

# **Treatment & Prevention**

<b>Medieval</b> <span style="margin-left: 150px;"><b>Similar (Continuity)</b></span>	<span style="margin-left: 50px;"><b>Similar &amp; Difference</b></span> <span style="float: right;"><b>Renaissance</b></span>
<p><b>Religious</b> – Prayer, fasting, pilgrimages, King’s touch, mass</p> <p><b>Supernatural</b> – spells, amulets, charms, check Zodiac chart</p> <p><b>Humoural (Theory of Opposites)</b> – blood letting, make sick, laxative (go to toilet), eat hot food.</p> <p>Remedies – Herbal remedies to drink, sniff or bathe in. Mint, camomile, camphor</p> <p><b>Lifestyle</b> – Regimen sanitatis (taught by Romans) e.g bathing, clean house, sweet smelling herbs such as lavender, not eating too much, purifying air using a pomander. Ideas from Islamic world on how to treat patients reaches Europe during the Crusades</p> <p><b>Medics: Physicians</b> – University trained diagnosed illness, recommended treatment, expensive, took Hippocratic oath.</p> <p><b>Apothecaries</b> – Mixed herbal remedies, cheap, alchemy,(chemistry) , knowledge passed down through family.</p> <p><b>Barber surgeons</b> – Least qualified, small surgeries</p> <p><b>Care – Hospitals</b> – offered hospitality, many owned or run by church, clean place to rest and recover, focus on care not cure, Some specialised hospitals e.g Bedlam</p> <p><b>Home</b> – Majority care for at home, looked after by female relatives. <b>Differences - Ideas from Islamic world on how to treat patients reaches Europe during the Crusades</b></p>	<p><b>DIFFERENCE</b> – New World herbal remedies, new instruments to measure weather.</p> <p><b>SIMILAR</b> – Herbal remedies, rebalancing the humours, cleanliness, moderation, regimen sanitatis, increased attempts to remove miasmas</p> <p><b>THE PRACTISE OF MEDICINE HARDLY CHANGED DUE TO LACK OF NEW IDEAS/ORDINARY PEOPLE SLOW TO TAKE ON NEW IDEAS/NO KNOWLEDGE OF Germs/only rich could afford to pay</b></p> <p><b>Medics – Physicians</b> – very SIMILAR to medieval physicians but started to study anatomy (dissection) as church had less influence.</p> <p><b>Apothecaries/Surgeons</b> – More formal training – Guild systems/journeyman, had to possess a licence, <b>SIMILAR = still cheaper alternative to physicians</b></p> <p><b>Vesalius</b> – Anatomy professor – book –”On the Fabric of Human body” corrects Galen’s mistakes, encouraged dissection</p> <p><b>Pare-</b> new herbal treatment to seal wounds &amp; ligatures.</p> <p><b>Harvey</b> - discovered veins had valves and blood was pumped around body by heart. Questioned Galen especially liver did not produce blood so questioned popular treatment of bleeding. <b>SIMILAR - Rejected by conservatives and church until could see capillaries under microscope.</b></p> <p><b>Care – More focused on medical treatment, Fewer hospitals due to dissolution of the monasteries.</b></p> <p>Specialist hospitals – lazar/pest/plague/pox houses</p>

**Vaccination** – Edward Jenner & the smallpox vaccination. Safer than inoculation **but slow acceptance due to anti Jenner propaganda of inoculation doctors afraid of losing money & superstition**. Scientists combine the ideas of **Pasteur – Germ theory**, Koch (link Germ to specific disease) & Jenner to discover vaccines for other diseases.

**Surgical Treatment – Anesthetics (Pain)** – Simpson & Chloroform. Became popular when queen Victoria used chloroform during child birth.

**Antiseptics (infection)** – Lister and Carbolic acid, helped develop aseptic surgery.

**Hospital care** – More, cleaner hospitals. Nightingale made key changes to the role and training of nurses, making the profession more respected. **But still believed in miasmas as a cause of infection**.

**Public Health** – Government dropped their laissez-faire attitude due to increased epidemics and pressure e.g Chadwick's Report on sanitary conditions of the Labouring Classes. Steps taken to improve living conditions e.g sewers, slums demolished **Public Health Act 1848** – set of Health Boards (**only suggested change = little impact**).

1858 London sewers built after Great Stink

**Public Health Act 1875** – Compulsory change. City authorities had to provide clean water, dispose of sewage, build public toilets, employ public officer, build better housing.

**Chemical cures** – Ehrlich's Magic bullets – attack microbes leaving the body unharmed e.g Salvarsan 606 cured syphilis

**Antibiotics** – Fleming discovered penicillin and this was developed into a usable drug by Florey and Chain

**New technology** – made it easier to mass produce chemical drugs – development of capsules, hypodermic needles, insulin pumps.

**NHS** – 1948 initially improved the access to care – hospitals & GPs

Technology drove change – Mobile X rays, MRI scans so can diagnose much quicker, robotics, microsurgery, keyhole surgery

**Public Health – Mass vaccinations** – national vaccination campaigns e.g Polio, diphtheria, TB, MMR

Pollution – **Clean Air Act 1956 and 1968** (reduce air pollution from coal burning fires)

**Lifestyle campaigns** – Change4Life, **promoting moderation and exercise**

**Alternative treatments** – acupuncture and homeopathic (herbal) remedies.

**Industrial Revolution** (C18th-19th) **CHANGE**

**Rapid Change**

**20<sup>th</sup> Century**

**Cause of Disease**

# Medieval

## Similar (Continuity)

- Punishment from God/To test a person's faith/sickness proof of the divine/Bible taught that leprosy was sent as a punishment for sin
- Theory of the Four Humours (Blood, Phlegm, Yellow Bile, Black Bile) – imbalance of humours, connected to food eaten, changes of seasons/and supported by Church as it complemented religious ideas about man being created in God's image)
- Miasmas – bad air
- Misalignment of the planets or stars (astrology)

### Ideas continued during the period because:

1. Ideas were dominated and controlled by the Church – they controlled the production of books and medical teaching/learning
2. Lack of alternatives – Lack of scientific evidence to challenge the church. Dissection was illegal. Printing press did not have impact until Renaissance period
3. Social attitudes – Afraid to challenge belief in God. Physicians used the Four Humours because their patients expected them to.

**Differences - Ideas from Islamic world on causes of illness reaches Europe during the Crusades**

## Similar & Difference

## Renaissance

**DIFFERENCE** – Theory of Four Humours discredited, Recognition that God did not send disease, supernatural explanations/astrology much less popular. **SIMILAR PEOPLE RESORTED BACK TO SAME IDEAS AT TIMES OF EPIDEMICS**

**SIMILAR -CONTINUITY** – Miasma and bad smells/evil fumes remained a constant idea about cause of illness. This idea became more important compared to others that had been discredited

**THE PRACTISE OF MEDICINE HARDLY CHANGED DUE TO LACK OF NEW IDEAS/ORDINARY PEOPLE SLOW TO TAKE ON NEW IDEAS/No knowledge of Germs/only rich could afford to pay**

### Why change?

#### 1. Period of rebirth in arts/culture/new forms of Christianity (Reformation)

Dissection (Vesalius) = better knowledge of anatomy proved Galen wrong

**2. New scientific approach** – Thomas Sydenham promoted observation of patients

**3. New technology** – Printing press to share ideas and microscope to investigate

**4. New discoveries** – Pare's new false limbs, egg yolk and rose oil to seal wounds, silk ligatures & Harvey's circulation of blood theory disproving Galen **but little impact as can't see capillaries yet.**

**5. New ideas shared** – Royal Society promoted experimentation, funded research, published journals of ideas.

- Germ Theory – 1861 – Louis Pasteur proved that microbes in the air caused by decay but not a medic so some slow to accept his ideas
- Robert Koch – identified that specific microbes caused specific diseases e.g the microbes that caused cholera, TB
- Medical professionals applied the Germ theory to illness. Joseph Lister attempted to remove microbes from his operating theatre.
- Many doctors resisted these ideas.

THEY HAD SOLVED THE MYSTERY OF WHAT CAUSED ILLNESS AND DISEASE **BUT NOT EVERYONE BELIEVED THE SOLUTION YET. SCIENTISTS continued to publish work so others could build on research**

### Why change?

1. Impact of individuals – Pasteur, Koch, Lister
2. Science – New focus on solutions rather than proving old ideas wrong – scientists reaped the benefit of sharing their ideas
3. Technology – More powerful microscopes/use of petri dish and dyes to see microbes.

### Slow change because:

Reluctance to change people’s minds especially when it was hard to provide proof of the new ideas.

- Recognised that many factors caused disease
- Discovery of human gene and DNA
- Human Genome project – mapped the human genome by 2000 (identified each gene)
- Identification of genes connected to hereditary disease e.g breast cancer gene (leads to precautionary mastectomy)
- Recognition that lifestyle factors such as smoking, poor diet and drinking alcohol can all contribute to illness and disease
- New Technology enabled doctors to carry out more detailed diagnoses of their patients

### Why change?

Rapid improvements in technology

1. Advances in microscopes – Electron microscopes
2. New kind of “big science” – International scientists working together to find results
3. New methods of diagnosis – blood tests, endoscopes, CT scans, MRI scans, ultrasound scans, x rays, blood sugar monitoring, ECGs

**Industrial Revolution** (c18th-19<sup>th</sup>) **Change**

**Rapid Change**

**20<sup>th</sup> Century**

**Surgery**

# Medieval

## Similar (Continuity)

- Surgery risky, high death rates as no idea dirt carried disease
- Believed it was good to cause pus in wounds, operations done quickly, without painkillers. Although John Arderne developed herbal remedies such as the use of opium and henbane to dull pain.
- Surgery limited, could not help patients with deep wounds to the body. Patients would die from bleeding, shock and infection.
- **Surgeons:**
- Lower class medical tradesmen – Barber surgeons. They used bloodletting, tooth extraction, amputation, cutting off painful/damaged part e.g breast, bladderstone, haemorrhoids, trepanning. Change set up Guild of Surgeons to make profession more respectable
- Learnt from being an apprentice, watching, copying and being on the battlefield.
- **Techniques:**
- Anaesthetics – patients held down, natural substances e.g mandrake root, opium, hemlock e.g John Arderne
- Cauterisation – burnt wound to stop bleeding
- Source of Information:
- Books written in latin by surgical pioneers, copied by Monks and kept in Church libraries. Followed teachings of Galen
- John Arderne – wrote Practical Illustration of operations and instruments. Treated anal abscesses
- Hugh of Lucca – criticised view pus needed. Used wine to clean wounds and reduce chances of infection.
- Du Chauliac – quoted Avicenna and Galen.
- Influence from Islamic World e.g Abulcasis who wrote 30 volume Medical book, 26 new surgical instruments, made cauterisation popular.
- **Some ideas ahead of time but less accepted as went against Hippocratic advice and churches teachings**

## Similar & Difference

# Renaissance

- Revolutionary ideas challenged Galen and transformed understanding of anatomy (the body) **However, still studied Galen**
- **SIMILAR – New discoveries/ideas didn't immediately lead to better diagnosis and cures as no knowledge of germs as a cause of infection but** new ideas were first step and laid the basis for better treatments and success at surgery in the future. **Surgery still risky and some opposed change sticking closely to Galen's teachings. Unhygienic conditions still led to high death rate**
- **Surgeons: still a low status profession** but in the 1700s and 1800s surgeons begin to gain some status. London College of Surgeons created, which set standards for surgeons for the first time.
- **Vesalius – illustrated textbook "The Fabric of the Human body"** focused on individual organs to explain how different systems worked e.g skeleton, muscles, nerves, veins etc. Based work on questioning and researching through dissection. **Shared ideas through books**
- **Pare – worked for a public hospital and as a war surgeon**, used rose oil, egg yolk after cauterising, used ligatures but **death rate still high as ligatures could introduce infection to a wound**, as a result it took longer to accept and implement. Pare designed false limbs, **shared his ideas in his book which included sections of Vesalius' work on anatomy.**
- **Harvey – built on established knowledge of blood circulation. Drew conclusions from methodical observations and experiments.** Took 12 years to publish "On the motion of the heart". Reaction: many thought he was mad calling him a circulator (a Quack). 50 years before Harvey's ideas were accepted. Understanding of blood was vital in the stage in the development of surgery and diagnosis of illness, modern medical treatments would not work unless blood circulation was understood.
- **John Hunter – called father of scientific surgery. Jenner was his student.** Believed the best way to heal deep wounds was to **leave as much as possible to nature. Encourage experimentation**

- **Surgery still risky.** Known as the “Black period” of surgery as many died from infection. Development of anaesthetics led to longer more complex operations but **this also led to higher death rates from infection because surgeons didn’t know that poor hygiene spread disease. Often wore same coats for years, covered in dried blood & pus from previous operations**
- Operations in first half of century still **carried out in unhygienic conditions** including patient’s house. Operating **instruments unwashed and dirty**
- **Anaesthetics** solved the problem of pain to stop people dying from shock **BUT patients still died from infection**
- New anaesthetics e.g nitrous oxide (laughing gas) 1799 and 1845 **but ignored as dismissed as fairground novelty.** Use of Ether, 1842 but it was an irritant and fairly explosive.
- James Simpson had greater success developing chloroform – it was easier to use, took effect quicker and less was needed. After Queen Victoria used in childbirth in 1853 it became widely used.
- **Antiseptic Surgery** – Lister’s use of carbolic acid sprays reduced infection rates 1860s. In 1865 applied Germ theory and used carbolic acid on instruments and bandages. 1877 Lister used a well publicised operation at King’s College Hospital to promote use of Carbolic spray. Antiseptics allowed surgeons to operate with less fear of patients dying of infection.
- **Aseptic surgery** changed approach from killing germs to making a germ free environment. E.g sterilisation of instruments, hands, use of surgical gloves and theatres kept clean fed with sterile air.
- 1895 Wilhelm Rontgen’s discovery of X rays aids better and accurate surgery

- **WWI and soldiers’ injuries gave surgeons opportunities to find new techniques** for diagnosis and for carrying out more complex operations
- **Idea of blood transfusions known since 17<sup>th</sup> Century** but rarely successful. Development of better storage of blood 1914 (sodium citrate stopped blood clotting to allow storage) and 1917 (blood depot at Battle of Cambrai) and knowledge of blood clotting meant more successful blood transfusions in surgery which helped prevent death by blood loss. 1946 British National Blood Transfusion Service
- **Development of plastic surgery.** Harold Gillies set up plastic surgery unit and worked on reconstructing facial injuries. Developed technique of using pedicle tubes taking healthy part of skin and growing then reattaching. **Kept detailed records. Gillies work continued by his assistant Archibald McIndoe to help WW2 pilots.**
- **More complex surgeries** e.g Transplants of vital organs developed e.g heart transplant 1967. Problem remains rejection. Early transplants were limited because doctors lacked effective immunosuppressants. Since 1970s much more successful.
- **Advances in science and technology** led to development of mobile x rays which meant better diagnosis to aid surgery in WWI and the creation of radiation therapy and development of lasers in 1950s led to laser surgery to correct vision and cancer treatment and dentistry . Video technology had led to keyhole surgery, endoscopes for diagnosis, leaves smaller scars, this means patients recover quicker and are less at risk of infection.

**Industrial Revolution** (C18<sup>th</sup>-19<sup>th</sup>) **Change**

**Rapid Change**

**20<sup>th</sup> Century**

# **Public Health and Epidemics**

# Medieval

## Similar (Continuity)

- PUBLIC HEALTH: Living conditions in towns and villages remained poor as no clean water supplies or sewerage systems – waste thrown into the street and river. Sewage from latrines (toilets) leaked into the ground and wells.
- Also poor conditions caused by overcrowding.
- 1388 attempts by government and local authorities to keep towns free of waste. Started to introduce public health measures e.g In London latrines built over river so sewage carried away, carters hired to collect waste and take out of the city. BUT people broke rules and no desire to enforce.
- People knew dirty water and bad health linked but didn't understand risks, no knowledge of germs and didn't have enough money to fix problems properly
- **1348 BLACK DEATH**
- No one knew cause, believed caused by **supernatural causes** e.g a judgement from God. Thought could prevent through prayer and fasting. Some blamed imbalance of humours so tried blood letting. Some thought caused by miasmas so carried strong smelling herbs. Some carried charms. Also tried to stop human contact
- IMPACT: Social change – far fewer workers around so this meant that they could demand higher wages and move around to find better work.
- Rich felt threatened so government introduced laws to try to stop peasants moving around.

## Similar & Differences

# Renaissance

- PUBLIC HEALTH: Living conditions in towns and villages remained poor as no clean water supplies or sewerage system.
- BECAUSE PEOPLE STILL DID NOT UNDERSTAND THE CAUSES OF DISEASE, Public health still poor and quack methods were still popular in trying to keep people healthy
- GOVERNMENT DID NOT BELIEVE IT WAS THEIR ROLE TO INTERVENE. Because it was believed God caused illness people felt waste of money to spend on improving health. Government did try to tackle some problems as public health worsened e.g fines for not keeping streets clean, public toilets installed, public baths.
- **1665 GREAT PLAGUE** :Town and Parish Councils tried to prevent the disease's spread. Plague victims quarantined (isolated) to stop them passing on disease. Victim's house was locked and a red cross painted on door. Crowded areas like theatres closed. Dead bodies were buried in mass graves away from houses.
- **Still believed in natural treatments** based on magic, religion, superstition e.g wearing lucky charms, saying prayers and fasting, bloodletting and carrying herbs and flowers to stop effects of miasmas.
- Responses came from local government rather national government so limited success.
- Belief Great fire of London 1666 helped wipe out plague by burning down old, crowded houses, killing the plague bacteria.
- IMPACT: social: massive loss of life , people could see poorest parts of town had highest mortality rates

- Due to an increase in population as people moved to the city, overcrowding led to public health deteriorating
- People lived in more cramped conditions than ever before as cheap, back to back housing allowed in order to house workers in the new factories
- Problems caused:
- Poor, unclean drinking water, poor working conditions in factories meant workers developed breathing problems
- Little action until 1842 Edwin Chadwick's report "Sanitary conditions of the Labouring Population" which highlighted poor conditions
- 1848 Public Health Act: aim – improve sanitary conditions. ACT ONLY SUGGESTED sewers should be improved, rubbish should be removed, drinking water should be clean, medical officers should monitor cleanliness. MANY OBJECTED TO increase taxes. Government believed in Laissez-faire.
- WHY CHANGE:
  1. John Snow's observations led to discovery of the cause of cholera. But due to traditional attitudes people did not enforce change until after 1875 PUBLIC HEALTH ACT after Great Stink and further cholera epidemics - it forced change. End of laissez faire attitude
  2. 1865 Bazalgette began work on London's sewers.
  3. 1867 Second Reform Act gave 1 million men the vote who put pressure on the government to act.
  4. Research of William Farr gave data to prove Government needed to act.

CHOLERA epidemics: still belief in miasmas and punishment from God. Snow believed spread through water rather than air. Plotted area where deaths took place in 1854. Research found all victims used same water pump in Broad Street. Although proof Snow didn't have scientific knowledge of Germ theory to explain so slow change.

- WHY CHANGE:

1. Studies of Charles Booth and Seebohm Rowntree argued against a laissez faire approach to public health. 1889 & 1903 Booth studied London and 1901 Rowntree studied York "Poverty: A study of Town of life". Both found illness and poverty not the fault of the poor. Instead lack of money for food and quality housing to blame.
2. Boer War – 9/10 men unfit to fit concerned Government.
  - Led to Liberal reforms in 1906. MARKED END OF LAISSEZ FAIRE GOVERNMENT. Headed by Lloyd George. Saw introduction of school meals for children, health visitors to check general health of children and mothers. 1908 Old Age Pensions Act gave financial support to elderly. 1911 National Insurance Act gave workers some sick pay and support for unemployed. Limits = recommended treatment, still had to pay. Children's health improved during term time only. Women not covered by National Insurance Act. Had to prove looking for work.
3. WWI and WWII highlighted health of people again. Evacuation revealed how varied level of public health was. Blitz destroyed many homes. Led to some new council houses 1920-1930s then 1946 New Towns Act and 1950-60s old cramped slums demolished. 1961 "Homes for Today and Tomorrow" set standards for new housing = heating, a flushing toilet and enough space inside and outside.

SETTING UP NHS AND WELFARE SYSTEM

- 1944 Beveridge report stated "Five Evils" and government needed to tackle disease and squalor. Led to 1948 NHS which would provide free healthcare to everyone from "cradle to grave". Led to free access to doctors, free prescriptions, family doctors and health care centres. Still some didn't want to pay increased taxes

Epidemics: New disease AIDS, first reported 1981. At first feared, some feared a punishment from God. No cure but once HIV was discovered, effective antiretroviral drugs were developed. Also some resistance to antibiotics e.g Ebola epidemic 2014. Killed 10,000

**Industrial Revolution (C18th-19th) Change**

**Rapid Change**

**20th Century**