illness?		If the humours were imbalanced	
4		Why was this theory revolutionary compared with all previous theories?		It claimed illness had natural causes	
5		Which Roman doctor adopted this theory, and came up with his own theory on how to treat these imbalances?		Galen	
6		What was Galen's theory for treating illnesses identified by the theory of the four humours called?		The Theory of Opposites	
7		What methods were used to treat people for imbalanced humours?		Purging and bleeding	
8		What did Galen create, on the human body, which was still being used during the Medieval period?		An anatomical drawing of the body	
9		Why did it contain so many mistakes (for example, the kidneys, jaw bone and liver)?		He dissected animals (pigs, dogs and apes)	
10		What event, taking places in 473 AD, meant that much of the knowledge gained by Romans & Greeks was lost?		The Fall of the Roman Empire	
11	Ideas about the cause of disease and illness	Which institution controlled the majority of medical thinking during the Medieval period?		The Church	
12		Other than the Theory of the Four Humours, what types of causes did medieval people believe caused illness?		Supernatural	
13		Which illness, in particular, was seen as a punishment from God?		Leprosy	
14		What had Galen written that meant that the Church wanted to maintain his work and resist change?		"The body is perfect...there must be a God"	
15		What method, when physicians did not conduct the dissection themselves, meant that Galen was not challenged?		Directed dissection	
16		What was the name given to the people who carried out small surgeries as well as giving haircuts?		Barber surgeons	
17		What was the name given to the belief that illness spread through corrupted or bad air?		Miasma	
18		Which invention helped to spread new medical beliefs, particularly during the Renaissance?		Gutenberg's Printing Press	
19		When was it invented?		1440	
20		Which 13 <sup>th</sup> century-military surgeon said that "Galen & Hippocrates were old dogs who needed replacing"?		Henri de Mondeville	
21	Approaches to treatment and prevention	What three ways did the Church suggest someone could undergo spiritual healing?		Prayer, paying for a mass and fasting	
22		It was believed that the king's touch had healing powers; how many people did Edward I aim to touch per year?		2,000	
23		What did physicians use to diagnose illness?		Astrology (star charts)	
24		What three ways could a barber surgeon let blood in order to balance out the humours?		Cutting a vein, leeches and cupping	
25		What was the name of the instructions provided by physicians informing people how to live a healthy life?		Regimen Sanitatis (healthy regime)	
26		What was set up in Oxford, Cambridge, Bologna, Montpellier, Paris & Padua that made medicine professional?		Universities	
27		What was the name given to those people who mixed herbal remedies from manual such as 'Materia Medica'?		Apothecaries	
28		What places, used to provide care for the sick, began to expand during the Medieval period?		Hospitals	
29		By 1500 how many were there?		1,100	
30		How many of these hospitals were owned and run by the Church?		30%	
31	Dealing with the Black Death	When did the Black Death reach England?		1348	
32		At its height, how many people were being buried in London each day?		200	
33		How many of the English population are said to have died from the Black Death?		1/3	
34		What symptoms did those infected display?		Coughing blood & black boils (buboes)	
35		What did the majority of medieval people believe had caused this plague?		God deserting them	
36		What unusual event, taking place in 1345, did some interpret as a forewarning of the terror ahead?		Mars, Jupiter & Saturn were misaligned	
37		Which potion did physicians often recommend to heal the sick?		Theriaca (a mixture of about 70 items)	
38		What was the name of the physician who kept the Pope alive by placing him next to a great fireplace?		Guy de Chauliac	
39		Which group of people whipped themselves through the streets of London to show God that they were sorry?		The Flagellants	
40		What law did the government bring in to prevent people spreading the plague by moving to new areas?		New people had to be isolated for 40 days	
400BC	Hippocrates publishes his Theory of 4 Humours	1180	Articella is used as the medical textbook	1349	King Edward III demands the streets be clean
180AD	Galen theorises the Theory of Opposites	1315	Mundinus' dissection; first since Herophilus	1349	The extremist Catholics, Flagellants, emerge
476	Roman Empire falls; The 'Dark Ages' begin	1340	Montpellier University runs annual dissection	1350	The Black Death begins to subside
900	The Islamic physician Rhazes challenges Galen	1347	The Black Death arrives in Europe (Italy)	1378	Great Schism; Catholic Church is damaged
1025	Avicenna publishes the Canon of Medicine	1348	The Black Death arrives in England	1440	Johannes Gutenberg invents Printing Press

**KNOWLEDGE ORGANISER: KEY TOPIC 2, 'C1500-C1700: THE MEDICAL RENAISSANCE IN ENGLAND'**

1	Ideas about the cause of disease and illness	By 1500, the Catholic Church was losing influence; what term describes a society which is not religious?	Secular		
2		Which medical professor believed that alchemy could cure illness, and rejected the Theory of Four Humours?	Paracelsus		
3		What did the English scientist Robert Hooke make developments in during the 1660s?	Microscopes		
4		Which Dutch scientist had developed Hooke's work further by 1683?	Antony van Leeuwenhoek		
5		What was the name of the medical textbook written by Thomas Sydenham published in 1676?	Observationes Medicae		
6		What did Sydenham's 'Medical Observations' encourage his students to do?	Observing patients and treating symptoms		
7		What foundations did Sydenham lay, that was a departure from Hippocrates and Galen?	Scientific approach to medicine		
8		What new school of thought emphasised discovery of truth & rejected the notion that God caused everything?	Humanism		
9		What association, founded in 1660 by Charles II, was set up to carry out experiments to understand science?	The Royal Society		
10		What was the motto of this association which summed up the move towards science and away from Galen?	Nullius in verba, Take nobody's word for it		
11	Approaches to treatment and prevention	Which theory stated that If you slept in the same room as an animal your illness could be transferred to them?	Transference		
12		What examples show how herbal remedies began to be picked based upon the colour of the illness?	Jaundice (saffron) & Smallpox (red wine)		
13		From where did ingredients such as ipecac (for dysentery) and sarsaparilla (Great Pox) come from?	The New World (1492 exploration begins)		
14		What was the name given to the work being committed to find chemical cures for illness, led by Paracelsus?	Iatrochemistry (medical chemistry)		
15		Within the 'Pharmacopoeia Londoinensis' (London Dispensatory) how many of the remedies were chemical?	122 out of 2,140 (1618)		
16		Which famous anatomist studied at Paris in 1533 and would go on to lecture at Padua University?	Andreas Vesalius		
17		What was the name of his most famous publication, published in 1543?	The Fabric of the Human Body (Fabrica)		
18		How many mistakes of Galen's, including the inaccuracy of the jaw bone, liver and kidneys, did Vesalius identify?	300		
19		Knowing that his work was going to be considered controversial, how did Vesalius attempt to gain acceptance?	He dedicated it to Emperor Charles V		
20		Following the dissolution of the monasteries (1536) many hospitals disappeared; which famous one survived?	St Bartholomew's Hospital		
21	William Harvey	Who was Harvey's teacher at Padua University who taught him to question Galen?	Andreas Vesalius		
22		What method of teaching did Vesalius use that allowed Harvey to see what happened with a dissected body?	Conducted instruction		
23		What did Harvey notice, which challenged Galen's theory, when he tried to pump liquids away from the heart?	It did not work (due to the valves)		
24		What relatively new invention began to make Harvey think that the heart might act as a pump?	Mechanical pumps on fire engines		
25		According to Harvey, how many litres of blood would the liver have to produce a day for a person to survive?	1,800		
26		Acknowledging that blood did not come from the liver, what did Harvey begin to suggest?	Heart is a pump; blood circulates the body		
27		Who did Harvey begin working for in 1618, as a royal doctor, to try and grow his reputation?	King James I		
28		What was the name of Harvey's seminal work published in 1628?	De Motu Cordis (Circulation of the Blood)		
29		When did Harvey publish his other work 'An anatomical account of the motion of the heart & blood in animals'?	1651		
30		Despite being accurate, it was initially deemed to have no practical use; when did universities begin using it?	1673		
31	Dealing with the Great Plague	When did the Great Plague hit London?	1665 (June-November)		
32		At its height, in September, how many deaths as a result of the plague were recorded in a single week?	7,000		
33		Drawing on similarities with the Black Death, what was unusual about October 1664 and November 12 <sup>th</sup> 1664?	Saturn/Jupiter & Mars/Saturn misaligned		
34		In contrast to the Black Death (God) what did most people believe was causing the spread of the plague?	Miasma		
35		Which village in Derbyshire was infected by the plague after fleas on cloth from London were shipped there?	Eyam		
36		Although 273 out of the 350 inhabitants of Eyam died, how do we know that methods of quarantining worked?	The plague did not spread outside Eyam		
37		What could people carry close to their nose (containing sweet smells) to prevent them breathing in the miasma?	A Pomander		
38		Which doctors would wear bird-shaped masks to avoid catching the plague from their patients?	Plague doctors		
39		How many cats and dogs were slaughtered to stop the Great Plague from spreading?	40,000 dogs and 200,000 cats		
40		What piece of advice, from doctors and the government, tells us that medicine was not yet scientific?	Prayer could prevent the Great Plague		
1526	Paracelsus theorises chemicals cause disease	1546	'Barts' Hospital refounded by Henry VIII	1665	Hooke develops a powerful microscope
1536	Dissolution of the Monasteries	1618	Harvey becomes a royal doctor	1665	First 'Philosophical Transactions' published
1543	Vesalius' publishes 'Fabric of the Human Body'	1628	Harvey proves that blood circulates body	1665	The Great Plague spreads through London
1545	Paré publishes 'Oeuvres' on curing wounds	1648	van Helmont suggests acid causes digestion	1676	Sydenham publishes 'Observationes Medicae'
1546	Fracastoro says diseases spread by seeds in air	1660	The Royal Society is founded	1683	Leeuwenhoek is first to observe bacteria

**KNOWLEDGE ORGANISER: KEY TOPIC 3, 'C1700-C1900: MEDICINE IN 18<sup>TH</sup>-AND 19<sup>TH</sup>-CENTURY BRITAIN'**

1	Ideas about the cause of disease and illness	Which movement in Europe during the 18 <sup>th</sup> century encouraged people to think for themselves?	The Enlightenment		
2		Which theory, developed in the 18 <sup>th</sup> century, stated that microbes were the product and not the cause of decay?	Spontaneous generation		
3		What new theory was published in 1861 which stated that bacteria did indeed cause decay?	Germ Theory		
4		The founder of this theory then linked this idea to why humans become ill in 1878; what was his name?	Louis Pasteur		
5		Which scientist began to identify different bacteria, many of which caused common illnesses?	Robert Koch		
6		Which bacteria did he discover in 1882?	Tuberculosis		
7		Which new developments did Koch create which made it easier for future scientists to study bacteria?	Agar jelly and staining bacteria with dyes		
8		Which physicist, in 1870, theorised that disease spread through dust particles?	John Tyndall		
9		Who, by 1884, was still rejecting Germ Theory of disease, and instead believed that disease was in the soil?	The British Government		
10		Which well-respected doctor died in 1915 still promoting the theory of spontaneous generation?	Dr Henry Bastien		
11	Approaches to treatment (part 1)	Which figure would go on to pioneer professionalism in nursing?	Florence Nightingale		
12		In which war, beginning in 1854, did she make her name?	The Crimean War		
13		The mortality rates at her hospital in Scutari dropped from 40% to what following her interventions?	2%		
14		What did Nightingale establish at St Thomas' Hospital in London in 1860?	Nightingale School for Nurses		
15		Which three barriers to complex surgery still existed by the mid-1800s?	Pain, infection and blood loss		
16		Which surgeon was the first to use anaesthetics on a patient (using ether to amputate a leg in 1846)?	Robert Liston		
17		Which more effective anaesthetic did James Simpson discover a year later?	Chloroform		
18		The use of anaesthetics initially led to more deaths from surgery; what was this period called?	The Black Period, 1846-70		
19		Which antiseptic did Joseph Lister develop in 1865 (and published two years later) after reading Germ Theory?	Carbolic Acid		
20		What term means that bacteria are prevented from getting into a wound rather than being killed off afterwards?	Aseptic surgery		
21	Approaches to prevention (part 2)	Which disease was so rife in Britain that there were 11 epidemics during the 18 <sup>th</sup> century?	Smallpox		
22		What method, in which you would infect yourself with that same disease, was used to prevent it later on?	Inoculation		
23		In the worst year for deaths, how many people died in London of smallpox in 1796?	3,548		
24		Which General Practitioner pioneered a new method, which would become the way smallpox was prevented?	Edward Jenner		
25		By injecting someone with a similar but less deadly disease (in this case, cowpox) what did he pioneer?	Vaccinations ('vacca' is Latin for 'cow')		
26		When did the government announce that smallpox vaccinations were compulsory?	1872		
27		Using Jenner's work on smallpox, which vaccine did Pasteur create that led to the production of many more?	Chicken cholera		
28		Whose 'Report on the Sanitary Conditions of the Labouring Classes' led to the first Public Health Act, 1848?	Edwin Chadwick (1842)		
29		What did the second Public Health Act, 1875, propose?	Clean water, dispose of sewage & parks		
30		What was the major difference between the first Public Health Act and the second?	The second was compulsory		
31	Fighting cholera in London, 1854	When did cholera first arrive in Britain?	1831		
32		Between arriving in London in February 1832 and the end of the year, how many people died of cholera?	5,275		
33		During the worst year of the epidemic, 1848-49, how many people died of cholera in England and Wales?	53,293		
34		Which surgeon - who would go on to make an impact on cholera - was first to give chloroform to Queen Victoria?	John Snow		
35		Which outbreak first prompted Snow to become involved with seeking an answer to preventing cholera?	1854 (Soho, London)		
36		How many people had died of cholera within a ten day period just 200 metres from a pump on Broad Street?	500		
37		How did Snow illustrate this (a pioneering method showing the concentration of disease)?	A dot distribution map		
38		What did Snow do to prove that the water from the pump was spreading the cholera?	Removed the pump handle		
39		Which event, caused by a dry, hot summer and the Thames' low levels, prompted the government into action?	The Great Stink (1858)		
40		As a result, a new sewer system was completed in 1875 by which engineer?	Joseph Bazalgette		
1795	Davy uses 'laughing gas' to numb pain	1847	Simpson discovers chloroform	1864	Pasteur's Germ Theory of Disease
1796	Jenner's Smallpox vaccination	1847	Semmelweis introduces hand-washing	1867	Lister publishes a paper on Carbolic Acid
1840	Inoculation becomes illegal in Britain	1848	First Public Health Act	1872	Smallpox vaccination becomes compulsory
1842	Clarke uses ether to remove a tooth	1854	Snow links cholera to water	1875	Second Public Health Act
1842	Chadwick writes his report	1860	Nightingale's School of Nursing established	1882	Koch discovers the tuberculosis bacteria

**KNOWLEDGE ORGANISER: KEY TOPIC 4, 'C1900-PRESENT: MEDICINE IN MODERN BRITAIN'**

1	Ideas about the cause of disease and illness	What is the name of the procedure in which flesh is examined to diagnose illness?	Biopsy		
2		Which principle, developed by Mendel, stated that genes come in pairs and are inherited from parents?	Fundamental laws of inheritance		
3		Which English doctor theorised in 1902 that hereditary diseases are caused by missing information in the body?	Archibald Garrod		
4		In which year did the scientists Beadle and Tatum prove Garrod's theory?	1941		
5		What did Rosalind Franklin and Maurice Wilkins manage to create images of in 1951?	DNA (deoxyribonucleic acid)		
6		Which two scientists published a paper in 1953 on the double helix structure of DNA?	Crick and Watson		
7		Which project did James Watson launch in 1990 (and ended in 2000) which mapped the human genome?	The Human Genome Project		
8		What did the physicist Ernst Ruska and electrical engineer Max Knoll develop in 1931?	The electron microscope		
9		An optical microscope can magnify a sample up to 2,000 times; what can an electron microscope achieve?	10,000,000 times magnification		
10		Which three types of scanners were developed during the 1900s?	Ultrasound (1940s-), MRI & CT (1970s-)		
11	Approaches to treatment and prevention	What does the body produce to fight diseases?	Antibodies		
12		Which scientist had tested over 600 arsenic compounds in order to find a cure for the disease syphilis?	Ehrlich		
13		After retesting the 606 <sup>th</sup> compound in 1909, what did Hata create (it was referred to as the first 'magic bullet')?	Salvarsan 606		
14		What was the second magic bullet, developed by Domagk in 1932, aim to cure?	Blood poisoning		
15		Following Prontosil, what did the death rate of puerperal fever drop to?	4.7 % (from 20%)		
16		What did the Minister for Health, Nye Bevan, establish in 1948, following a report by William Beveridge in 1944?	The National Health Service (NHS)		
17		When was the first heart transplant performed?	1967 (Barnard)		
18		In 1900, 25% of deaths were caused by infectious disease; what had this figure fallen to by 1990?	1%		
19		What vaccination did the government introduce in 1942?	Diphtheria		
20		How did the government aim to improve peoples' health by improving air quality following the smog of 1952?	Clean Air Acts (1956 & 1986)		
21	Fleming, Florey and Chain's development of penicillin	Who discovered penicillin by chance?	Alexander Fleming		
22		When did he write his report on it?	1929		
23		Why is this sometimes referred to as the first 'true antibiotic' (unlike Salvarsan 606)?	It was made from micro-organisms		
24		Which scientists restarted Fleming's research in 1939?	Florey & Chain		
25		Having successfully treated mice in 1940, when did they successfully treat humans?	1941		
26		When did mass-production of penicillin begin?	1942		
27		Who provided the majority of the funding?	The American Government		
28		What prompted the American Government to grant Florey & Chain money towards mass-production?	Pearl Harbour (World War II)		
29		By which time was there enough penicillin to treat all the Allied casualties?	D-Day (June 1944)		
30		Which chemist created a chemical copy of penicillin so that it could be changed to target different diseases?	John Sheehan		
31	The fight against lung cancer in the 21st century	In the 19 <sup>th</sup> century, only 1% of all cancers were caused by lung tumours; what was it by 1927?	14%		
32		The number of deaths among men peaked in 1973; how many died that year?	26,000		
33		The idea of tailoring treatments to a person's DNA is called what?	Pharmacogenomics		
34		By 1985, how much did smoking-related deaths cost the NHS?	£165 million per year		
35		How much did the government, however, earn from the tobacco tax?	£4 billion		
36		What two methods can the government employ in order to reduce the number of people who smoke?	Changing (force) & influencing behaviours		
37		When did the government first ban tobacco advertising on the television?	1965		
38		In what year did the government ban smoking in the workplace and raise the legal age for buying tobacco to 18?	2007		
39		In what way was the government's 2007 ban similar to their response in 1875 to John Snow's Theory?	It forced cities to be cleaner for health		
40		How else has the government's reaction to combat lung cancer been similar to how they responded to cholera?	Only reacted when death toll is too high		
1902	Garrod's Theory on hereditary illnesses	1928	Fleming identifies penicillin	1948	Establishment of the National Health Service
1907	Ehrlich tests arsenic compounds	1929	Fleming publishes his findings	1953	Crick & Watson's Theory on DNA
1909	Hata retests the 606 <sup>th</sup> compound; finds the cure	1932	Domagk's Prontosil used for blood poisoning	1957	A chemical copy of penicillin is created
1911	The National Insurance Act	1941	Garrod's Theory is proven by Beadle & Tatum	1984	Last recorded case of polio in the UK
1919	The Ministry of Health is established	1942	Mass-production of penicillin begins	1990	Human Genome Project



**KNOWLEDGE ORGANISER: 'THE BRITISH SECTOR OF THE WESTERN FRONT, 1914-18: INJURIES, TREATMENTS & THE TRENCHES'**

By the late 1890s, what had Lister laid the foundations for?	Aseptic surgery			
How did Neuber and von Bergmann help to develop aseptic surgery?	Sterilising the air (through heating)			
What was worn by doctors to decrease the chance of infection?	Rubber Gloves			
What did the German physicist, Roentgen, develop in 1895?	The X-ray			
Who was the first doctor to make a diagnosis using x-ray?	Dr John Hall-Edwards			
Who experimented with blood transfusions 100 years before the start of the First World War?	James Blundell			
What did Landsteiner discover in 1901?	Blood groups (A,B & O)			
Which blood group proved to be a 'universal blood group'?	O			
How many members of the British Expeditionary Force were sent to stop the Germans in Belgium & France?	70,000			
How many German soldiers were they met by?	160,000			
What was the area, which ran from the English Channel to Switzerland & on which trenches were dug, called?	The Western Front			
What is the area that extends into enemy territory, so that it is surrounded on three sides, called?	A salient			
How many casualties did the British suffer at the Battle of the Somme?	400,000			
What was used to transport casualties at the start of the war?	Horse-drawn ambulances			
What had been paid for by donations, following an appeal from 'The Times' newspaper, by October 1914?	Motor ambulances			
Who was responsible for the medical care in the army?	The Royal Army Medical Corps (RAMC)			
What percent of injuries sustained in the war were the results of shrapnel?	58%			
What was the painful swelling in feet, caused by standing in cold mud, called?	Trench Foot			
What illness led to flu-like symptoms?	Trench Fever			
How many troops experienced shellshock (nightmares, loss of speech and shaking)?	80,000			
How many rounds per minute could a machine gun fire?	450			
What was the name of the helmet that reduced fatal head wounds by 80%?	The Brodie Helmet			
What types of chemical weapon were used in the First World War?	Chlorine; Phosgene and Mustard gas			
How many British soldiers died from gas attacks?	6,000			
The number of medical officers increased from 3,168 in 1914 to what number in 1918?	13,063			
The procedure by which casualties were transported from the frontline to a safe area was known as what?	The Chain of Evacuation			
Following the first 2 stages (of 4), from Regimental Aid Posts to Dressing Stations, where did the injured go?	Casualty Clearing Station; Base Hospital			
At the CCS, what system was used to divide the patients into 3 separate groups depending on severity?	The triage			
How many casualties did the 379 doctors and the 502 nurses at the CCS treat?	200,000			
What percent of men admitted to the CCS died?	3.7			
What was the first women's voluntary organisation to send women to the Western Front called?	The First Aid Nursing Yeomanry (FANY)			
What was the name given to a wound bad enough to be sent home but that would not cause permanent damage?	A 'Blighty' wound			
By 1918, how many men had had limbs amputated?	240,000			
What was the name of the method which, developed in 1917, used sterilised salt solution to treat gas gangrene?	The Carrel-Dakin method			
In 1915, what was the survival rate if a soldier was shot in the leg?	20%			
Following the use of the Thomas Splint (developed in 1915), what did this figure go up to?	82%			
Who was responsible for equipping the French sector of the Western Front with 20 mobile x-rays?	Marie Curie			
Which British doctor designed a portable blood transfusion kit that could be used on the front line?	Geoffrey Keynes			
What did Harvey Cushing develop new techniques in?	Brain surgery			
The usual rate of survival from an operation was 50%; on the 45 patients Cushing worked on, what was the rate?	71%			
X-ray is developed by Roentgen	1915	The Germans use chlorine for the first time	1916	(July) The Battle of the Somme