Lesson 9

Medicine In Britain c.1250-Present

KEY TERMS

- ❑ Alchemy
- ❑ Anatomy
- ❑ 'Animalcules'
- ❑ Bacteria
- ❑ Challenge
- ❑ College of Physicians
- ❑ Curiosity
- ❑ Discredited
- ❑ Discoveries
- ❑ Dissections
- ❑ Four Humours
- ❑ Ideology
- ❑ Licencing
- ❑ Miasmata
- ❑ Microscopes
- ❑ Observation
- ❑ Protestant
- ❑ Reformation
- ❑ Renaissance
- ❑ Scientists
- ❑ Secularism
- ❑ Textbooks
- ❑ Thomas Sydenham
- ❑ William Harvey

UNIT 2: Medicine in Renaissance Britain c.1500-c.1700 – How the ideas about the cause of disease continued or changed.

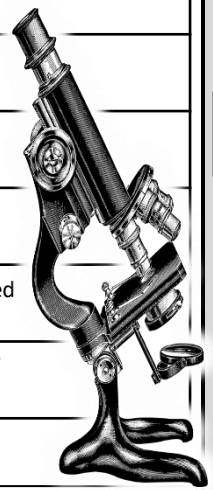
THE HISTORICAL CONTEXT: The period **1500-1700** saw some **significant changes** in the study of medicine as well as a number of aspects that remained **very similar** to the Medieval period. It was known as the **Renaissance**, a French word which meaning **'re-birth'.** In essence, there was a **renewed influence** and study of the Greek and Romans. This had influences in **art**, **literature**, **music** and most importantly; **science**. People studied and **questioned** the ideas of key individuals such as Galen and Hippocrates. It was also the time of the **Reformation.** Here, the new **Protestant** religion was more likely to challenge long standing Catholic traditions which meant the Catholic Church was less able to promote its ideas about medicine. In this lesson, you will find out how **new ideas** about the causes of disease appeared and fully supported by physicians who had scientifically **discredited** traditional ideas. However, for most ordinary people, the traditional belief in causes of illness such as 'God' and the Four Humours continued. It was proof that old beliefs, traditions and attitudes in society were difficult to break down.

CHANGES IN IDEAS ABOUT THE CAUSE OF ILLNESS

A **more secular** (non-religious) way of life was developing when people were interested in the wider **world** around them, **new scientific discoveries** and **questioning** rather than simply accepting what the church taught them. People wanted better answers to questions about what caused disease, especially after **epidemics** such as the **plague** which affected so many people and was **not cured** by traditional methods linked to the Four Humours. Gradually, fewer people believed in supernatural causes of disease and wanted something more scientific.

New ideas about the cause of disease were based on **alchemy.** Alchemy was an early form of chemistry where '**alchemists**' tried to change one material into another by mixing, heating and experimentation. Mainly, in attempts to make gold but as a consequence this resulted in producing other useful medical substances.

DATE	KEY INDIVIDUAL	NEW THEORY
1546	**G Fracastoro (**Italian Physician)	A new medical text called *On Contagion* had the theory that disease was actually caused by tiny, invisible 'seeds' spread in the air.
1628	**William Harvey** (English scientist)	A new theory that the blood circulated around the body, instead of Galen's false theory that it was made in the liver.
1640s	**Jan Baptiste** Flemish physician	Proved that urine was no longer an accurate way of diagnosing illness.
1665	**Robert Hooke** (English scientist)	Developed a new microscope and published a book called *Micrographia* which printed detailed images from a microscope.
1676	**Thomas Sydenham** (English physician)	Published a medical textbook called *Observationes Medicae* which argued that things beyond the body caused illness and not the Four Humours.
1683	**A Leeuwenhoek** (Dutch scientist)	More powerful microscopes developed which showed tiny '**animalcules**' or 'little animals. This was the first observation of **bacteria**.



BY 1700…

The Theory of the Four Humours was **discredited** by most respected Physicians.

Physicians carried out more effective and detailed **observations** of patients.

There was a willingness by scientists and physicians to rebel against traditional ideas about medicine as the chance of punishment for this declined.

There was improved knowledge of the human **anatomy** as the government gave out more **licenses** to allow for human **dissections**.

Many physicians believed in new theories about the cause of disease.

CONTINUITY ABOUT THE CAUSE OF ILLNESS

Most ordinary people between 1500-1700 were likely to believe in the **same causes** of illness as those in Medieval Britain. **Attitudes in society** were still based on traditional ideas. So, even though new ideas were closer to what we know as the truth, they had **little impact** on people's beliefs at the time.

Why was there little change?

There was still a belief in **miasmata** as a cause of disease but even this did not fully explain the spread of disease, especially when people took care to prevent 'bad air' by cleaning but still became ill.

Everybody **understood** the ideas of the Four Humours and so it was difficult to change the attitudes and beliefs that people had held for years.

Outside the small world of medicine, **ordinary people** would never get to read the new theories or even hear about them.

Physicians were **paid** so they stuck with the traditional ideas and treatments to please patients. Ultimately, they still needed to **earn a living** and people did not want to be used as human experiments to prove new theories.

There was still a **lack of quality medical instruments** such as microscopes to help change people's minds about the causes of disease. Any books published with microscopic images would be out of reach of most people.

Physicians still relied upon **older textbooks** for looking up symptoms of their patients as few new books were available to explain other causes of illness.

In times of **epidemic** such as the Great Plague, people often turned back to their accepted **religious** causes of disease due to their **fear** & **desperation.**

Lesson 10a

Medicine In Britain c.1250-Present

UNIT 2: Medicine in Early Modern Britain – Explaining <u>why</u> there was progress in medical knowledge in the years 1500-1700.

<u>THE HISTORICAL CONTEXT:</u> While it is true that for many people in Britain, their ideas about treatments, cure and prevention remained very similar, it was also true that for most scientists and physicians, there was a **huge amount of progress in medical knowledge** and understanding of illness and disease. This lesson will focus on explaining the various factors that explain exactly **<u>WHY</u>** there was so much progress in medical knowledge between 1500-1700. You will be able to categorise these reasons before explaining them in a 12 and 16 mark question.

EDUCATION ← SCIENCE ← EXPLORATION ← **FACTORS CAUSING MEDICAL PROGRESS: 1500-1700** → ECONOMIC → KEY INDIVIDUALS → WAR

RELIGION ← GOVERNMENT & MONARCHY ← **FACTORS CAUSING MEDICAL PROGRESS: 1500-1700** → TECHNOLOGY → ATTITUDES IN SOCIETY

KEY INDIVIDUALS

- ❑ **Charles II**
- ❑ Thomas **Sydenham**
- ❑ Johannes **Gutenberg**
- ❑ **Leeuwenhoek**
- ❑ Robert **Hooke**
- ❑ Andreas **Vesalius**

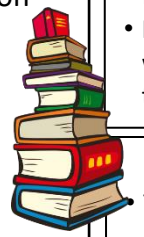
KEY TERMS

- ❑ College of Physicians
- ❑ Dissections
- ❑ English
- ❑ Experimentation
- ❑ Four Humours
- ❑ Humanism
- ❑ Literacy
- ❑ Observations
- ❑ *Philosophical Transactions*
- ❑ Printing Press
- ❑ Protestant Church
- ❑ Publishing
- ❑ Royal Charter
- ❑ Secularism
- ❑ The Church
- ❑ The Royal Society

EDUCATION

Humanism

- In education, there was a rise in the idea of '**Humanism**'. Humanism was the **love of learning** with a belief that human beings had **control** of their own lives rather than God.
- **Humanists** pushed to discover the **truth** about the world around them rather than accept what they had been previously been taught by the Church.
- Humanists **rejected** the old view that God was responsible for everything that happened on earth and aimed to find alternative, **rational explanations**.
- Humanists were able to **re-read** the works of Galen and Hippocrates with the aim of **disproving** their theories.



Improved Literacy

The governments of the time **promoted literacy** and better **education.** E.g., there was a growth in university education during the reign of Elizabeth I.

- With more people able to read and write, **new ideas** could spread **longer distances, quickly** and to a **much wider audience** of people being able to educate themselves.

SCIENCE

The Royal Society (formed 1660)

- Scientists became eager to **share** and **discuss** new theories with each other. This led to the formation of the **Royal Society** in London in **1660**. Their aim was to **promote science** and carry out experiments and dissections. It even had its **own laboratory** that could be used for this purpose.
- The Royal Society **motto** was '***Nullius in verba***'. This means '**Take nobody's word for it**'. It showed a willingness to question and find facts rather than simply accept a theory.

Philosophical Transactions

They published a journal named ***Philosophical Transactions*** which gave a platform for scientists to promote their medical ideas. **Leeuwenhoek** was able to publish his finding of '**animalcules**' which was then shared with microscope expert **Robert Hooke** who then confirmed that Leeuwenhoek had seen these 'little animals' – the first observation of bacteria. Once published in *Philosophical Transactions,* news of the discovery spread.

Ending old ideas

Physicians stopped using **astrology charts** and relying just on **urine** examinations as a way to diagnose a patient. This proved there was a move away from the belief in the Four Humours.

The Renaissance

The **Renaissance** led to an increased interest in science and medicine. There was an increase in the number of **experiments** & **dissections** became a part of **medical training** for doctors.

THE ROLE OF GOVERNMENT & MONARCHY

Official Licenses

The College of Physicians was supported by the government to give official **licenses** to qualified physicians. This reduced the number of **quacks** and fake medicines being sold. People wanted licenced doctors who were better educated.

Charles II

The Royal Society was given a **Royal Charter** by **Charles II** in **1662**. This was an official **seal of approval** to show his support. It gave the Royal Society **credibility** and respect with the king's backing. Charles **attended experiments** at the Royal Society.

WAR

- New **weapons** such as **guns** & **cannons** were being used in war.
- The **English Civil War** in the 1640s led to many bloody injuries as well as deaths. This meant that doctors had to treat injuries they had **not seen before** and this forced them to **quickly** find new treatments.

ECONOMIC

Royal Funding

- **King Charles II's** support of the **Royal Society** encouraged others to **donate money** to support the scientific work carried out there. This additional money helped pay for experiments and research.
- Funding was also given to the Royal Society to have its books **translated into English** instead of Latin. This made it far more **accessible** for anyone to study new medical discoveries.

Charity Funding

More '**Free Hospitals**' were opening which were paid for by **donations** from the wealthy who often left money in their will.

Lesson 10b

UNIT 2: Medicine in Early Modern Britain – Explaining <u>why</u> there was progress in medical knowledge in the years 1500-1700.

Medicine In Britain c.1250-Present

KEY INDIVIDUALS

- ❑ **Charles II**
- ❑ Thomas **Sydenham**
- ❑ Johannes **Gutenberg**
- ❑ **Leeuwenhoek**
- ❑ Robert **Hooke**
- ❑ Andreas **Vesalius**

KEY TERMS

- ❑ College of Physicians
- ❑ Dissections
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- ❑ Four Humours
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- ❑ *Philosophical Transactions*
- ❑ Printing Press
- ❑ Protestant Church
- ❑ Publishing
- ❑ Royal Charter
- ❑ Secularism
- ❑ The Church
- ❑ The Royal Society

FACTORS CAUSING MEDICAL PROGRESS: 1500-1700

KEY INDIVIDUALS

Thomas Sydenham

- **Thomas Sydenham** was labelled '**The English Hippocrates**' and gained **huge respect** in the 1660s. He **refused** to use the old medical books when **diagnosing** a patient. He **closely observed** patient symptoms and treated the disease as a whole. This was a new way to **diagnose** a patient.
- Sydenham **controversially** believed that diseases needed to be treated as a whole rather than the methods used by the Four Humours which was based on treating the individual symptoms of an illness.
- Sydenham was **highly influential.** He encouraged his **students** to closely observe & record symptoms in detail.
- He was able to identify that **measles** and **scarlet fever** were two separate diseases.

Andreas Vesalius

Vesalius was able to publish an **illustrated** book showing the human anatomy called ***The Fabric of Human Body*** *in 1543.* His findings were based on **dissections** of the human body and his findings revolutionised knowledge about the **human anatomy**.

Richard Lower

In 1665, **Richard Lower**, a member of the Royal Society made the first successful experiment of a **blood transfusion**. First from a dog to a dog, then from a sheep to a man.

NEW TECHNOLOGY

The Printing Press

- **Johannes Gutenberg**, created the first printing press in **1440**. By 1500 there were hundreds in Europe. For the first time, **multiple copies** of the same text could be printed **accurately**. This meant **fewer factual errors** compared with the older copied texts.
- The printing press meant that scientists could publish their work and **share** their ideas across **Europe**.

Philosophical Transactions

It was through the printing press that the Royal Society was able to publish their scientific journal ***Philosophical Transactions***. This was the world's first scientific journal, and it continues to this day.

Reduced Religious Influence

- The printing press took **book copying** out of the hands of the Church as previously it was **monks** who had copied medical texts. This meant that more books could be written about a **wider variety of topics**.
- This meant that the Church no longer had control of what was being published to the public and no longer had control of keeping medical books.

New Medical Equipment

Robert Hooke and **Leeuwenhoek** developed more powerful **microscopes** from which images of tiny particles could be seen for the first time, including the first image of bacteria.

EXPLORATION

The New World

Individuals such as Sydenham were able to use **new treatments** which had been found during explorations abroad – in particular the '**New World**'. **Cinchona bark** from **Peru** was used to treat **malaria**. The chemical **quinine** in the bark is still used to treat malaria today.

Alternative Medications

Overseas exploration also brought back a variety of alternative theories, medicines and methods of treatment which had been observed by the travellers. These were shared with doctors and scientists.

ATTITUDES IN SOCIETY

Epidemics

With epidemics such as the **Great Plague** in 1665, people saw that traditional cures linked to the Four Humours and religion were **not working**. This led to a **demand** from the public for better explanations of disease and further support for organisations such as the Royal Society.

Decline in the Supernatural

Towards the **end of the Early Modern period**, there was a drastic reduction in the number of people believing in supernatural ideas such as **astrology** and **witchcraft**. This resulted in ordinary people wanting scientific explanations.

RELIGION

Reduced Influence of the Church

- The Church had far **less authority** in everyday life, especially as monks were no longer copying medical books which were no longer kept by the Church.
- People no longer felt as threatened by the Church for having different views about the world and medicine which gave scientists more **confidence** to speak out about their ideas.

Rise of the Protestant Church

After the **Reformation**, the Catholic Church became less influential. The new Protestant Church was willing to **challenge** traditional, religious theories about medicine.

Henry VIII

During the reign of **Henry VIII** a vast number of **monasteries** closed down which further reduced the influence of the Catholic Church as well as the availability of monks to copy books.

Lesson 11

Medicine In Britain c.1250-Present

KEY TERMS

- ❑ Alchemy
- ❑ Antimony
- ❑ Barometer
- ❑ Bathhouses
- ❑ Bleeding
- ❑ Charles II
- ❑ Cinchona
- ❑ Dysentery
- ❑ Exploration
- ❑ Four Humours
- ❑ Great Pox
- ❑ Herbal remedy
- ❑ Ipecac
- ❑ Medical Chemistry
- ❑ Metals
- ❑ Miasmata
- ❑ Minerals
- ❑ New World
- ❑ Purging
- ❑ *Regimen Sanitatis*
- ❑ Stewes
- ❑ Syphilis
- ❑ Thermometer
- ❑ Thomas Sydenham
- ❑ Tobacco

UNIT 2: Medicine in Early Modern Britain – Continuity & Change in Methods of Preventing and Treating Disease: 1500-1700.

THE HISTORICAL CONTEXT: Despite progress in medicine about the cause of disease, the belief in the Four Humours remained among the general population until the 1700s. Most people continued to use **similar methods of prevention and treatment** as used in Medieval England. New theories about the cause of disease were very slow to be fully accepted by the public. However, alchemists and physicians had more ingredients to experiment with to develop new treatments due to the wide exploration of the world during this time.

TREATMENS OF DISEASE: c.1500-c.1700 - Methods used to cure an illness or disease when a person already has it

CONTINUITY

THE FOUR HUMOURS

The **Theory of Four Humours** was still **popular.** People still believed in correcting the body when it was out of balance. **Bleeding**, **purging** & **sweating** remained common methods to remove the humours.

HERBAL REMEDIES

Herbal remedies remained popular & were often **passed on** from mother to daughter over generations. **Honey** remained a popular ingredient in many remedies and we know today that it helps kill bacteria. Herbals were **affordable**, and ingredients could be easily found in the **environment a**nd some were successful.

SUPERNATURAL AND RELIGION

Supernatural beliefs continued. Between 1660-1682, over **92** people visited **Charles II** as they believed his touch could cure them from the skin disease **scrofula**. Being touched by the king was like being touched by **God** meaning there was still a **religious aspect** to treatment. **Prayer** was still used, especially in times of great fear such as during the **Plague** in 1665.

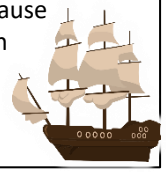
CHANGE

DIFFERENT HERBAL REMEDIES

European explorers brought back **new plants** and **herbs** from **America**, **Asia** and the **New World**. This led to further **experimentation** for medical treatments and cures. For example, **Ipecac** from **Brazil** was prescribed for **dysentery** (extreme fever, diarrhoea and vomiting) and used to make people vomit. A new cure for **malaria** (a life threatening disease spread from the bite of a mosquito) arrived when the bark of the **cinchona tree** was brought back from the **New World**. **Thomas Sydenham** made its use popular with successful results. Ingredients like **tea**, **coffee** and **cinnamon** were tested. It was also believed tobacco smoking could cure illness and was recommended for toothache, joint pain & plague protection!

NEW DISEASES & TREATMENTS

Syphilis arrived in Europe from sailors who had travelled with **Christopher Columbus**. It was an infection resulting from sexual contact that led to **sores** around the **genitalia**, **anus** & **mouth**. Some would result in blindness, paralysis and death. One treatment was the rubbing of **mercury** into the infected sores. This would cause great pain and often led to the **death** of the patient from **mercury poisoning**.



ALCHEMY BECOMES CHEMISTRY

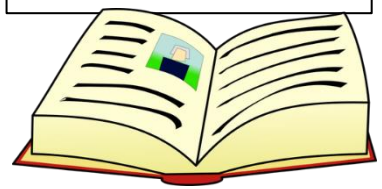
Alchemists led the way for the modern science of **chemistry**. They searched for **chemical treatments** instead of relying on herbs and blood letting. This was known as '***medical chemistry'*** and was popular from the 1600s. They experimented with **metals**, **salts** and **minerals** such as **mercury** and **antimony**. In small doses, **it** caused **sweating** and in large doses it promoted vomiting. It was believed to have cured **King Louis XIV of France** of **Typhoid** in **1657.**

'TRANSFERENCE'

A new treatment was '**transference**'. This was the belief that a disease could be transferred to someone or something else. It was believed that if you rubbed an object such as a boil with an onion, the disease in the boil would 'transfer' to the onion. Patients with fever slept with a **sheep in the room** in the hope the fever would transfer to the animal.

EDUCATION & PRINTING

People were now educated enough to **write down** their home remedies which led to an increase in their use. The **printing press** revolutionised the number of books people could buy containing advice about herbal treatments. A popular book was **Nicholas Culpepper** ***Complete Herbal.***



PREVENTION OF DISEASE: Methods used to stop a person from catching disease.

CONTINUITY

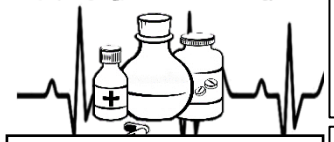
The continued belief in miasmata led to an even greater emphasis on keeping the **environment** and **body clean** with a continued practice of ***Regimen Sanitatis*.** People changed their **clothes** and **bed linins** regularly, and removed **sewage** and **rubbish** from the streets. Therefore, there was still the belief in '**cleanliness if next to Godliness**'. People believed they could prevent disease by avoiding rich, fatty foods, too much **alcohol** and being too lazy. The belief in **astrology** continued and **when in the year** a person was born as it linked to personality & health.

CHANGE

Bathing became **less popular** since the arrival of **syphilis**. It had spread quickly from those who regularly visited '**stewes**' (bathhouses) in London. Henry VIII closed them down in the early 16th century. However, the reason that bathhouses spread syphilis was more down to how they were also **brothels**! People started to wrongly believe that certain **weather conditions** spread disease. New instruments such as **barometers** (that measured pressure) and **thermometers** were used to see if there was a link between weather and disease. More steps were taken to remove miasmata from the air. People were **fined** if they did not clean the street outside their home, **swamps were drained** and removing sewage in the streets was a job given to **minor criminals**.

Lesson 12 | **UNIT 2:** Medicine in Early Modern Britain – The Continuity of Care in the Community and within Hospitals.

Medicine In Britain c.1250-Present



KEY INDIVIDUALS

- ❑ Henry VIII
- ❑ Lady Mildmay
- ❑ Margret Colfe

KEY TERMS

- ❑ 'Bedlam'
- ❑ Almshouses
- ❑ Charities
- ❑ Contagious
- ❑ Deserving Poor
- ❑ Dissolution of the Monasteries
- ❑ Henry VIII
- ❑ Lady Mildmay
- ❑ Lunatic Asylum
- ❑ Margret Colfe
- ❑ Pest houses
- ❑ Physicians
- ❑ Plague Houses
- ❑ Pox houses
- ❑ Reformation
- ❑ Smallpox
- ❑ St Bartholemew's
- ❑ Wise Women

HOSPITAL CARE

Before 1500, hospitals were for **travellers**, **pilgrims** and the **elderly** who would have been offered food, shelter and prayer. They were simply a place to receive '**hospitality**'. However, after the 1500s, some changes began. **Patient records** suggest that more people went to a hospital with other issues such as **wounds**, **curable diseases such as a fever** and **skin conditions**. Most hospitals at this time were for the sick and a group of people classed as the '**deserving poor**' – those who society saw as hardworking and respectable. Some patients even had to work in the hospital as well as gain treatment. Those with incurable/ infectious diseases were rarely allowed in.

Basic Hospital Care

A patient in hospital could expect basic but effective care. They received a **good diet** which benefitted the poor who could not often eat well enough to help their body recover from illness. Patients received a **daily visit from a physician** and hospitals started employing physicians to work for the hospital not just rich individuals. **Medication** was also available as hospitals had their own apothecaries.

Specialist Hospital Care

One change was hospitals that specialised in **one particular disease**. There had been hospitals in Medieval England for **leprosy**, but there was now a growing understanding of specialist care. Hospitals appeared for patients suffering with the **plague** or **pox**. They were known as '**pest houses**', '**plague houses**' or '**pox houses**'. These hospitals showed a change in hospital care as they admitted patients who had **contagious diseases** – most other hospitals would not allow these patients in.

St Mary's of Bethlehem

St Mary's of Bethlehem, given the name '**Bedlam**' was Britain's first '**lunatic asylum**'. Many of its **inmates** (they were not called patients) had **learning disabilities**, **epilepsy** or other **psychological** problems which can be easily explained and treated today. People even visited the hospital to watch the inmates as **entertainment**. However, it did show some **progress** in care as its aim was to cater for patients with a particular need – even if they were not fully understood at the time.

KEY TURNING POINT: The Dissolution of the Monasteries 1536

In **1536**, **Henry VIII** closed down all of the **monasteries** in England due to his belief that the Catholic Church which ran them was greedy and corrupt. Henry wanted to attack the Catholic Church after the **reformation** two years earlier. This was known as the **Dissolution of the Monasteries**. Hospitals before 1536 were attached to religious buildings such as abbeys and monasteries and patients would be cared for by monks and nuns. The dissolution **drastically reduced** the number of hospitals available for patients and few stayed open after 1536.

St. Bartholomew's Hospital in London

Only survived because Henry re-founded it himself in 1546. By the 1660s it had 12 wards, three surgeons, 300 patients and 15 nursing sisters. '**St Bartholomew's**' was also a hospital which started taking in those with contagious diseases as still at this time most would not admit anyone who could pass an illness on. It was one of the first to become a **centre of innovation** and research.

A move away from Church & Religious Control

Smaller hospitals opened to fill the gap but they were mainly run by charities. Therefore the amount of hospital care available reduced greatly. Many hospitals did re-open but without the support of the Church. It was not until after the 1700s that the number of hospitals returned to what it had been before the dissolution of the monasteries. Some hospitals were taken over by **town councils** as an act of **charity** and made into **alms houses** for the elderly poor in particular.

CARE WITHIN THE COMMUNITY

Continuity with Care in the Community

Most sick people continued to be cared for in their **own home**, in their own **local community**. Local communities were still very close which meant that there were always **friends**, **family** and **neighbours** around to give advice or mix traditional herbal remedies. Every local community would also have an **apothecary** with meant access to care was even easier.

The Role of Women & Wise Women

In each local community, **women continued** to play an important role in the care of the sick just as in the Medieval period. In particular, **rich** and **well educated women** gave their time to others both rich and poor. One example was **Lady Grace Mildmay**. She kept **detailed notes** of the healing and treatment she used which became a reference for all other similar cases. However, women were not always accepted. In London, some women were **prosecuted** by the **London College of Physicians** for practicing medicine without a government licence. However, '**Wise Women**' remained popular as they were **cheaper**, more **available** and often had **successful results.**

Famous Philosopher, **Thomas Hobbes** said that he would '*rather have the advice or take medicine from an experienced old woman, who had been at many sick people's bedsides than from the most educated but unexperienced physician*'. For instance, **Margret Colfe** was remembered after her death in 1643 as '*Having forty years a willing nurse, midwife, surgeon and in part, physician to all both rich and poor, without expecting reward*'.

Lesson 13

Medicine In Britain c.1250-Present

KEY NAMES

- ❑ Andreas Vesalius
- ❑ William Harvey

KEY TERMS

- ❑ Anatomy
- ❑ Apothecaries
- ❑ Apprentices
- ❑ Artists
- ❑ Dissection
- ❑ Experimental
- ❑ Fugitive Sheets
- ❑ Galen
- ❑ The Guild System
- ❑ Hospital Wards
- ❑ Inferior
- ❑ Journeymen
- ❑ Latin
- ❑ Licence
- ❑ Masters
- ❑ Microscopes
- ❑ Practical
- ❑ Printing Press
- ❑ Scientific approach
- ❑ The College of Physicians
- ❑ Thermometers
- ❑ University Training

UNIT 2: Medicine in Early Modern Britain – Improvements in Medical Training during the Early Modern Period: 1500-1700.

THE HISTORICAL CONTEXT: One change made towards the end of the 1600s was the improvement in **medical training**. Improvements were seen in the teaching of **physicians** as well as for **apothecaries** and **surgeons**. However, there were still some who were **reluctant** to let go of the teachings of Galen and it took the years beyond 1700 for some physicians to trust in the new methods of training, ideas about anatomy and the use of different scientific approaches. There was also a gradual but reluctant amount of progress in physicians being trained in more **practical** aspects of medicine rather than relying upon the written theories of medicine in older medical textbooks. Finally, we will see the influence of two new key individuals and how their discoveries also improved medical training during this time: **Andreas Vesalius** and **William Harvey**.

CONTINUITY IN MEDICAL TRAINING

PHYSICIANS

Physicians continued to be university trained with **little practical experience** . Their courses changed little in this period despite some new ideas emerging. These ideas were very **slow** to take effect and took a long time to be accepted & trusted by physicians.

Learning was from **older medical textbooks with** lectures dictated in **Latin not** English. Trainee physicians were still expected to diagnose patients rather than treating or operating on them. This was still left to the 'inferior' (barber) surgeons.

Even though the **dissection** of the human body was now legalised due to the decline in the power of the Church, it was difficult for medical universities to get hold of human corpses. Few universities even had an **anatomy theatre** and physicians lacked practical knowledge of human anatomy. For example, in 1668, the famous diarist **Samuel Pepys** noted that one of the country's leading eye experts had only ever seen animal eyes dissected, not human eyes.

APOTHECARIES & SURGEONS

Apothecaries and surgeons were still not given formal university **training** and were still seen as **inferior** to the physicians. There was a lack of consistency in the quality they could offer patients and some amount of '**quackery**' still existed.

CHANGE & IMPROVEMENTS IN MEDICAL TRAINING

PHYSICIANS

The College of Physicians was set up in **1518** by order of **Henry VIII**. It was the very **first** medical college in England. One of its aims was to make sure **official medical training** could be carried out with the aim of **offering licences** to those who passed. They aimed to remove the influence of unqualified physicians, surgeons, quacks and apothecaries from trading.

New **medicinal equipment** such as improved **microscopes** & **thermometers** were used. They still saw a lot of improvement in future years but were ground breaking at the time and allowed trainees to discover even more about the human body.

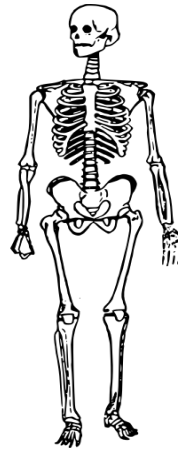
In a handful of hospitals, for example in **Edinburgh** and **St. Bart's** in London, some training took place on the **wards** where patients could be observed and physically examined. This was a significant change from the text book training experienced elsewhere.

With the declining influence of the **Church**, dissections were now legal. More doctors could **dissect human bodies** so they could learn about anatomy themselves and gain practical experience.

Medical training started to emphasise the importance of taking a **scientific approach** by observing and taking notes about symptoms and trying out new treatments. This was a change from Medieval supernatural and irrational methods.

New subjects were introduced into the medical curriculum such as **chemistry** (from the work of alchemists) and **anatomy**. For example, medical students began to study the work of **Vesalius** on anatomy and **Harvey** on physiology.

The **printing press** led to doctors **sharing** ideas more freely. There was an increase in in those who wanted to **question** the old ideas and investigate the human body for themselves. This was particularly the case after the **1600s** when doctors had better access to medical textbooks which were far **less expensive** to buy.



As the protestant Church frowned upon highly decorated churches, many more **artists** were available for work. Many were able to create detailed **drawings of the human anatomy**. For medical students not able to afford a whole book, individual copies of diagrams were available known as '**fugitive sheets'**.

APOTHECARIES & SURGEONS

Apothecaries and surgeons did see some improvements as they were now part of a **guild system**. Here, a person wanting to be an apothecary or surgeon would have to join as an '**apprentice',** then become a '**journeymen'** before becoming a '**Master**' of their trade.

A **licence** was also needed to work as an apothecary or surgeon and these were only issued after completing training. The aim was to reduced the influence of unqualified **quacks**.

Lesson 14

UNIT 2: Medicine in Early Modern Britain – The Influence and importance of Andreas Vesalius for understanding anatomy.

Medicine In Britain c.1250-Present

THE HISTORICAL CONTEXT: There was significant progress in the understanding of medicine in Early Modern Britain. For instance, improvements in medical training, a wider variety of hospitals to care for and treat the sick, the use of the printing press and use of new medicines from overseas. However, one key factor which influenced change was the role of **key individuals**. This lesson examines the influence of **Andreas Vesalius** and his ground-breaking studies of human anatomy. His work did not have an immediate impact on the diagnosis and treatment of disease, but hugely influenced medical students and physicians to make use of dissections and to further question and challenge the older work of Galen.

KEY BOOKS

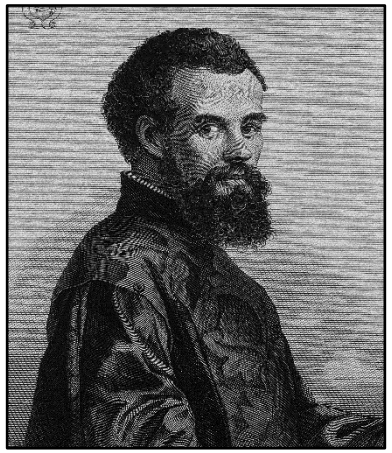
- ❑ *On the Fabric of the Human Body (1543)*
- ❑ *Six Anatomical Pictures (1538)*

KEY PLACES

- ❑ Cambridge (Eng.)
- ❑ Paris (France)
- ❑ Padua (Italy)

KEY TERMS

- ❑ Accuracy
- ❑ Anatomist
- ❑ Breastbone
- ❑ Controversy
- ❑ Dissection
- ❑ Fugitive Sheets
- ❑ Galen
- ❑ Humanism
- ❑ Illustrations
- ❑ Influence
- ❑ Jaw bone
- ❑ Heart/Liver/Ribs
- ❑ Printing Press
- ❑ Trailblazer



OVERVIEW

- Andreas Vesalius was the most famous **anatomist** of this time. He studied medicine during a time when new '**Humanist**' ideas about medicine were popular. Humanism is the belief that humans control their body rather than God/religion.
- He believed that successful surgery could only take place if physicians had a detailed knowledge of human **anatomy** themselves, rather than relying on older medical text books and surgeons to carry out any practical work for them.
- His work was published in **two ground breaking medical textbooks.**

PUBLICATION #1 (1537)

Six Anatomical Tables

He created **six** detailed drawings showing a **human skeleton** and various parts of the body. These illustrations were popular with his students and were printed into **fugitive sheets**. These sheets were printed copies of Vesalius' drawings made for medical students. They would include **layers** of paper which could be lifted to show different parts of the body.

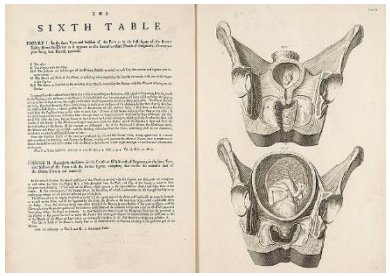
PUBLICATION #2 (1543)

On the Fabric of the Human Body

He carried out large numbers of **dissections** as a local judge allowed him to dissect the bodies of executed criminals from Padua. He proved that around 300 of **Galen's** theories were incorrect. Vesalius believed these errors were made as Galen dissected **animals** instead of humans.

BASIC FACT FILE

BORN: Belgium (1514)
EDUCATION: Studied medicine in **Paris** (1533).
UNIVERSITY: Travelled to **Padua University** in Italy to gain a doctorate in medicine (1537)
WORK: Offered the Chair of Anatomy & Surgery at Padua University (1537)



VESALIUS PROVED GALEN WRONG

- That men did not have one fewer pair of ribs than women
- That the human lower jaw was in one part and not two.
- That blood does not enter the heart through invisible holes.
- That the breastbone was in three parts not seven
- That the main vein from the heart (the vena cava) doesn't lead to the liver.

HIS IMPACT & INFLUENCE

He made the study of the human body '**fashionable**' due to the respect he gained and influenced other physicians to study anatomy more seriously.

He **inspired** and expected other anatomists to **question** his work in the knowledge that he too would have made errors.

For the first time, physicians wanted to carry out their **own dissections** rather than asking an 'surgeons to do the task for them and he encouraged physicians to use dissections rather than reading medical text books.

He supervised the printing of his illustrations to ensure they remained as accurate as his initial drawings.

His books were far more **detailed** and **accurate** than anything before. He used artists who were keen to study anatomy as a way to paint the human body more accurately.

His work was printed for **medical students** all over Europe. And were being used in Cambridge University by 1560. His drawings then appeared in other medical text books.

His **attitude** was based around **questioning everything** even if this upset or challenged the work of other physicians of the time.

He was a 'trail blazer' as his work led to other anatomists taking his work further. For example, another student at Padua University was **William Harvey** who went on to discover the circulation of blood.

Vesalius took **risks**. He was known to steel the **corpses** of criminals from the gallows to dissect without permission.

He caused great **controversy** which got people taking about his work. Many doctors still refused to accept that Galen's ideas were wrong and criticised Vesalius.

Lesson 15

UNIT 2: Medicine in Early Modern Britain – William Harvey's Discovery of the Circulation of Blood.

Medicine In Britain c.1250-Present

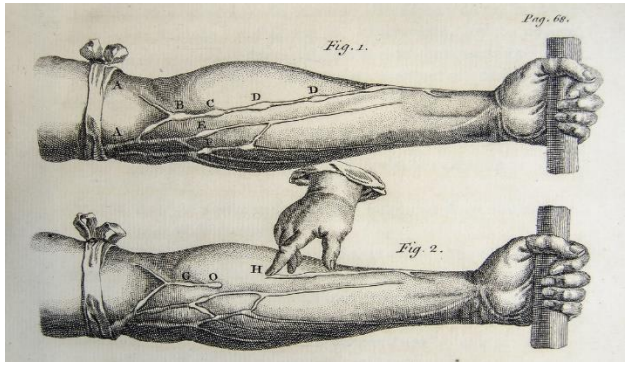
THE HISTORICAL CONTEXT: Another key individual was **William Harvey**. Harvey was born in England in 1578 and went on to study in **London** and **Cambridge University**, before moving to the famous Italian University in **Padua** (the same university that Vesalius had become a lecturer at). Harvey then became a **royal doctor** for **King James I** in 1618 and then **Charles I**. By **1628**, Harvey published his work which showed how the **blood circulated around the body**, involving **veins**, **arteries** and **valves**. Although his discoveries were a major breakthrough in medical knowledge, his work had **little immediate impact**. However, **longer term**, his work revolutionised the development of further medical advances.

KEY TERMS

- ❑ Anatomy
- ❑ Animals
- ❑ Arteries
- ❑ Circulation
- ❑ Cambridge University
- ❑ Credibility
- ❑ Dissection
- ❑ Inspiration
- ❑ Galen
- ❑ Heart
- ❑ James I
- ❑ Liver
- ❑ Observation
- ❑ Oxygen
- ❑ Padua University
- ❑ *Pneuma*
- ❑ Valves
- ❑ Veins
- ❑ Water pumps

WHAT DID HARVEY DISCOVER?

Galen's Theory	Harvey's New Theory (1628)
The **liver** was the main organ which controlled the flow of blood.	That it was the **heart** that acted as a pump to move blood around the body to carry oxygen.
That blood was **used up** by the body and new blood had to be produced by the liver.	That blood circulated around the body carrying oxygen from the **lungs** and 'recycled'.
There was **more than one system** in the body for moving blood.	That there was just **one system** in the body that circulated blood.
That veins not only carried blood but an air like substance called **Pneuma**	That **veins** and **arteries** just carried **just blood.** The blood itself contained **oxygen**.
It was not know how blood flowed around the body.	That blood travels **one way** because of **valves** which open & close to prevent it returning.



WHAT LED TO HARVEY'S DISCOVERY?

Dissection and Observation

Harvey was keen to use **dissected bodies, live humans** and **animals** as he wanted evidence to back up his theories. He tried to pump liquids through veins in the '**wrong direction**' and realised the **valves** prevented this from happening. This proved that blood only flowed towards the heart. Harvey said '***I prefer to learn and teach anatomy not from books but from dissections***'.

Harvey's Own Skill

Harvey was extremely **thorough** in his work and spent hours **repeating experiments** to make sure he had every detail. He had a high level of **surgical skill** to visibly show the movement of bloody through the small veins. Harvey was determined to **question** the older ideas of Galen and was able to prove using **maths** that it was impossible for the liver to produce the amount of blood Galen suggested to keep a human alive.

New Technology

Improved **medical instruments** meant Harvey could make more **accurate cuts**. Better **microscopes** allowed him to see clearly how blood travelled through the veins. Harvey was even perhaps inspired by new technology of the time such as the **mechanical fire fighting pump**. This may have led Harvey to have a similar theory about how blood was 'pumped' around the body, much like the water pump.

Inspiration from Vesalius

Andreas Vesalius, who had attended the same university had previously proved that some of Galen's work was wrong. This **encouraged and inspired** Harvey to also question Galen's work.

Royal Backing

Being employed as **James I** and **Charles I's** personal doctor meant that Harvey had **credibility** (a good reputation). This meant more people heard of Harvey's theory and were more willing to **believe it**.

Changing Attitudes in Society

There was a **fascination in science** and people became interested in how the body worked. People wanted '**rational**' (scientific) explanations for this rather than more traditional religious explanations

The Decline of Religion

The reduced power of the Church towards the end of the 1600s, meant that it was **easier** for scientists and doctors to criticise Galen's more religious work and teachings about God.

SHORT TERM IMPACT

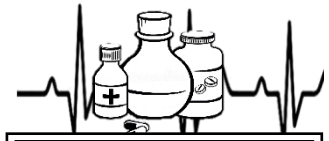
The one immediate impact was that other scientists were **inspired** to copy Harvey's methods of dissection and observation. Knowing how blood circulated had **little practical use** in treating or discovering illness. Many doctors **ignored** his ideas & medical textbooks did not use his findings until nearly **50 years** later. Even Harvey admitted that fewer patients came to see him after his discovery was published as they thought his ideas were '**mad**'. **Bloodletting** still continued, despite Harvey proving that it was ineffective. At the time, Harvey did not see himself as being ground-breaking scientist. In fact, he still believed that humans were still created by a '**higher being**' and that the '**soul**' was responsible for how the body worked.

LONG TERM IMPACT

After 1700, he **paved the way** for a more modern understanding of the body. His theory eventually got accepted and changed how people understood human anatomy. **Surgery** improved as a consequence of Harvey's work as it became more possible to control the **blood flow** during an operation. However, there was still more to discover about blood – Doctors could not transfuse blood until it was discovered that humans had different blood groups in **1901**.

Lesson 16

Medicine In Britain c.1250-Present



KEY TERMS

- ❑ Animals
- ❑ Amulets
- ❑ Astrology
- ❑ Buboes
- ❑ Charles II
- ❑ Confession
- ❑ Diet
- ❑ Epidemic
- ❑ Fasting
- ❑ Fires
- ❑ God
- ❑ Herbals
- ❑ Herbs
- ❑ Humours
- ❑ Miasma
- ❑ Pest Houses
- ❑ Plague Doctors
- ❑ Plague Water
- ❑ Prayer
- ❑ Quack Doctors
- ❑ Quarantined
- ❑ Syphilis
- ❑ Taverns
- ❑ Tobacco
- ❑ Transference
- ❑ Vinegar
- ❑ Watchmen

UNIT 2: Medicine - Early Modern Britain – The Great Plague, 1665 - approaches, treatment and attempts to stop the spread

THE HISTORICAL CONTEXT: Although this lesson has a focus on the Great Plague which affected London in 1665, you will also be expected to describe the similarities and differences with the **Black Death of 1348**. The Great Plague spread across England between June and November. It peaked in September with **7,000 deaths** from the plague in one week. In total, over 100,000 people in London died – this was around 20% of the population.. We will focus on what people in 1665 believed **caused** the plague, how people attempted to **treat** plague victims and finally how people believed the plague could be **prevented from spreading.**

BELIEFS ABOUT THE CAUSES OF THE GREAT PLAGUE

OVERVIEW: It was not yet known what caused the plague. Therefore, most people had **similar theories** to those of the Black Death. Some were based on new science whereas others were still in line with the traditional theory that God had the ultimate control over people's lives.

THEORY: A Punishment from God

It was still believed that illness was a result of the sins of people and a way for God to punish those who were wicked. It was still believed by many that God controlled everything, even the miasma and the planets.

THEORY: Astrology

Astrologers reported **unusual alignments** between planets which to them signalled trouble. A comet had also been seen which suggested further bad luck. To some this was still linked to the ultimate control of God.

THEORY: The Four Humours

Although this theory was still believed by some, **far fewer** people believed it was the cause of the plague. However, some people still sought the help of physicians to carry out blood letting, fasting and purging to show how strongly some people held on to traditional ideas.

THEORY: Miasma (bad air)

The theory of miasma had been around during the Black Death but by 1665 it became more popular. People in towns were aware of **stinking rubbish** and **dunghills** which caused particularly bad smells in the summer months. This is when they believed **vapour** from the earth poured out with plague carrying **miasma**. This theory meant that many authorities were keen for people to keep the streets and the air clean to remove the miasma.

THEORY: Person to Person

It was accepted that disease could spread from person to person but not known exactly how. Rules were put in place that followed this theory, e.g. quarantine. It was no coincidence that plague spread quickest in crowded & poor parts of London where living conditions remained cramped and dirty.

TREATMENT: Old Herbal Remedies

Herbal remedies continued to be popular since the 1300s. Recipes for '**plague water**' were sold in apothecaries. Some included traditional herbs such as **mint** and **rosemary.** It was common to see people walking down the street with bunches of sweet smelling herbs under their noses in an attempt to ward off the miasma causing the plague.

TREATMENT: New Herbal Remedies

Herbal remedies became more popular with the high number of books which were printed. New '**exotic**' remedies contained exciting ingredients from abroad such as **sugar** and **nutmeg**. **Traders** claimed they had returned from overseas with great acting medicines. '**London Treacle**' contained wine, spices, honey & **opium**. People were willing to try them out of desperation.

TREATMENT: Transference

This was a popular theory during the Black Death. It was believed that the disease could be '**transferred**' from a person to something else. For example, attaching a live chicken to a bubo or popping the bubo with a feather from the chicken was meant to draw out the plague and 'transfer' it to the chicken.

TREATMENTS

TREATMENTS

TREATMENT: The Quack Doctor

Unqualified quack doctors **took advantage** of people's fears. They mixed remedies and sold them as cures in the hope of making easy money. With more qualified physicians leaving for the countryside, the quacks made even more money from those in the city.

TREATMENT: Superstition

People would buy **lucky charms** or **amulets** from the apothecary. This, with prayer remained a popular method to treat the symptoms of plague in the hope that God would offer forgiveness.

TREATMENT: Sweating

Physicians advised plague victims to wrap themselves in **warm clothing** and lay near a **fire** to sweat out the disease. The fire would also act as a way to remove the **miasma** from the home.

Where were all the Physicians?

It was rare for a physician to have time to treat a victim due to the speed of the illness. Many physicians also **left London** for the countryside. Those that did stay to treat the sick often caught the disease themselves. This left those who could afford to pay for treatment without much help.