

Medicine in Dar al-Islam

Background

During the Translation Movement, Islamic scholars studied the works of ancient, Indian and Greek physicians and medical researchers Sushruta, Galen, Mankah, Atreya, Hippocrates, Charaka, and Agnivesa. In order to make the Indian and Greek tradition more accessible, understandable, and teachable, Islamic scholars ordered and made more systematic the vast Indian and Greco-Roman medical knowledge by writing encyclopedias and summaries. Islamic scholars, like Rhazes, were not afraid to criticize or push back against the theories of past scholars. Rhazes and other physicians criticized and refuted Galen's theories, most notably, the Theory of Humors (the idea that the body is made up of four substances that must be kept in balance) and was thus accused of ignorance. Both new theories and new practices in medicine spread not only through Dar al-Islam, but also to the areas with which it came into contact. Arabic translations and new medical texts made their way into Europe and became standard medical texts.

1. Bimaristan: Hospitals

In Europe, the church was often tasked with caring for the sick in infirmeries, and most people rarely saw a doctor. Treatments were often spells, herbs and prayers. Early bimaristans existed in Arabia before Muhammad, but in the 9th century the Abbasid Caliphate established modern hospitals with separate divisions for specialties such as internal disease, surgery, and orthopedics. Caliph Al-Rashid opened the earliest known Islamic hospital in 805 in Baghdad. By the 10th century, Baghdad had at least 7 hospitals, Damascus had six, and Cordoba had over 50. Charitable foundations were formed to support hospitals, and hospitals were forbidden from turning anyone away, even if they could not afford treatment. Every department had an officer-in-charge, a presiding officer and a supervising specialist. The hospitals also had lecture theaters and libraries. Hospital staff included sanitary inspectors, who regulated cleanliness, and accountants and other administrative staff.

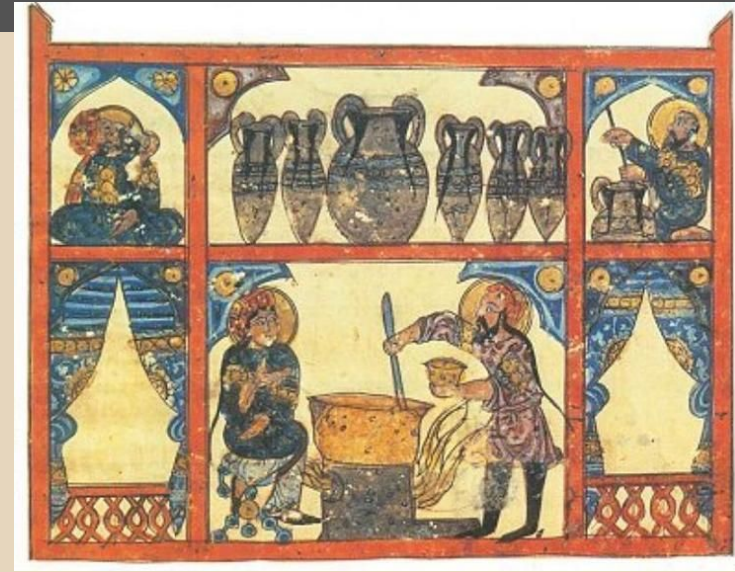


Courtyard of a Bimaristan (hospital) in Aleppo.

2. Pharmacies

Arabic scholars, especially due to their rich studies in chemistry and biology, made great strides in pharmacology, and most hospitals had their own pharmacies. Ibn Māsawaiyh became the director of a hospital in Baghdad and laid the foundation for pharmacies by leading a private medical school and writing instructions for how to prepare various medicines. Pharmacies were periodically visited by government inspectors called muhtasib, who checked to see that the medicines were mixed properly and kept in clean jars. This rationale for cleanliness likely in part came from the Quran, which emphasized ritual washing and hygiene.

There was no shortage of books on medicines during Islam's Golden Age. Al-Biruni published *The Book on Drugs*, which also detailed the function and role of pharmacies and pharmacists. Ibn Sina described no less than 700 preparations, their properties, mode of action and their indications. Physicians used poppies (containing morphine and codeine) as well as various herbs, including cannabis, to treat ailments.



A pharmacist preparing medicine from *Materia Medica*

Al-Baytar's Comprehensive Book on Simple Drugs and Foodstuffs

Medical uses of over 1,400 plants



The Book of Simple Drugs

Al-Ghafiqi

Medical
properties of
3,000 different
plants

Treatments for
cancer,
diabetes, liver
disease, skin
problems



3. Ibn Sina's *Canon of Medicine*

Ibn Sina (Avicenna) compiled the *The Canon of Medicine*, a three volume work of all the medical knowledge of the time. It contained descriptions of diseases as well as treatments and covered a variety of illnesses, from depression and meningitis to smallpox and kidney disease. Avicenna also used advances in steam distillation to produce essential oils for treating ailments like heart conditions. Avicenna's book was used across Europe for over 500 years.

The page from the *Canon* shown here illustrates the three basic stages of a physician's visit with a patient: the examination of the patient, the consultation with attendants, and possibly a written prescription or treatment procedure.



Ibn Sina also first developed the method “al-Arba’iniya” - the fortieth - which was a 40-day form of quarantine to prevent the spread of contagious diseases. The method was published in his “The Canon of Medicine”, and has since been used to prevent the spread of infectious diseases across the Islamic world.

The method proved effective and was later used by Europeans during the Black Death plague of the 14th and 15th century. The term “quarantine” now refers to all forms of isolation against disease and has survived till today.



4. Surgery

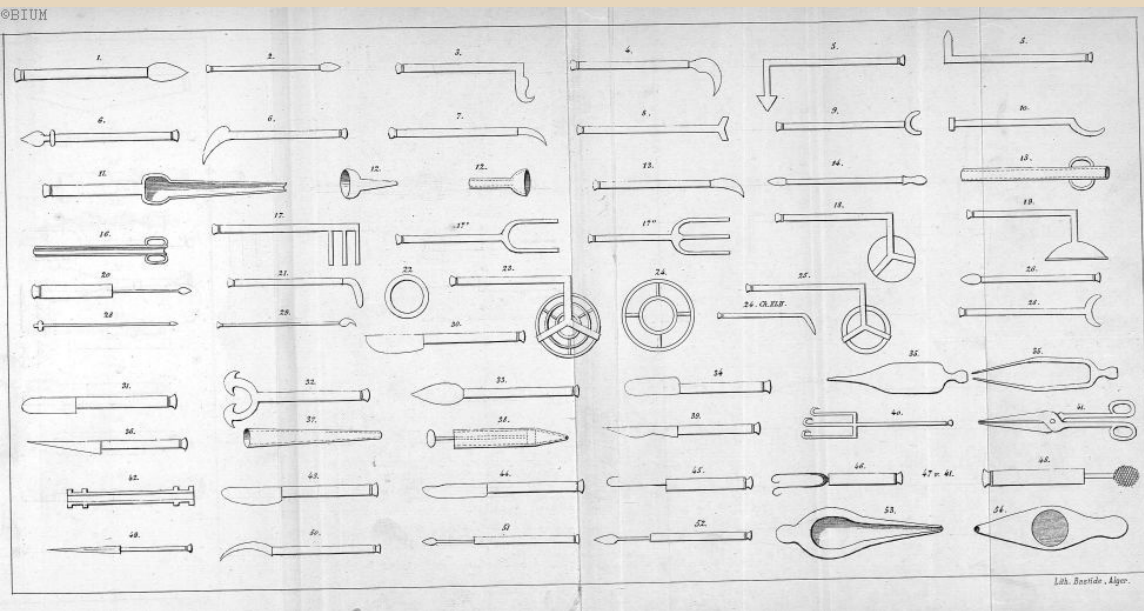
Described as the “Father of Surgery,” al-Zahrawi was an Arab physician in Andalusia (Muslim Spain) in the 10th century. His work *Kitab al-Tasrif* (1000 CE), a thirty-volume encyclopedia of medical practices, included a detailed section on surgery that was used in Europe for the next 500 years.

Al-Zahrawi's pioneering contributions to the field of surgical procedures and instruments had an enormous impact in the East and West well into the modern period, where some of his discoveries are still applied in medicine to this day. He pioneered the use of catgut for internal stitches, and his surgical instruments are still used today to treat people.

He was the first physician to identify the hereditary nature of haemophilia and describe an abdominal pregnancy, a subtype of ectopic (outside of the womb) pregnancy that in those days was fatal, and was the first to discover the root cause of paralysis. He also developed surgical devices for Caesarean sections and cataract surgeries.

Pages detailing some of al-Zahrawi's surgical instruments.

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صَوْرَةٌ طَبِيبٍ
بِشَكْلِ التَّ
صَوْرَةٌ عَلِيٍّ

Cauterization to treat a toothache.

لَيْسَ وَارِبٌ جِرَاحِيْنَ قَانِدِبْ دِكْدَمُّ نَاكِمِ اَوَّلِ دَلِكُ بَيْدِي خَلَاصٌ بُوَلْدِي بَاذِرِ



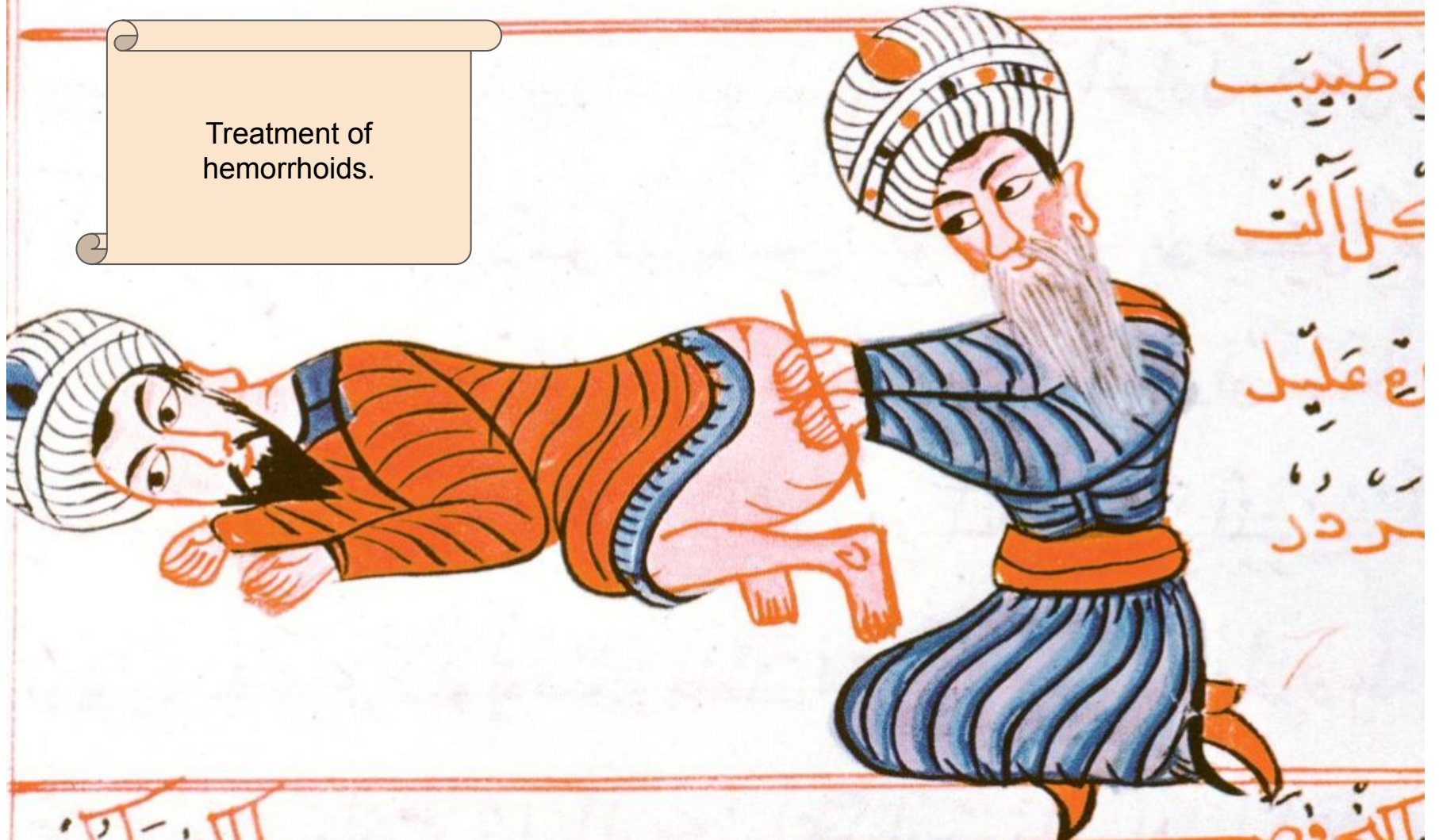
صَوْرَةَ طَبِيْبٍ
وَشَكْلِ الْب
وَصَوْرَةَ عَلِيْكَ
بُوَنْلَرْدَر

الْحَمْدُ لِلَّهِ

بُوَنْلَرْدَر

Physicians
employing
a surgical
method.

Treatment of
hemorrhoids.

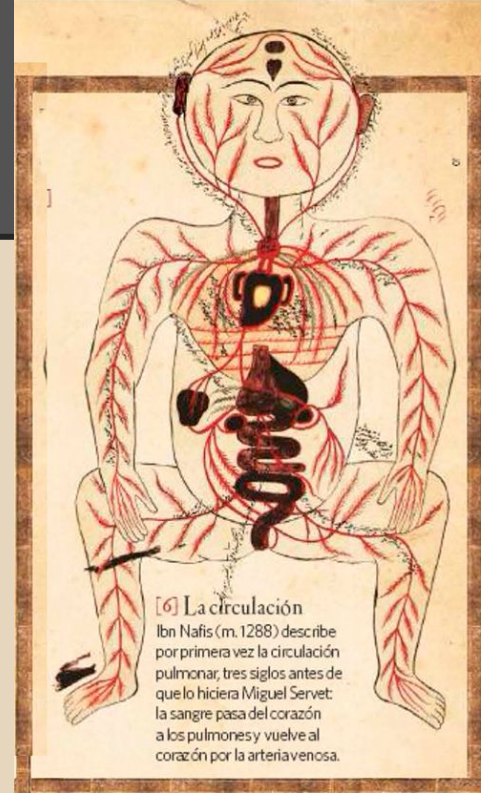




Draining excess fluid from a patient's head.

6. Anatomy

Ibn al-Nafis was the first known scholar to correctly argue that all the blood that reached the left ventricle did so after passing through the lung. He also stated that there must be small communications between the pulmonary artery and pulmonary vein, a prediction that preceded the discovery of the pulmonary capillaries 400 years later. These discoveries laid the foundation for modern understandings of the pulmonary system. His work built off the Roman physician Galen, who was well known for his practice of bloodletting and keep the body's humors (blood, phlegm, and yellow and black bile) in balance. In Europe, Galen's theories were not questioned until the Renaissance period or later.



Explanatory drawing of Ibn Nafis that the pulmonary circulation of the blood.

Anatomy

Polymath Abu Bakr al-Razi (aka Rhazes) made major strides in understanding the nervous system, stating that nerves had motor (movement) or sensory (touch, sight, smell, etc) functions, describing 7 cranial and 31 spinal cord nerves. He also classified the spinal nerves into 8 cervical, 12 thoracic, 5 lumbar, 3 sacral, and 3 coccygeal nerves. Using these advances, he correctly determined that some injuries correspond to lesions in the nervous system.



7. The Medical Works of Al-Razi (Rhazes)

Al-Razi (aka Rhazes) recorded over 200 manuscripts based on both observations and experiments. As the chief physician of the Baghdad hospital, he was the first to distinguish measles from smallpox, and he discovered the chemical kerosene and several other compounds. His book *Al-Kitab al Hawi* consisted of a 23-volume set medical textbooks containing the foundations of gynecology, obstetrics and ophthalmic surgery.

Known as the “father of pediatrics,” al-Razi wrote “The Diseases of Children,” likely the first text to distinguish pediatrics as a separate field of medicine. He also pioneered ophthalmology and was the first doctor to write about immunology and allergy. Records suggest that al-Razi discovered allergic asthma, and he was the first to identify a fever as a defense mechanism against disease and infection.

Also a pharmacist, al-Razi wrote extensively on the subject, introducing the use of mercurial ointments. Records attribute many devices to him, including spatulas, flasks, mortars, and phials.

8. Female Physicians

Female physicians and nurses were not uncommon in the Islamic world, and many worked in hospitals and on battlefields. Many were highly trained and had the advantage of understanding certain medical conditions, especially women's health. Al-Shifa bint Abdullah al-Qurashiyah al-'Adawiyah, called "Al-Shifa" (the healing) was incredibly literate and well trained, using preventative treatment for ulcers and skin conditions. She was appointed to be the market inspector in Medina, the equivalent of a health and safety officer.

The sister of Al-Hafid ibn Zohr and his two daughters used to practise obstetrics and midwifery as well as treating the sick children (both of them were the private physicians of the wife of the ruler Al-Mansoor in Al- Andalus). The daughters of Al-Zahrawi were known to practise medicine after being taught surgical procedures their father. Om Al-Hasan bint Al-Qadi Al-Tanjaly lived in Al-Andalus in the 14th century and was famous in practising as well as in teaching medicine. And Bint Dohn Al-Louz (also known as Dohn Al-Louz) was a very skilful woman practising medicine who was also one of the Islamic scholars in Damascus.



Muslim Females actively participated in helping the injured and sick