The modern world of health and medical treatment has countless links with the past. In early Muslim societies, doctors drew on an increasing variety of drugs and medicines, new treatments and diverse surgical operations.

The first hospitals in Muslim civilisation were in Damascus and Baghdad, followed by the Ahmad ibn Tulun Hospital in Cairo, built between 872 and 874. It had facilities for men and women, a library and an asylum. Soon after, medical learning institutions, like the al-Nuri Hospital of Damascus, sprang up in many cities, from Rayy to Cordoba.

Did you know

Today's surgical forceps, scalpels and saws have changed surprisingly little over the last thousand years. In 10th-century Spain a surgeon called Al-Zahrawi used many of the instruments we still know today.

Pharmaceutics

A thousand years ago, many forms of drugs and remedies were available, including pills, pastilles, syrups and powders. Al-Zahrawi and his fellow surgeons also treated many illnesses with herbs, flowers, plants, trees, seeds and syrups available, along with new herbal medicines.

Many 10th-century scholars, like Ibn al-Jawzi and Ibn al-Rays, used and wrote about remedies. In the 7th century, Ibn Sina included 162 properties of herbal remedies in his Canon of Medicine.

Pharmacists were inspected by government officials who checked for the accuracy and purity of the drugs on offer. These inspectors were called Muhtasibs.

Inoculation

Inoculation involves giving a patient a controlled dose of a disease-causing organism. This makes their immune system react, and makes them immune to the disease.

Among the ancient people that knew of inoculation were tribes in Central Asia and Africa. Lady Mary Wortley Montagu, wife of the English ambassador in 18th-century Turkey, is thought to have inoculated her son against smallpox in 1718, using material brought to her when a Franco-Turkish army attacked the city of Edirne.

Bioengineering

Before 13th-century Syrian physician Ibn al-Nafis, the ancient theory of Greek scholars such as Galen was that the blood flowed from one chamber of the heart to the other through invisible pores. But Ibn al-Nafis thought differently.

He correctly described the part of the cardiovascular system involving the heart and lungs. He realised that the blood left one chamber of the heart via the lungs, mixed with air, and then flowed to the heart's other chamber to travel out to the body.

The German medical historian Max Meyerhof, later referred to Ibn al-Nafis’ work as the discovery of the “lesser circulation” meaning pulmonary circulation.

Al-Zahrawi and his surgical tools

Scalpels and knives, drills and forceps: in 10th-century Spain a surgeon called Al-Zahrawi developed and used many of the instruments we still know today. He wrote up his findings in a medical encyclopedia called Al-Tasrif.

Al-Zahrawi’s book illustrates surgical instruments. He listed over one hundred tools, showing sketches of their form, and describing how and when each one should be used. Although surgery was still dangerous and painful, suitable tools would have helped to improve the success rate.

In addition, Al-Zahrawi wrote about numerous pharmaceutical processes, including the use of moulds to produce pills with inscriptions engraved on the surface.

Notebook of the Oculist

Eye diseases were a serious problem in the environment of the Middle East. Ninth-century medical books included treatments for conditions like trachoma, an infectious eye disease, and glaucoma, the raised pressure of fluid in the eye.

Between the 10th and 13th centuries, eye surgeons performed pioneering operations, including the use of the eye's own muscle to treat cataracts, and developed new ways to tackle disease.

The era’s most important contribution to the study of the eyes was in the treatment of cataracts. Ammar ibn Ali Al-Mawsili, who was from Mawsil in Iraq and flourished in the early 11th century, wrote in his Book of Choices in the Treatment of Eye Diseases about how to tackle the clouding of the eye’s lens, which causes gradual blindness. He might even have used a knife, which he could insert into the eye to suck out the cataract.