



Knowledge Revision Guide
GCSE History - Medicine
in Britain, c.1250 - present



Medicine - Overview of Time Periods (1)

Time period	Ideas about causes of disease	Ideas about treatment of disease	Ideas about prevention of disease
The Medieval period (1250-1500)	The Four Humours God Miasma Astrology	Bleeding and purging Praying and flagellation Herbal Remedies Spells and charms	Bleeding and purging Praying and flagellation Herbal Remedies Spells and charms
The Renaissance period (1500-1700)	The Four Humours God Miasma Astrology	Bleeding and purging Quacks (salesman - fake cures) Herbal Remedies Praying	Bleeding (bloodletting) Praying Herbal Remedies Quarantine
The 18th and 19th centuries (1700-1900)	Miasma Spontaneous Generation Germ Theory (1861)	Anaesthetics (pain relief) Antiseptics (prevention used during treatment) Cure-alls (patent cures) Hospitals	Vaccination Chadwick Report Public Health Act
Modern medicine (1900 - present)	Germs Discovery of DNA Lifestyle Choices	Magic Bullet Penicillin NHS Technology - e.g. X-ray, plastic surgery, MRI scan.	Vaccination Liberal Reforms NHS Lifestyle Campaigns

Medicine - Overview of Time Periods (2)

Time period	Who cared for/treated the ill	Key Individuals
The Medieval period (1250-1500)	Physicians Wise men/women Apothecaries Barber surgeons Women Monks and nuns (hospitals)	NO NEW Hippocrates & Galen (Four Humours)
The Renaissance period (1500-1700)	Physicians Wise men/women Apothecaries Barber surgeons Women NO hospitals Quacks (sold fake cures)	Vesalius (dissection and anatomy) Harvey (circulation) Sydenham (observation and diagnosis)
The 18th and 19th centuries (1700-1900)	Physicians (doctors) Apothecaries Barber surgeons (18 th century) Surgeons (19 th century) Women (wives and mothers) Hospitals (had been closed down during the Reformation)	Jenner (vaccination) Nightingale (cleaned hospitals and trained nurses) Simpson (anaesthetics) Lister (antiseptics) Pasteur (Germ Theory) Koch (Developed Germ Theory and vaccination) Snow (cholera)
Modern medicine (1900 - present)	Women (before NHS) Pharmacies NHS (after 1948)	Ehrlich (Magic Bullet) Fleming (discovered penicillin) Florey and Chain (developed penicillin as treatment) Franklin, Crick and Watson (discovered DNA)

Medicine - Case Studies

Medieval Medicine

The Black Death (1348)

Renaissance Medicine

The Great Plague (1665)

Key Individual: William Harvey (circulation)

18th and 19th Centuries

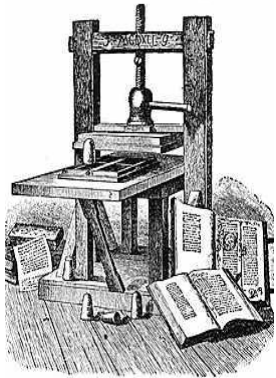
John Snow (Cholera in 1854)

Key Individual: Jenner (vaccination)

Modern Medicine

Lung Cancer

Key Individual: Fleming, Florey and Chain (penicillin)



COMMUNICATION



**SCIENCE &
TECHNOLOGY**



**INSTITUTIONS
(GOVERNMENT
AND CHURCH)**

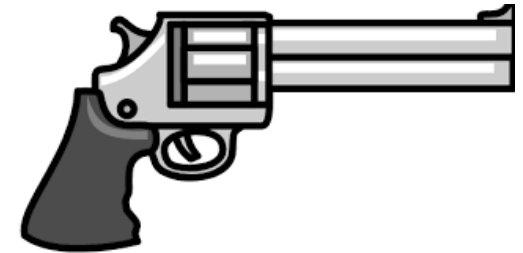
**FACTORS THAT CAN
HELP OR HINDER
PROGRESS IN EACH
TIME PERIOD**



INDIVIDUALS



**ATTITUDES/ BELIEFS
IN SOCIETY**



WAR



Medieval Medicine

c. 1250 - 1500



Medieval Medicine Revision

Key facts about the time period

- The Medieval period lasted from c.1250 - 1500
- The Church was extremely powerful and supported Galen's ideas
- The Church controlled education, including the training of physicians
- Because of this, people weren't allowed to challenge Galen's ideas
- This meant that there was no progress in medicine
- Also, there were no new individuals who were important
- The Black Death killed over 1/3 of the population in the 1348-1351.

Medieval Medicine Revision

Ideas about causes of disease	Ideas about treatment of disease	Ideas about prevention of disease	Who cared for/treated the ill
<p>The Four Humours (blood, phlegm, black bile yellow bile) - idea created in the Ancient period by <u>Hippocrates</u>, then <u>Galen</u> developed the "Theory of Opposites" as a treatment</p> <p>Miasma (bad air/bad smells)</p> <p>Astrology (the movement of the planets and stars)</p> <p>Punishment from God (for sins)</p>	<p>Bleeding (bloodletting) and purging (making yourself sick) - based on <u>Galen's</u> "Theory of Opposites".</p> <p>Herbal Remedies (from an apothecary)</p> <p>Spells and charms (from wise women/wise men)</p> <p>Praying (so God would forgive your sins and take your illness away)</p> <p>Flagellation (whipping yourself so God would take pity on you)</p>	<p>Bleeding and purging (to stop the imbalance of humours; bleeding could be done at a <u>barber surgeon's</u>)</p> <p>Eating a balanced diet (to keep the humours balanced)</p> <p>Herbal Remedies (e.g. sweet smelling posies to prevent miasma)</p> <p>Spells and charms (e.g. amulet necklace with a spell on it)</p> <p>Praying (to prevent God from punishing you)</p> <p>Flagellation (to prevent God from punishing you)</p>	<p>Physicians (doctors trained at a university)</p> <p>Wise men/women (like witches)</p> <p>Apothecaries (places that sold herbal remedies)</p> <p>Barber surgeons (cut hair and also performed surgeries such as amputation - learnt by watching others as apprentices)</p> <p>Women (mothers and wives)</p> <p>Monks and nuns (hospitals inside monasteries - didn't cure, just cared for people)</p>

Medieval Medicine: Individuals

REMEMBER: There were no new individuals during the Medieval period. Hippocrates and Galen lived in the Ancient time period.

Hippocrates	<ul style="list-style-type: none">• Lived in Ancient Greece• Theory of the Four Humours - said the body made up of Four humours and they needed to be in balance or you would get ill.• The Four Humours: blood, phlegm, black bile and yellow bile• He said diet and rest was important in looking after yourself.• Called the Father of Medicine	<ul style="list-style-type: none">• Hippocrates and Galen wrote down their beliefs and these were supported by the Catholic Church for hundred of years during the Medieval period.• Many of ideas were taught for centuries, into Medieval and Renaissance. Their ideas were respected, even though theories were incorrect!
Galen	<ul style="list-style-type: none">• Developed the Theory of the Four Humours by creating the Theory of Opposites• This meant you would cure an imbalanced humour with the opposite.• E.g. If you had too much blood which was hot and wet, you'd need something cold and dry.	<ul style="list-style-type: none">• Ideas continue to be used today - e.g. Hippocratic Oath. Hippocrates and Galen said doctors should observe their patients

Case Study - Medieval Medicine: The Black Death (1348-51)

Key facts/symptoms

Hit whole of Europe & Asia 1330s-50s.- in GB 1348 - one third of population died - no one knew cause was fleas - 2 types - bubonic (black buboes -lumps) and pneumonic (coughing up blood)

Beliefs about causes

GOD sending punishment for sin PLANETS aligned badly (maybe by God)

JEWS - poisoning wells (anti Semitism)

MIASMA -possibly sent by God

Prevention - how they tried to avoid catching it

RELIGIOUS: pray/fast/confess to show sorrow for sinning -flagellants whipped themselves

NATURAL: escape/run away/ don't visit the sick / board up houses leaving infected people to die

MIASMA: carry posy of flowers/herbs / don't bathe as it opens up pores to the bad air

Attempted treatments

RELIGIOUS: pray/confess sins

NATURAL: - bleeding & purging - but didn't work so stopped: herbal remedies; quack remedies; animal remedies e.g. putting a shaved chicken's bottom on the buboes.



Renaissance Medicine c.1500 - 1700



Renaissance Medicine Revision

Key facts about the time period

- The Renaissance period lasted from c.1500 -c.1700
- Renaissance means "re-birth", so it refers to the rebirth of classical ideas and art
- Two consequences of the Renaissance was the creation of the printing press to spread new ideas and scientific learning.
- This helped to spread new ideas, such as those of Vesalius and Harvey
- New ideas were able to emerge because the Church no longer controlled education after the Reformation (when Henry VIII broke away from the Catholic Church)
- Despite the new ideas, few people accepted them, so there was little progress in medicine.
- However, the fact that new ideas could now emerge laid the foundation for progress after the Renaissance

Renaissance Medicine Revision

Ideas about causes of disease	Ideas about treatment of disease	Ideas about prevention of disease	Who cared for/treated the ill
<p>The Four Humours (blood, phlegm, black bile yellow bile) - idea created in the Ancient period by <u>Hippocrates</u>, then <u>Galen</u> developed the "Theory of Opposites" as a treatment. <u>Vesalius</u> and <u>Harvey</u> proved Galen wrong, so the Four Humours wasn't accepted by physicians by 1700.</p> <p>Miasma (bad air/bad smells)</p> <p>Astrology (the movement of the planets and stars)</p> <p>Punishment from God (for sins)</p>	<p>Bleeding (bloodletting) and purging (making yourself sick) - based on <u>Galen's</u> "Theory of Opposites" - <u>Sydenham</u> criticised this but had little impact</p> <p>Herbal Remedies (from an apothecary)</p> <p>Spells and charms (from wise women/wise men)</p> <p>Praying (so God would forgive your sins and take your illness away)</p> <p><u>NO FLAGELLATION</u></p> <p>Quack cures (fake cures sold by salesman called Quacks. Popular during the Great Plague - don't confuse with plague doctors)</p>	<p>Bleeding and purging (to stop the imbalance of humours; bleeding could be done at a <u>barber surgeon's</u>)</p> <p>Eating a balanced diet (to keep the humours balanced)</p> <p>Herbal Remedies (e.g. sweet smelling posies to prevent miasma)</p> <p>Spells and charms (e.g. amulet necklace with a spell on it)</p> <p>Praying (to prevent God from punishing you)</p> <p><u>NO FLAGELLATION</u></p> <p>Quarantine (used during the Great Plague)</p>	<p>Physicians (doctors trained at a university)</p> <p>Wise men/women (like witches)</p> <p>Apothecaries (places that sold herbal remedies)</p> <p>Barber surgeons (cut hair and also performed surgeries such as amputation - learnt by watching others as apprentices)</p> <p>Women (mothers and wives)</p> <p>Quacks (salesman who sold fake cures)</p> <p><u>NO HOSPITALS</u> - monasteries were closed during the Reformation</p>

Renaissance Medicine: Individuals

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Andreas Vesalius</p>	<ul style="list-style-type: none"> • A Professor of Surgery who carried out dissection • He published a book in 1543 called the Fabric of the Human Body which was the first highly illustrated book of human anatomy. • It showed the body in far much detail and accuracy than before. • He proved Galen wrong by discovering the human jaw is 1 bone, not 2, and that blood doesn't flow through the septum in the heart. 	<ul style="list-style-type: none"> • Vesalius was important because he discovered what the human body looked like using dissection. • Also, he was the first person to challenge Galen's ideas about anatomy • This led to other people challenging Galen's ideas, causing eventual progress (long-term)
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">William Harvey</p>	<ul style="list-style-type: none"> • English royal physician who carried out public dissections and recorded symptoms of those who were sick, rather than using books • Used Vesalius' ideas and human dissection to prove Galen wrong about blood circulation through arteries & veins. • He said the heart worked like a pump (book published in 1628). 	<ul style="list-style-type: none"> • He discovered the circulation of blood • This was a key breakthrough in the understanding of anatomy • His and Vesalius's discoveries made blood transfusions possible in the future.
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Thomas Sydenham</p>	<ul style="list-style-type: none"> • English Doctor called the "English Hippocrates" • Published <i>Observationes Medicae</i> in 1676 which: • Challenged four humours & that God caused disease - said they were incorrect and weakened patients • Said that a patient should rest • Promoted direct observation of patients symptoms 	<ul style="list-style-type: none"> • This was important because he was the first person to challenge Galen's Theory of Opposites. • Even though he didn't know the real cause of illness, he was still important because it was a basis that led to future developments/discoveries.

Case Study - Renaissance: The Great Plague (1665-66)

Key facts/symptoms

Same as Black Death - different name - thousands died - no one knew cause was fleas - 2 types - bubonic (black buboes - lumps) and pneumonic (coughing up blood)

Beliefs about causes

GOD sending punishment for sin still PLANETS aligned badly (maybe by God)

MIASMA - possibly sent by God

Prevention - how they tried to avoid catching it

RELIGIOUS: pray/fast/confess to show sorrow for sinning - NO FLAGELLANTS THIS TIME

NATURAL: escape/ board up houses/ clean up streets/ Eyam quarantined selves

QUARANTINE invented - used by authorities (e.g. Mayor of London imposed it)

MIASMA: carry posy of flowers/herbs

Attempted treatments

RELIGIOUS: pray

NATURAL: - bleeding & purging - but didn't work so stopped: herbal remedies; quack remedies (fake cures), animal remedies e.g. putting a shaved pigeon's bottom on the buboes.

DIFFERENT FROM BLACK DEATH

No Flagellants; fewer deaths as more population immune; mainly in London (around $\frac{1}{4}$ of London's population) and cities whereas Black Death was whole country.

Case Study - Renaissance: Key Individual - William Harvey

1. BEFORE HARVEY

- *GALEN's* ideas: New blood is constantly manufactured in the liver to replace blood burnt up in the body just like wood is burnt by a fire. Blood is passed from one side of the heart to the other through invisible holes in the septum (*VESALIUS* had discovered that there were no holes in the septum - but not how blood circulated).

2. HARVEY'S DISCOVERY

- *WILLIAM HARVEY* = English physician and member of the *ROYAL SOCIETY*.
- *SCIENCE* - Through dissecting human bodies and careful observation, discovered that the *HEART* works like a *PUMP*, pumping blood around the body
- He famously proved that arteries and veins were linked together into one system. Harvey's theory was that blood must pass from arteries to veins through tiny passages (today they are called capillaries) - couldn't prove this
- *TECHNOLOGY* - After Harvey's death, Microscope helped *Malpighi* (17th c.) to prove Harvey's theory by identifying capillaries.
- *TECHNOLOGY* - Harvey was influenced by new inventions that had appeared during the Renaissance. Fire engines now used mechanical pumps to provide water to put out fires - perhaps the human body worked in the same way.

3. CHANGES/ IMPACT/ IMPORTANCE OF HARVEY

- Challenged the ideas of *Galen*.
- Emphasised the importance of dissecting humans.
- Proved that the heart worked like a pump, pumping blood around the body.
- *SHORT TERM* - The most immediate impact that Harvey's theory had was to encourage other scientists to experiment on actual bodies.
- *LONG TERM* - Made blood transfusions possible in the future

4. CONTINUITY/LIMITATIONS OF HARVEY

- Understanding the circulation of the blood had little practical use in medical treatment. This meant that the impact of Harvey's discoveries on treatment in the 17th century was quite limited.
- He may have paved the way for a modern understanding of anatomy, but a lot of doctors at the time ignored him and some criticised him. To many, it had no practical application.
- English medical textbooks continued to give *Galen's* account until 1651 and Harvey's ideas only began to appear in universities from 1673.



**18th and 19th
Century Medicine
1700 - 1900**



18th and 19th Century Medicine Revision

Key facts about the time period

- Refers to the period 1750 - 1900
- The Industrial Revolution (from 1750s) caused rapid and significant change in medicine and health
- This is because it created poor living conditions
- In the 1800s, conditions in towns and cities were poor due to back-to-back houses, overcrowding, shared outside toilets, waste in the streets and contaminated water
- Throughout most of the 19th century, the government had a "laissez-faire attitude" (didn't improve people's lives)
- Because of the Great Stink (1858) and the working class being given the vote (1867), the government introduced the 1875 public health act, making it compulsory for local councils to improve sewers and provide fresh water.

18th and 19th Century Medicine Revision

Ideas about causes of disease	Ideas about treatment of disease	Ideas about prevention of disease	Who cared for/treated the ill
<p>Miasma - bad air/smells - began to die out in 19th c.</p> <p>Spontaneous Generation - disease causes microbes - backwards Germ Theory)</p> <p>Dirty water - <u>John Snow</u> and cholera (1854)</p> <p>Germ Theory - <u>Pasteur</u> discovered that germs/ microbes cause disease (1860s); <u>Koch</u> discovered that specific germs cause specific diseases (1875)</p>	<p>Hospitals - 18th c. -voluntary hospitals set up; however, unclean and nurses untrained and often drunk</p> <p>Hospitals - 19th c. specialist hospitals set up; <u>Nightingale</u> led to clean hospitals, training nurses: care really improved</p> <p>Anaesthetics - 19th c. Ether used but highly flammable; <u>Simpson</u> used chloroform (1847); <u>Snow</u> made an inhaler (1850s) to make it safe (used by Queen Victoria). However, led to "Black Period" (high death rate due to no antiseptics).</p> <p>Patent Medicine (cure-alls) - 19th c. - sold in pharmacies and often contained dangerous/addictive substances (e.g. opium)</p>	<p>Innoculation - 18th c. - <u>Lady Mary Wortley</u> - dangerous because it gave a mild form of the disease.</p> <p>Vaccination - 19th c. - <u>Jenner</u> (1798) - safer because it's either a very weakened form/dead pathogen.</p> <p>Chadwick Report - 19th c. (1842) - said that there was an urgent need to improve Public Health. Initially ignored but led to 1848 Public Health Act.</p> <p>Public Health Acts - 19th c. First PH Act (1848) <u>not</u> compulsory. Second PH Act (1875) <u>compulsory</u> to provide clean water and sewage systems.</p> <p>Antiseptics - (used in treatment but it is a prevention method) 19th c. - <u>Lister</u> read Germ Theory; experimented with Carbolic Acid on wound and surgeons hands; prevented infection. Led to aseptic surgery: everything sterilised.</p>	<p>Physicians (doctors)</p> <p>Apothecaries (18th century)</p> <p>Pharmacies (19th c. patent cures)</p> <p>Barber surgeons (18th century)</p> <p>Surgeons (19th century - began to be professionally trained)</p> <p>Women (wives and mothers)</p> <p>Hospitals (had been closed down during the Reformation in the Renaissance)</p>

18th and 19th Century Medicine: Individuals (1)

	What they did	Why they were significant
Edward Jenner	<ul style="list-style-type: none"> In 1798, Jenner proved that vaccination prevented people catching smallpox, one of the great killer diseases. He did this by observing and experimenting: he noticed that a milkmaid who'd caught cowpox didn't catch smallpox, so he gave cowpox to boy. The boy didn't catch smallpox. 	<p>Major breakthrough in thinking and first vaccinations, which eventually led to government vaccinations. His work inspired Pasteur and Koch to create more</p> <p>However, he didn't understand how it worked or bacteria, so could not make more. People did not believe vaccinations worked and it was slow to become used.</p>
Louis Pasteur	<ul style="list-style-type: none"> French doctor who published the <i>Germ Theory</i> in 1861 This proved spontaneous generation wrong and that microbes in air cause decay and possibly disease. Huge medical breakthrough Showed that bacteria could be killed by heat (pasteurisation) 	<p>Short term - many doctors refused to believe the theory and continued to believe spontaneous generation & miasma</p> <p>Long Term - a hugely significant discovery, laying the basis for what we know today about germs</p>
Robert Koch	<ul style="list-style-type: none"> German doctor who continued the work of Pasteur and <i>Germ Theory</i>, proving it was right. Managed to prove specific bacteria caused specific diseases, for example Anthrax in 1876 and TB, 1882. Found a technique to dye specific bacteria to help identify them (agar gel). Also had a rivalry with Pasteur to develop vaccines for specific diseases. 	<p>Major breakthrough as it led to the acceptance of <i>Germ Theory</i>.</p> <p>What did it lead to?</p> <ul style="list-style-type: none"> Vaccines created for different diseases Helped John Snow's theory to be accepted. Helped Lister's theory to be accepted

18th and 19th Century Medicine: Individuals (2)

	What they did	Why they were significant
Florence Nightingale	<ul style="list-style-type: none"> Trained as nurse, led nurse team in Crimean war and was appalled by poor hygiene in hospitals. Encouraged hygiene, supplies and clean air within hospitals and training for nurses. Wrote books (Notes on nursing 1863) & opened Royal College of Nursing to train nurses/midwives. 	<p>Nightingales changes improved hospitals as they became much cleaner, leading to the death rate from infections decreasing significantly (e.g. in Crimea from 40% to 2%)</p> <p>Medical knowledge/training improved as nurses were now professionally trained.</p>
James Simpson	<ul style="list-style-type: none"> Wanted to find a safe anaesthetic (not ether) for women in childbirth. He tested on himself and in 1847 created chloroform Easy to use, worked quickly, but had risks, as giving too much to a patient could kill them . John Snow made chloroform safe by creating an inhaler in 	<p>Short term: allowed surgery to be more complex, such as first heart surgery in 1896 and solved problems of pain in surgery.</p> <p><u>However</u> - led to the "black period" in surgery, when the death rate increased significantly because deeper surgeries were happening and antiseptics had not been discovered yet.</p> <p>Long Term; led to development of better anaesthetics</p>
Joseph Lister	<ul style="list-style-type: none"> After reading Pasteur's Germ Theory , he experimented with carbolic acid This was the first antiseptic This greatly reduced the chances of patients dying from infection 	<p>Little short term impact, idea slow to be used, mistrusted by doctors and damaged doctors hands</p> <p>Long term, since Germ Theory was accepted antiseptics has been used in all surgery since. Led to aseptic surgery which we have today: clean hospitals and operating theatres with sterilised equipment and clothing.</p>

18th and 19th Century Medicine: Individuals (3)

	What they did	Why they were significant
Edwin Chadwick	<ul style="list-style-type: none"> • Was asked by the government to report into the health of the people (public health) • 1842 - published his report: <i>Report on the Sanitary Conditions of the Labouring Poor</i>. • This told the government that urgent action needed to be taken to improve the health of the poor • Believed miasma was cause of illness, caused by filth, and that sewers, drains and clean water supplies were needed. 	<ul style="list-style-type: none"> • Start of the government beginning to think about public health (even though little action taken) • Led to the First Public Health Act (1848) - however, it was not compulsory, so many ignored it
John Snow	<ul style="list-style-type: none"> • In 1854, cholera killed over 500 people around Broad Street in London. • Snow mapped out the deaths, showing that the disease was caused by contaminated water, not miasma. • However, many scientists continued to believe in the miasma theory because Germ Theory hadn't been discovered. 	<p>Long Term: Big impact - Snow's theory and the Germ Theory eventually encouraged the government to improve public health, they passed the Public Health Act in 1875 which made towns provide clean water, sewers and health housing for people.</p> <p>Short Term: as usual the ideas were slow to believed at first because of attitudes and the lack of proof (Germ Theory)</p>

Case Study - 18th and 19th Century: Key Individual - Edward Jenner

1. Before Jenner - DISEASE in the C18th

- MANY DREADFUL DISEASES. Plague was dying out, but SMALLPOX and typhus and even measles, mumps and whooping cough killed hundreds of thousands.
- 1730s- LADY MARY WORTLEY MONTAGUE popularised INOCULATION as a way to prevent smallpox. INOCULATORS took TINY BIT OF PUS from smallpox blister & rubbed it into a cut on a healthy person. BUT VERY DANGEROUS: could get large strong dose & get full smallpox and die! Also VERY EXPENSIVE - ONLY FOR RICH.

2. The work of EDWARD JENNER 1780S-1810S

- Gloucestershire doctor. Noticed DAIRY MAIDS who got COWPOX never got smallpox.
- 1796 experiment: Jenner gave James Phipps cowpox, then smallpox. Phipps did not develop smallpox.
- 1798 Jenner WROTE UP THE EXPERIMENT & called it VACCINATION

3. REASONS FOR OPPOSITION TO VACCINATION

- SCIENCE - Jenner could not explain how or why it worked - it just did. THE ROYAL SOCIETY REFUSED to support/publish Jenner's work because of this.
- ATTITUDES - idea of putting animal disease into humans seemed odd/ unnatural
- RELIGION - some clergymen said it went against God's will
- INDIVIDUALS - Inoculators made lots of money - Jenner's vaccinations could destroy their market!

4. REASONS FOR SUPPORT/SPREAD OF VACCINATION

- THE BRITISH GOVERNMENT: In 1810s the government gave Jenner £10,000. In 1852 it made VACCINATION COMPULSORY. 1872 ENFORCED compulsory vaccination.
- WAR - 1790-1815 GB at war with Napoleonic France: GB gov. more open to paying for something to keep sailors & soldiers healthy.

5. CHANGES/ IMPACT/ IMPORTANCE OF JENNER

- CHANGE 1: SHORT TERM IMPACT: Saved many lives - over 100,000 people vaccinated world-wide by 1800
- CHANGE 2: LONG TERM IMPACT: By 1900 vaccination for smallpox was normal. By 1979 smallpox was totally eradicated (wiped out) worldwide.
- CONTINUITY WITH 1700: this was ONLY ONE DISEASE - smallpox. Until the late 1880s it was a one-off as Jenner did not know how it worked.

Case Study - 18th and 19th Century: John Snow and Cholera (1854)

1. BEFORE SNOW

- Major cholera epidemics = 1831-2 & 1848-9 & 1853-4 & 1865-6.
- All led to some steps to clean filthiest areas, but not widespread or effective. E.g. in 1832 burned tar barrels in streets to drive off MIASMA of cholera.

2. JOHN SNOW AND THE 1854 CHOLERA EPIDEMIC

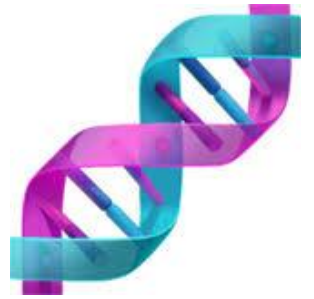
- JOHN SNOW = Yorkshire surgeon famous for developing chloroform inhaler. Lived in SOHO LONDON during 1854 Cholera outbreak.
- SCIENCE - Created a SPOT MAP of BROAD STREET area showing cholera cases.
- Linked all cases to Broad Street Water Pump. Local brewery men who drank beer not water were not ill. Woman living miles away who drank bottle of Broad St water DID get cholera.
- INDIVIDUALS - Snow removed the pump handle & cases ended BUT VERY FEW LISTENED TO HIM

3. CHANGES/ IMPACT/ IMPORTANCE OF SNOW

- Snow saved hundreds of lives by removing the handle and forcing the water board to check pump & cess pit. But ONLY LOCAL & SHORT TERM
- SOME IMPACT ON GRADUAL LONG TERM CHANGE :Snow reported to Parliament & Parliament eventually employed JOSEPH BAZALGETTE to build impressive LONDON SEWER SYSTEM (1860s-75)
- Parliament passed 1875 SECOND PUBLIC HEALTH ACT that made sewers & fresh water compulsory. So Snow IMPACTED THE FUTURE

4. CONTINUITY/LIMITATIONS OF SNOW

- Not widespread or rapid change due to Snow -MUCH RESISTANCE to Snow: local BOARD OF HEALTH & WATER BOARD ignored him
- GOVERNMENT ACTION (1875 PH Act) was due to THE GREAT STINK of 1858 & to WORKING CLASS MEN GETTING THE VOTE in 1867, not to Snow.
- You could argue that the British government's growing readiness to take responsibility for public health & hygiene (abandoning their laissez-faire attitude) had a greater impact on beating cholera than John Snow.



**Modern Medicine
c. 1900 - present
day**



Modern Medicine Revision

Key facts about the time period

- The modern period refers to the period from 1900 to the present
- Medicine continued to progress significantly
- The First and Second World Wars accelerated progress, as new treatments were discovered and tested
- The government took responsibility for improving the health of the nation
- This started with the Liberal Reforms (e.g. school medical checks) but free healthcare was introduced in 1948 (NHS)

Modern Medicine Revision

Ideas about causes of disease	Ideas about treatment of disease	Ideas about prevention of disease	Who cared for/treated the ill
<p>GERMS - still accepted</p> <p>DNA - In 1953, <u>Franklin, Crick and Watson</u> worked out the structure of DNA. In 1990-2000 HUMAN GENOME PROJECT has mapped whole human gene and now we can detect genetic illness, but we can't cure them yet.</p> <p>Lifestyle choices - have been proven as causes. These include drinking, smoking, obesity and unprotected sex. The government has led campaigns that have led to some improvements.</p> <p>Technology - has led to many technological developments in detecting diseases and their causes (DIAGNOSIS) for disease: X-Ray, blood tests, blood sugar monitoring, CT & MRI scans, ultrasound, and endoscopes</p>	<p>MAGIC BULLET - In 1909 PAUL EHRLICH discovered the first "magic bullet" (chemical that attacked disease microbes inside the body). It was SALVARSON 606 and cured SYPHILIS, and led to future "magic bullets".</p> <p>PENICILLIN - Fleming discovered it in 1928 when he saw that mould in his petri dish had killed bacteria. Florey and Chain then developed penicillin for human use. The US government mass produced it during WW2. Penicillin has led to other antibiotics and saved millions of lives.</p> <p>Other important developments in treatments due to TECHNOLOGY include: blood transfusions, x-rays, radiotherapy and chemotherapy, plastic surgery, key-hole surgery and IVF. Many of these are lifesaving or drastically improve people's quality of life.</p>	<p>LIBERAL REFORMS - From 1906 to 1914 the Liberal Government passed several laws that were designed to improve health by tackling poverty, such as free school medical checks. These were the LIBERAL REFORMS. However, these were limited.</p> <p>VACCINATION - A children and young adults can receive vaccines to protect them against diseases such as measles and diphtheria.</p> <p>NHS - 1942 civil servant <u>Beveridge</u> wrote the <u>Beveridge Report</u>. In, 1948 <u>Bevan</u> (health minister) set up the NATIONAL HEALTH SERVICE - free care and treatment for all. Government took over <i>GPs</i>, dentists, hospitals, clinics.</p> <p>LIFESTYLE CAMPAIGNS - such as <i>Change4Life</i> (obesity) and <i>Drink Aware</i> (alcohol)</p>	<p>Women (wives and mothers - early 20th century before the NHS in 1948)</p> <p>Doctors (families kept money spare in case they needed a doctor before the NHS)</p> <p>Pharmacies - offer free advice (particularly important before the NHS for those who couldn't afford to see a doctor)</p> <p>NHS (1948 - present) - provides doctors/<i>GPS</i>, nurses, surgeons, dentists etc.</p>

Modern Medicine: Individuals

<p>Alexander Fleming</p>	<ul style="list-style-type: none"> • Accidentally discovered penicillin in 1928, and found a diluted version could kill bacteria • But - only on the outside of the body but not inside the body 	<ul style="list-style-type: none"> • This was a key turning point because it led to the discovery of more antibiotics which have saved millions of lives
<p>Florey and Chain</p>	<ul style="list-style-type: none"> • Developed Fleming's work to create pure penicillin which could now kill bacteria within the body such as septicaemia (blood poisoning) • First general antibiotic made using microbes, not chemicals 	<ul style="list-style-type: none"> • The work of Florey and Chain was ground-breaking as they managed to mass produce it with the help of the US government • Over 2.3 million doses using in WW2 • After the NHS was set up in 1948 penicillin was made free for all and it became a wonder drug to treat bacterial illness
<p>Franklin, Crick and Watson</p>	<ul style="list-style-type: none"> • Franklin - created the photographic technology that allowed Crick and Watson to identify DNA • Crick and Watson - identified DNA in 1953, which discovered the structure of DNA • They also proved DNA was in every human child and was passed down from parents to children through their genes 	<ul style="list-style-type: none"> • Led to Human Genome project (1990-2000) - mapped the whole human gene • Discovery of DNA now allows doctors to detect genetic illness and manage some of them (e.g. Parkinson's) • However, we still cannot cure genetic illnesses

Case Study - Modern: The Fight Against Lung Cancer

KEY FACTS

- Lung cancer was extremely rare 150 years ago and it is now the 2nd most common cancer because of the rise of cigarette smoking.
- It is deadly because it is difficult to diagnose in the early stages. It is usually only diagnosed once symptoms develop which means the cancer might have spread. One 1/3 live for a year after diagnosis; only 10% live for more than five years.
- Other cancer survival rates show more than 50% live for at least ten years after diagnosis.

PREVENTION

- Governments have launched major campaigns to prevent people developing lung cancer. Campaigns aim to improve early diagnosis and warn people of the extreme dangers of smoking, through advertising the dangers, banning advertisements for cigarettes and making them as invisible as possible in shops.
- New laws have made public places such as cafes, cinemas, sports grounds workplaces and pubs smoke free, aiming both to reduce the effects of passive smoking and to help people give up smoking,
- There is currently no national screening programme because the technology does not exist to pick up the earliest signs of lung cancer. As a step towards this, the screening of high-risk individuals is being developed.

TREATMENT

Treatments have taken four forms:

1. New surgery techniques using remote-controlled micro-instruments and cameras have far less impact on the body and speed recovery
2. Radiotherapy aims to kill the cancer cells using beams of radiation. Techniques have improved to target cancers more precisely
3. Chemotherapy has been used since the 1970s if the cancer has developed so far that surgery and radiotherapy are not successful. Particularly powerful chemical medicines are used to attack the cancer cells, although it can have significant side effects.
4. Immunotherapy. Cancers are able to resist the body's immune system's attempts to block their growth. Trials have been taking place to boost the immune system and so stop the cancer cells from resisting it. **The fight against lung cancer therefore shows how interdependent the various factors of as government, science & technology and individuals are that help to improve medicine and health.**