How did scientific approaches to medicine and health develop?

Alice: Hello, and welcome to the Bitesize GCSE History podcast, where we explore the key events, people, and concepts to help tackle your History GCSE exam. I'm Alice Loxton, author and historian.

Anouska: And I'm Anouska Lewis, history podcaster. In this series, we're diving into the history of medicine.

Alice: Sometimes you'll hear actors reading real historical accounts or imagined conversations based on historical evidence.

Anouska: And we'll end every episode with a quiz to make sure that you've caught the key details.

Alice: In the last episode we looked at how people approached disease in medieval England.

Anouska: And in this one we're looking at what changed, and what stayed the same, as we move across the next 200 years.

Alice: Let's do it. I recommend grabbing a piece of paper and making some notes as we go.

Anouska: Let's take ourselves back to Britain between the years 1500 and 1700.

Alice: It's a period known as the Renaissance - that's French for 'rebirth'.

Anouska: Rebirth of what?

Alice: Well, it was a time characterised by new ways of thinking. People were questioning old beliefs and, in medicine, they were exploring new scientific ideas.

Anouska: Crucially, new discoveries were being made about the causes of disease. But why now? Humanism was on the rise during the Renaissance period. It was a philosophy that believed people could, and should, come to their own conclusions about the world around them.

Alice: Instead of accepting the idea that God was responsible for everything, including disease, humanists explored other possibilities.

Anouska: The printing press was also crucial in challenging medieval ideas. Invented in the 15th century - that's the 1400s - it meant books could be printed en masse, rather than written out by hand, and it took the job of copying books away from the Church.

Alice: So access to books increased, ideas spread more easily, and the Church had less control over what was published. More people than ever were able to read and write too.

Anouska: So now, scientists could publish theories that challenged medieval beliefs.

Alice: Let's meet some of the scientists exploring these new ideas.

Vesalius: Hi! I'm Andreas Vesalius. I'm an anatomist and, not to brag, but I made some pretty big discoveries about human anatomy.

Alice: During the Renaissance, Vesalius discovered loads about what actually happens inside our bodies. But to do this, he needed to be able to see inside.

Anouska: Inside?

Alice: Yes, he needed to cut people open and look inside their bodies.

Anouska: Rather him than me! While carrying out his dissections he discovered that Galen had got some things wrong.

Alice: And to be fair, Galen had been carrying out his dissections on animals, not humans, so I can see how he might have made some mistakes.

Anouska: Vesalius disproved quite a few of Galen's claims, including Galen's theory about how blood flowed through the heart. However, he couldn't yet explain how blood did move between the heart's chambers.

Alice: Now I know this is all very sciency, but stay with us, and remember to keep that pen next to you to jot down key terminology.

Anouska: There's lots more information on the BBC Bitesize website, and you can listen to the rest of this series on BBC Sounds. So, in 1543, Vesalius published his discoveries on human anatomy. His book was called *On the Fabric of the Human Body*. Who's next?

Paré: Ambroise Paré, Bonjour! I am a famous Renaissance surgeon and, I don't want to toot my own horn, but some of my patients do include French kings.

Alice: Paré's contributions were in the world of surgery. His story starts in the 1530s where he was treating soldiers in the French Army who had gunshot wounds.

Anouska: Traditionally, physicians would use boiling oil to stop bleeding on a wound like that. But one day, Paré ran out of oil, so he came up with an alternative ointment made up of egg white, rose oil, and turpentine. He found that it actually worked better at healing gunshot wounds.

Alice: Sometimes soldiers would have amputated limbs, and Paré began using ligatures for their wounds.

Anouska: What's a ligature?

Alice: Well ligatures are what we call the pieces of material tightly bound on a patient's limb to seal the blood vessels. And they were effective at stopping the bleeding.

Anouska: But germ theory wasn't understood yet, so patients had a high chance of infection which often led to death. We'll learn more about that in the next episode.

Alice: Paré was a pioneer in surgical techniques. He showed that there could be better outcomes when traditional beliefs and methods were challenged.

Harvey: Is it me next?

Anouska: Oh hello William! Go on, introduce yourself.

Harvey: My name is William Harvey. You may have heard of one of my patients…King Charles I. I made crucial discoveries about blood circulation.

Alice: William Harvey's discovery was to do with how blood flowed around the body.

Anouska: At this point, there were various incorrect theories. For example, Galen's theory was that blood was made in the liver.

Alice: Harvey's experiments proved that blood is repeatedly circulated around the body and is pumped around by the heart.

Anouska: Major breakthrough! And finally…

Sydenham: Hello! I'm Thomas Sydenham. I'm a doctor who believes in the power of observation.

Alice: Sydenham believed it was important to closely observe a patient's symptoms to be able to then treat their disease.

Anouska: That would seem pretty obvious to us today but before him, physicians had relied on what they read in medical books. For Sydenham, it was important to observe patients and treat each person on an individual basis.

Alice: Sydenham also believed that every disease was different and that it was really important to work out which illness a patient had before treating them. He worked out that scarlet fever and measles were different, which people didn't know at the time.

Anouska: He published his ideas in 1676, in a book called *Observationes Medicae*, which means Medical Observations. Let's hear an extract from it.

Sydenham: We should have known the cures of many diseases before this time if physicians had not been deceived in their disease and had not mistaken one species for another.

Alice: So, Sydenham is saying that doctors keep muddling up different diseases and making it hard to find proper cures. For him, it was essential to understand exactly which disease a patient had.

Anouska: Some scientists like these were supported by an organisation called The Royal Society.

Alice: Founded in 1660, its motto was 'Nullius in verba', meaning 'Take nobody's word for it'. In other words, don't just believe old ideas - test them yourself!

Anouska: The society was keen to find new scientific theories through experimentation, debating ideas, and sharing discoveries.

Alice: Today, the Society is still going, publishing scientific journals across the world. All of these discoveries were really important in moving medicine forward, away from the classical ideas of people like Galen and Hippocrates.

Anouska: So medical theories were developing, but did anything actually change for everyday people?

Actor: Case study - The Great Plague.

Alice: In the last episode we looked at the Black Death, which reached England in 1348. In your exam you may be asked to demonstrate change and continuity, so it's worth making some notes here on how things changed or continued since then.

Anouska: Plagues came and went in the 300 years after the Black Death and in 1665 there was another outbreak. Again, symptoms included painful, swollen buboes across the body.

Alice: The Great Plague had a devastating impact. It’s estimated about 100,000 people died from it in London alone.

Anouska: Despite the advances in scientific thinking since the Black Death, in practical terms not much had changed. People continued to believe the plague was caused by bad air, or miasma. They thought the air could be cleaned by lighting fires or by carrying nice smelling flowers.

Alice: Religion was still a big factor too - people believed God had sent the plague as a punishment for sin.

Anouska: And people still prioritised prevention. They stayed at home to avoid spreading the disease. In some villages, they soaked their coins in vinegar believing that this would prevent passing the disease on when buying food.

Alice: Not much had changed in the way of treatment either. People would still try to balance the four humours. For example, they may remove excess blood from a patient, known as bloodletting.

Anouska: Herbal remedies were still popular and, similar to the Black Death, quarantine, or isolation, was a feature of the Great Plague.

Alice: The village of Eyam in Derbyshire has been remembered for their strict quarantine measures. When the plague reached them in 1665, villagers decided to stay and not flee. This successfully contained the spread of the disease.

Anouska: So, the key takeaway here is that, although scientific ideas were starting to change, the practice of medicine had not changed much for everyday people. The Great Plague case study is a good example of that.

Alice: Let’s put our knowledge to the test now with a quick quiz.

Anouska: Grab a pen to write down your answers. First up, what was the physician Andreas Vesalius known for? He made key discoveries about human anatomy and disproved old theories like those of the ancient physician Galen.

Alice: Which physician made major discoveries about blood flow in the body? The answer is William Harvey.

Anouska: And finally, in what year did the Great Plague arrive in England? The year was 1665, and it killed over 100,000 people in London alone.

Alice: Thank you for listening to this episode of the Bitesize History podcast.

Anouska: Make sure to head to the BBC Bitesize website. You'll find loads of resources on other GCSE History topics and subjects like English, science, and maths.

Alice: See you next time!

Anouska: Bye-bye!