

Medieval Knowledge & Beliefs (MIDDLE AGES c.1,000 AD)

GOD - the dominance of the **Catholic Church** meant that God and PRAYER were the first things that people in the MIDDLE AGES thought of when dealing with illnesses. The Church's creation of the first UNIVERSITIES and HOSPITALS in their monasteries controlled ideas to focus on God & the 4 HUMOURS. No other teaching/ ideas allowed.

4 HUMOURS - Ancient Greek ideas of **Hippocrates**. (Rediscovered after the Crusades 1096 from Muslim doctors). Illness caused by imbalance of 4 HUMOURS.

MIASMA Theory - Belief that bad smells caused/ spread illness.

SUPERSTITION & WITCHCRAFT - Many superstitious cures and beliefs continued throughout the Middle Ages.

SCIENTIFIC METHOD - some early pioneers of scientific method from **Bishop Grosseteste & John of Arderne** (observe and record). But any **disagreements with the Church ended up in execution** e.g. Roger Bacon (13th century)

Medical KNOWLEDGE & BELIEFS of the CAUSES of disease

This THEME tells the story of how our knowledge of what caused diseases changed over time. Over 1,000 years it shows what people believed **caused diseases** and the **progress of scientific method**.



Renaissance Knowledge & Beliefs (1450-1799 AD)

GOD - continued dominance of the Church meant that God and PRAYER were the first treatments.

PRINTING PRESSES were often controlled by the Church to control spread of ideas.

4 HUMOURS - Ancient Greek ideas of Hippocrates. Still dominated most Medical Teaching but they were beginning to be **challenged by Renaissance Medics (Thomas Sydenham "Observations"), Artists (Da Vinci) and Barber Surgeons (Vesalius "Fabrica" & Pare "Complete Works")**. Galen's ideas on ANATOMY were challenged successfully.

MIASMA Theory - Belief that bad smells caused/ spread illness. 1664 London closed pubs and theatres to stop miasma spread, plus widespread use of lavender (posies of flowers) and tobacco = attempt to stop miasma.

Rise of SCIENTIFIC METHOD - Renaissance culture encouraged scientific approach. **Thomas Sydenham** promoted scientific method in England; ideas spread faster through PRINTING PRESS. His observations noticed different diseases = different symptoms.

19th Century Knowledge & Beliefs (Industrial Age 1800-1899)

Take over of SCIENTIFIC METHOD (from 1860s onwards) - End of MIASMA & 4H

John Snow & CHOLERA study (1854) - discovered Cholera was water borne disease not MIASMA. Mapped spread of CHOLERA outbreak 1854.

GERM THEORY (1861) - **Louis Pasteur** discovers true cause of disease, using science and experiments. New science of MICROBIOLOGY.

ANTISEPTICS (1870) - **Joseph Lister** used Pasteur's GERM THEORY to scientifically develop antiseptics & CARBOLIC ACID to kill germs.

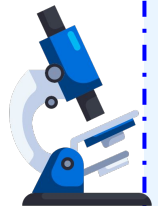
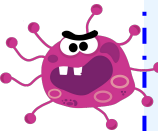
GERM THEORY 2 (1884) - **Robert Koch** discovers that different germs caused different diseases. Led to **Ehrlich's MAGIC BULLETS** (different chemicals kill different germs: Salvarsan 606 v Syphilis)

Modern Knowledge & Beliefs (20th & 21st Century)

SCIENTIFIC METHOD - Continued in the development of ANATOMY, DNA and GENETIC SCIENCE.

ANATOMY (study of body) - developed further by X-Rays (1896 & WW1) and MRI Scanners (Sir Peter Mansfield 1961).

DNA & GENETIC SCIENCE (1953) - Crystallographic X-Rays (**Rosalind Franklin**) & the work of **Crick, Watson, Wilkins**. Opened up new science and ideas of DNA and gene therapy. DNA discovered hereditary and genetic causes of diseases. Finding cures for genetic/ hereditary diseases e.g. Haemophilia (Blood) and Sickle cell.



Medieval Cures & Treatments (MIDDLE AGES c.1,000 AD)

GOD - PRAYERS were the first and most common treatment used in Medieval Times. People's reliance on the Church held back medical progress. Monastic HOSPITALS (St Thomas's) compiled the best **herbal cures** for the time from experience.

4 HUMOURS - Treatments for the 4 HUMOURS were based on balancing out the humours. E.g. **Bloodletting/ leeches** for fevers. Hot drinks for colds (phlegm).

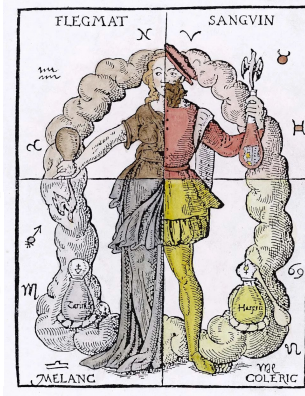
MIASMA Theory - **bathing in urine** to smell worse than the disease.

SUPERSTITION & WITCHCRAFT - Many weird and wonderful cures like **roasted cat oil, rubbing naked butts**.

No effective cures. Middle Ages = no knowledge of diseases.

Medical CURES & TREATMENTS

This THEME tells the 1,000 year story of how CURES & TREATMENTS went from the weird and superstitious to the modern drugs that we have developed today.



Renaissance Cures & Treatments (1450-1799 AD)

GOD - 1664 Plague Orders always asked for PRAYERS to save the city in the first order.

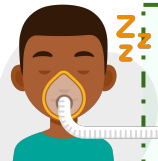


4 HUMOURS - **Bloodletting & leeches** were still the favourite cure of most Renaissance doctors.

MIASMA Theory - 1664 Great Plague examples: Renaissance doctors (beaked masks full of herbs); **lavender** ("pocketful of posies" nursery rhyme); **tobacco** = attempt to stop miasma.

SUPERSTITION - 1664 Plague expensive cure made from **unicorn's horn**.

SCIENTIFIC TREATMENTS - **Lemon Juice & Scurvy - James Lind (1747)**. Lind discovered that citrus juice prevented scurvy on long naval journeys. **Smallpox inoculation - Lady Montagu (1721)** experiments on prisoners in Newgate Prison. **Cowpox vaccine & Smallpox - Edward Jenner (1896)**. Stopped smallpox by vaccination.



19th Century Treatments (Industrial Age 1800-1899)

SURGICAL Treatments (from 1840s)
ANAESTHETICS (**Nitrous Oxide & Humphry Davy; Ether & Robert Liston; Chloroform & James Simpson**) = painkiller/ surgeons had more time to work and less death from shock/ PAIN.
ANTISEPTICS (Carbolic Acid & Joseph Lister) = reduced INFECTION by 40%.

GERM THEORY developed NEW RANGE of VACCINES (from 1860s)
Pasteur & mass produced CHOLERA VACCINE; **Koch** & ANTHRAX VACCINE
SMALLPOX **compulsory public vaccine programme 1853**. 1st Anti-vaxxers.

Ehrlich & MAGIC BULLETS (1890s - **Salvarsan 606 v Syphilis**).

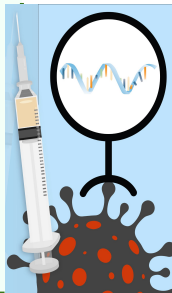
Modern Cures & Treatments (20th & 21st Century)

PENICILLIN & Alexander Fleming - General ANTIBIOTIC, final part of the germ killing / INFECTION puzzle. NHS miracle drug & started PHARMACEUTICAL INDUSTRY. **Turned into a drug by Florey & Chain**.

DNA & GENETIC SCIENCE (1953) - Opened up new science and ideas of DNA and GENE THERAPY. **Finding cures for genetic/ hereditary diseases e.g. Haemophilia (Blood), bone marrow transplant and Sickle cell treatment**.

New **mRNA Vaccines for Covid-19**. Modern Anti-vaxxers (scare stories)

GENETIC THERAPY searching for previous incurable issues: Cancer, HIV



Medieval Surgery (MIDDLE AGES c.1,000 AD)

MEDIEVAL BARBER & BUTCHER SURGEONS - Untrained, uneducated barbers and butchers would often become surgeons in times of war. War gave them lots of practice and opportunities to train their APPRENTICES, as well as lots of business. Outside of war, they performed DENTISTRY; BLOODLETTING and cut hair.



Major surgery = big chance of dying from the BIG 3 PROBLEMS (PAIN, BLOOD LOSS, INFECTION)

Some innovations and improvements = **arrow cups** (adapting to new weapons) and **wine soaked bandages** = improved later infections.

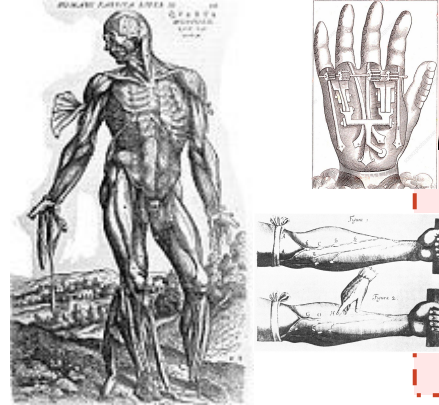
John of Arderne = only named Medieval Barber Surgeon. Known to have taught at Oxford University and his book '**Practica**' (1376). Also developed an early SOOTHING OINTMENT to reduce PAIN and INFECTION (made of hemlock and opium).



The Church **BANNED human dissections** and only allowed the study of ANCIENT ROMAN **Galen's work** on surgery (dissections on pigs). Restricted study of ANATOMY.

SURGERY & ANATOMY

This **THEME** tells the 1,000 year story of how **SURGERY** changed from the horrors of **BARBER SURGEONS** to the professional **ASEPTIC surgical theatres**



Renaissance Surgery (1450-1799 AD)

RENAISSANCE DEVELOPMENTS

Vesalius - Artist and Doctor who produced his book '**Fabrica**' of detailed HUMAN DISSECTIONS and **full study of ANATOMY**. Confirmed a lot of Galen's old ideas but also **challenged where Galen's 'pig based' conclusions were wrong** (e.g. 2 jaw bones).

Ambroise Pare - French Barber Surgeon, luckily discovered a new SOOTHING OINTMENT (rose oil, egg white & turps) better than old practice of CAUTERISATION. Also pioneered '**prosthetic limbs**' and wrote his book '**Complete Works of Surgery**'.

William Harvey - English Barber Surgeon. Pioneered work on BLOOD CIRCULATION & the role of the heart. **Disproved ANCIENT Galen ideas about blood** and challenged idea of bloodletting/ 4 Humours.

The Church **still BANNED human dissection** but allowed each surgeon **one executed criminal to dissect a year**. Never enough to allow study and progress

Biggest factor for progress = **PRINTING PRESS**.

19th Century Surgery (Industrial Age 1800-1899)

BEFORE 1847

John Hunter (1728-1793) = 18th century barber surgeon who **completed the study of ANATOMY by dissection** and testing every part of the human body. Museum of Dissections = **The Hunterian becomes the Royal College of Surgeons** (1800). After 1800, Surgeons were no longer Barbers but PROFESSIONAL and trained.

Robert Liston = **fastest knife** in the West End. London surgeon relied on speed as the Big 3 problems would not be solved until after 1847.

AFTER 1847

ANAESTHETICS (**Nitrous Oxide & Humphry Davy; Ether & Robert Liston; Chloroform & James Simpson**) = painkiller/ surgeons had more time to work and less death from shock/ PAIN. ANTISEPTICS (**Carbolic Acid & Joseph Lister**) = reduced INFECTION by 40%.



Modern Surgery (20th & 21st Century)

WW1 & SURGERY

Mobile X-rays helped surgeons locate shrapnel & bullets. **Saline solution** to disinfect wounds. **Thomas Splints** for broken legs. **Plastic Surgery & Harold Gillies** - rebuilding the faces of wounded soldiers.

WW2 & SURGERY

Plastic Surgery & Archie McIndoe - continuing Gillies's work. Use of **Penicillin** to deal with post-op INFECTIONS (antibiotics).

Da Vinci Robotic Surgery (from 2001) - deals with BIG 3: less PAIN, less BLOOD LOSS, less INFECTION with 'keyhole surgery'.



Medieval Public Health (MIDDLE AGES c.1,000 AD)

Very little Public Health during Middle Ages. Most towns had NOT continued to build on **ANCIENT Public Health** of Romans (public baths, sewers, aqueducts, fresh water). Good ROMAN Public Health ignored.

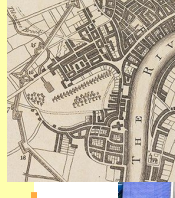
Rare exceptions of Public Health Actions.

The '**Great Conduit**' (1237); City of London council bought and built a pipeline of fresh water from River Tyburn.

After BLACK DEATH (1347-49), towns in England began;

1. Expelling '**toxic industries**' (butchers, fishmongers, tanneries/leather makers) outside city walls.
2. City '**grave sites**' built outside city.
3. Rules to **clean street outside** your doorstep or FINES.

The Church created the first **PUBLIC HOSPITALS in monasteries** for public treatment in clean environments. E.g. St. Thomas's, St. Barts. (12th century). Copied idea from **CRUSADES WARS** 11th Century (Arab hospitals)



PUBLIC HEALTH

This **THEME** tells the story of how diseases and governments have had an impact on the health of the public across the whole country in the 1,000 year period.



Renaissance Public Health (1450-1799 AD)

GREAT PLAGUE of London 1664

London City Council passed **The Plague Orders** (rules to control the city). First order was to PRAY. Other Plague Orders:

- a) Ordered **Lockdown** of London (closed city gates)
- b) **Banned pubs and theatres** (stop miasma)
- c) **Killed 40,000 cats and dogs** (made things worse = more rats!)
- d) Enforced **Quarantine** of Sick (red crosses on doors)
- e) Created **Watchmen and Seekers** to stop spread
- f) Hired **Nurses and Grave diggers**
- g) **Mass grave sites** outside city walls covered in 'quicklime' (killed germs/ infections) "Bring out your dead!"

Highly effective 1664-65 Plague Orders. Only spread to a small number of villages (those were placed in lockdown too). It was the Great Plague of London, not Britain.

Built **New Endowed & Voluntary Hospitals (16th & 18th century)** after destruction of monastic hospitals (Henry VIII).

19th Century Public Health (Industrial Age 1800-1899)

Smallpox **VACCINATION - 1st compulsory public vaccination programme 1853**
First examples of anti-vaxxers (scared of cowpox infection, new & unknown).

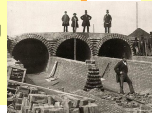
Public Health Acts (Voluntary 1848; **Compulsory 1875**) vs THE GREAT STINK & CHOLERA

- a) All towns & cities hired Medical Health Officers
- b) Responsible for clean water and new sewerage systems
- c) Hired street cleaners.



Joseph Bazalgette & Victorian **Sewer Systems (1860s)** - new **egg shaped design** and tech of **Portland Cement** used to build the first sewers since ROMANS! **Eliminated Cholera**. Originally built to clear MIASMA (Luckily it cleared water of cholera bugs)

Florence Nightingale inspired new Victorian Hospital designs & **HYGIENE** during **CRIMEAN WAR**. Reduced death from infection from 42% of wounded to 2%!



Modern Public Health (20th & 21st Century)

LIBERAL WELFARE STATE (1906-1914)

- a) **National Insurance Act (1911)**
- b) Created **Unemployment Benefit & Sick Pay** to support workers
- c) **Children's Charter** (Free School Meals; Child health checks)
- d) **Pensions** to protect health of eldest

LABOUR & NATIONAL HEALTH SERVICE (NHS 1948)

- a) **Beveridge Report (1942)** - created the plans for future NHS during **WW2**
- b) NHS = 'free healthcare at the point of need' from the 'cradle to the grave'
- c) Improved Public Health (**Life Expectancy increased 9 years, 73 to 82**)

MODERN PUBLIC HEALTH PROBLEMS

- a) **Covid-19 (Lockdowns, Vaccination programmes, Public Health Orders)**
- b) **Obesity; Lung Disease; Cancer** (potential lifestyle diseases)

THE DAWN OF HOPE.

