

Unit 9 - History of Medicine 1600 - 1900

Reading

What is the history of medicine? Is it a history of the profession? Of developments in medical practice? Of the fight against disease? Of doctors and surgeons? Of patients?

What is presented in this lecture is not ‘the history of medicine’, but rather examples of the history of medicine—originating from historical research—that are intended to provide an overview of some of the major developments in the profession, and also to demonstrate the utility of history to current debates and practices in medical ethics. The narratives presented here are just that—constructions of coherent stories from an enormous, fragmented, and highly complex discipline which cannot capture the history of modern medicine in its entirety. Nevertheless, such narratives provide important insights into medicine and medical practice, not least because they are examples of medicine and medical practice. Though using potentially outdated or outmoded cures and practices to modern eyes, past medical practitioners worked to heal the sick. In learning to do the same, medical students join a storied profession, which has been built to its modern form over centuries of changing theory, practice, and circumstance.

Engaging with the history of the profession thus encourages reflection on one’s assumptions about medical theory, practice, and circumstance. This lecture is intended as an introduction to such reflection but implores students of medicine to continue to reflect on their own historical place within the profession through the reading list that accompanies these notes.

In this lecture, we focus on important changes in western medical theory and practice from 1600 to 1900. This period saw several important and dramatic changes in the development from ancient to modern medicine that have fundamentally shaped the modern profession. Our focus on western, largely European, medicine mirrors that of the project, as an EU funded Erasmus+ funded project. But it should be noted that important developments in medicine occurred worldwide in this period.

The lecture is split into four main sections that overlap chronologically. The purpose of each of these sections is firstly, to inform students about the history of medicine, and, secondly, to challenge and problematise aspects of medicine for the reader. The history of medicine can be a resource for medical students to improve their own practice and knowledge; this lecture intends to demonstrate how that might be the case.

1. From Humors to Germs

Before modern notions of germ theory developed, medical practitioners in western Europe based their practice on a quite different theoretical footing—that of humoral theory. Developed in ancient Greece and Rome, humoral theory was the basis of understanding medicine in Europe until the nineteenth century.

Simply put, humoral theory posited that the healthy body was one where the body’s four humors—black bile, yellow bile, blood, and phlegm—were in balance. Illness was caused by the body’s humors being imbalanced. For example, individuals suffering from a cold had an excess of phlegm, and the physician’s job was to restore balance to the patient’s specific constitution. Such notions of balance and imbalance



denoting health and illness share similarities with other major medical traditions, such as Ayurvedic medicine (which originated in India) and Chinese medicine.

Humoral theory had explanatory power and gave the practitioner a good idea of how they ought to treat a patient. For example, a patient with hot flushes and reddened skin was clearly suffering from having too much blood, and so should be bled.

However, such views were challenged in various ways throughout the period from 1600 to 1900. One important challenge stemmed from the investigations by anatomists on the structure of the body. Galen, the third century Roman doctor on whose work much humoral medicine was based, had been unable to dissect humans due to Roman law. In the sixteenth century, anatomists such as Andreas Vesalius (1514–1564), had demonstrated that Galen’s anatomical work was based largely on animal dissections, which undermined the authority of the humoral model.

More strikingly, William Harvey (1578–1657) discovered the circulation of the blood in the early seventeenth century. Galen had located the liver as the source of venous blood, with arterial blood being generated and circulated separately through the heart. By contrast, Harvey argued that the blood circulated in one system centred at the heart, and that there was a fixed amount of blood. He supported this theory with various experiments and logical arguments.

Further anatomical experimentation further undermined the theoretical basis for humoral medicine. In the late seventeenth and eighteenth century a ‘big science’ technology was developed that became central to further attempts at understanding the structure and function of the body. This was the invention of anatomical preparations, or specimens, which were developed especially in northern Europe by practitioners such as Frederick Ruysch (1638–1731). Preservations of the body enabled anatomists to better compare and contrast parts in health and disease and enormous collections were built by the end of the eighteenth century by anatomists such as William Hunter (1718–1783), whilst techniques such as injecting various liquids into the vessels of the body enabled those structures to be understood better and more fully than ever before. In this period, the lymphatic system was mapped and discovered to be separate from the circulatory system, for instance.

Such work encouraged medical theorists in the Enlightenment period to propose different models of how the body functioned, with Newtonian physics and chemistry employed to explain the functions of the body. Herman Boerhaave (1668–1738) produced a famous and popular synthesis of medical theory that described the various mechanistic interactions between the ‘solids’ and ‘fluids’ of the body in terms of hydraulics.

New theories begat new experimentation in therapeutics, but there was comparatively less success in moving beyond ancient, humoral methods of cure. Much therapeutics remained largely based on diet and regimen, despite efforts at using plants newly discovered by Europeans in their ever increasing empires, or experimenting with newly discovered phenomena such as static electricity, or even the running clinical trials of preventatives for scurvy by the British navy.

However, in the nineteenth century, several clearly effective therapeutic methods and medicines were developed that fundamentally changed what the profession of medicine could offer to its patients. In short,



the possibility of there being a cure for a wider and more serious range of illnesses became available primarily through more ambitious surgical interventions—due to the separate but mutually beneficial developments of anaesthesia (by figures such as William T.G. Morton (1819–1868) and James Young Simpson (1811–1870)) and antisepsis (particularly by Joseph Lister (1827–1912))—and the development of bacteriology which stemmed from the work of the great rivals, Louis Pasteur (1822–1895) and Robert Koch (1843–1910) and their pupils. As the historian Roy Porter summarised: “in the twenty-one golden years between 1879 and 1900 the micro-organisms responsible for major diseases were being discovered at the phenomenal rate of one a year”. Now armed with the explanation of germ theory and effective cures and vaccines for diseases such as diphtheria, anthrax, and rabies, doctors could cure previously hopeless cases. At the same time, surgeons were able to perform ever more complex and invasive operations on patients due to the time that anaesthesia afforded (as patients would no longer die of shock), and the certainty that antisepsis gave (as post-operative infection was greatly reduced).

2. The Disappearance of the Sick Person?

Over the period 1600 to 1900 the typical experience of the sick person at the hands of the medical profession greatly changed. Throughout the period, orthodox medicine competed alongside alternative practices that gave the sick person choice and autonomy in their own care. Historians have characterised this as the ‘medical marketplace’, where the treatments of doctors and surgeons were in competition with those of various ‘quacks’. Often, the attitude which patients took to their treatment was to try anything—a reasonable position in an era where effective remedies were few and far between. Indeed, unorthodox medical practitioners might provide genuine service to the sick person in the eighteenth century through providing elixirs with a useful active ingredient, or providing specific services such as bone setting, or teeth pulling and the like.

At the same time, regular practitioners offered a particular kind of service to their patients that emphasised the patient’s importance in the medical encounter. Doctors would listen carefully to the patient’s account of their symptoms, and question the individual regarding their diet, lifestyle, and recent events in their life that might help to explain their illness. They would take into account the time of year, the geographical and atmospheric specifics of the local area, and the astrological calendar, all in the attempt to discern why this individual had such symptoms. Diseases were typically seen as effecting individuals—serious epidemics notwithstanding—and therefore required individual cures that considered that person’s particular constitution. As mentioned earlier cures were typically diet and regimen based, but they were also conservative. That is, dramatic interventions such as surgery were typically avoided due to the risks involved, though the drug compounds that were to be given to patients might be complex.

But at the end of the eighteenth century, the sick began to be viewed differently by the medical profession. Increasing interest by medical practitioners such as Matthew Baillie (1761–1823) and Xavier Bichat (1771–1802) in the anatomy of disease encouraged practitioners to locate disease within the body. As a result, doctors turned their attention to interpreting the symptoms the patient presented with and signs discerned by the doctor as internal lesions within the patient’s body. In post-revolution France, the reorganisation of medicine created enormous infirmaries such as the Salpêtrière Hospital where the sick urban poor became commodified as ‘clinical material’. In this setting René Laennec (1781–1826) invented the stethoscope. Wishing to locate lesions within the cavity of the thorax, and building on the development of percussion as



a diagnostic technique by Leopold Auenbrugger (1722–1809) and immediate auscultation by Jean-Nicholas Corvisart (1755–1821), Laennec created a small wooden instrument that could amplify the sounds in a patient's chest through mediate auscultation. Lesions could now be heard, and pathology performed on the living. At the bedsides of the Paris clinic, doctors now concerned themselves not with understanding the individual's constitution through consultation, but with understanding the patient's pleural cavity through the stethoscope. As the physician Robert Volz (1806–1882) would later observe, "The sick person has become a thing".

What might medical practitioners do with things? An extreme example was the development of the surgical technique for the repair of vesicovaginal fistula by J. Marion Sims (1813–1883). A severe complication of obstructed childbirth that caused constant incontinence, such fistulas marginalised the sufferer in society. Working in antebellum America before anaesthetic was available, Sims conducted experimental surgery on seven enslaved women with fistulas, with many of the women undergoing surgery several times (one woman, Anarcha, was operated on thirteen times), as Sims attempted again and again to repair the damage. Such work required cooperation (though in a condition of enslavement not necessarily consent) from the women, both to undergo the surgery and as assistants to Sims as he operated on others. Through Sims's ultimate success in developing the operation, the women benefitted medically from his experimentation, but it is worth contemplating what the doctor patient relationship was in this case.

3. Professionalisation

The change in the way that patients were viewed by medical practitioners coincided with the increasing institutionalisation and professionalisation of orthodox medicine. Whilst occurring differently in different nations, the general trend was towards the centralisation of medical power away from patients and their choices and towards the elite practitioners who made up new governing and regulatory bodies supported by the state. At the same time, there was increased specialisation in the role of orthodox medical practitioners through newly defined fields such as ophthalmology, dermatology, and venereology. Previously dealt with by generalists or unorthodox practitioners, body parts like the eyes and teeth, systems like the renal system, and diseases such as venereal diseases now began to gain specialised practitioners who treated patients in specialised clinics and hospitals, and published their work in specialist journals.

One such specialisation was nursing. Whilst already an important part of medical care, nursing was transformed in the nineteenth century into a skilled profession that required specialist practice and knowledge. In part this was due to growth in the number of hospitals. In response, a number of religious orders, such as the Sisters of Mercy in Ireland and Deaconess Institute in Germany, recruited thousands of women to care for the sick after undergoing training. Wars were a further spur to action. The Crimean War (1854–1856) saw nurses such as the Jamaican Mary Seacole (1805–1881) focus on the comfort and cleanliness of the troops, as well as treatment. Florence Nightingale (1820–1910) also treated the troops, returning home to promote nursing as an honourable vocation by women and establish its main tenants in her book *Notes on Nursing* (1859).

Of course, women had always had important roles in medical care, though were largely barred from the elite of orthodox medicine which has largely been our focus here. Typical roles for women as medical practitioners were as midwives or herbalists serving local communities. Most common, however, was the



compilation and use of hand-written 'recipe books' filled with various home remedies that helped to manage the health of the household. The recipes contained therein were often a mixture of traditional and home remedies with other cures garnered from orthodox practitioners. No matter the recipe's origin however, the authority of the recipe book lay with its compiler who included and excluded cures as they saw fit.

The increasing institutionalisation and specialisation of medicine undermined such roles, however. Midwives were challenged by man-midwives and their forceps throughout the eighteenth and nineteenth century; greater control over apothecaries and druggists by the medical profession worked to marginalise herbalists simply as 'quacks'. Traditional recipe books remained an important part of the household itinerary, but many women wanted to play a greater role in medicine and saw no reason why they could not join the ranks of the professional elite too. Elizabeth Blackwell (1821–1910) was the first woman doctor to graduate in 1849, having moved from her native Bristol to America to do so. Meanwhile the first woman to qualify in Britain, Elizabeth Garrett (1836–1917), had to take advantage of several legal loopholes. Both women then worked to establish medical colleges for women, though the profession remained dominated by men until the late-twentieth century.

4. Public Health Measures and the Decline in Infectious Diseases

From the mid-eighteenth century, ever-increasing industrialisation encouraged rapid population growth in urban areas, and cities became the main population centres of countries for the first time. However, there was little infrastructure to cope. In smog-choked cities, workers were crowded into foul housing that lacked sanitation and proper water supplies, with fresh food and even sunlight in short supply. On poverty wages, workers bought bread that was cheap only due to its doctoring with alum—a metal compound that stopped the absorption of vitamins and minerals into the body. Little wonder that deficiency diseases such as scurvy and rickets were common, especially in children who were made to work in dangerous occupations that carried their own risks. Chimney sweeps were known to suffer from scrotal cancer due to soot irritation; lung diseases were common in cotton factories and mines; 'phossy jaw'—necrosis of the jaw bone—disfigured matchstick makers who worked with phosphorus unprotected. And there was the simpler possibility of being maimed or killed by getting caught in factory machinery. Urban centres were pathological. As the Leeds physician Charles Turner Thackrah (1795–1833) summarised: "Not 10 per cent of the inhabitants of large towns enjoy full health".

It is perhaps unsurprising then, that in such conditions infectious disease was rampant. Tuberculosis flourished in the crowded conditions and was probably the biggest killer, though fevers like diphtheria and scarlet fever, poxes like measles and smallpox, and water borne diseases like typhoid and typhus were common and deadly too. In an age of empire, diseases would travel too. The first cholera pandemic spread from India in the 1820s, though failed to reach Europe. Cholera did reach Europe in subsequent pandemics over the course of the nineteenth century though, killing millions across the continent. What could be done?

Responses took two main forms: the invention and initiation of simple measures intended to improve the health of the locale, and more major efforts at improving the health of whole population areas through the building of infrastructure and the creation of governmental apparatus and legislation.



Two quite different but vitally important health measures were the development of hand washing by doctors, and advocacy by medical practitioners for improved drainage and sewerage in towns and cities to combat diseases like cholera. The former was first promoted by the Viennese doctor Ignaz Semmelweis (1818–1865), the latter by the London-based physician John Snow (1813–1858). Significantly, both developments were supported by their advocates through the use of statistics. Semmelweis noticed that cases of childbed fever were significantly higher in the half of the maternity ward handled by medical students compared to midwifery pupils—29% compared to 3%. He identified the cause as the medical students arriving in the ward straight from the autopsy room. After he had ordered that the students wash their hands with chlorinated water before deliveries, mortality plummeted. Unfortunately, this did not immediately catch on—germ theory was not widely accepted, and the idea that doctors were the cause of harm was understandably unpopular: they were there to help! Snow's work involved carefully recording and mapping instances of a cholera outbreak in the Soho area of London in 1854. Suspecting that the disease was water borne, he located a water-pump on Broad Street as the centre of the outbreak, and had the handle taken off. Instances of cholera dramatically decreased, and Snow's theory was proved, which was an important piece of evidence for the wider uptake of germ theory. Furthermore, Snow advocated sanitary improvements as the central way of combatting the disease, a call that was taken up by the government, who funded major sewage works for London, completed in 1875.

Such work was part of wider moves by governments to intervene in the attempt at regulating and improving the health of the public. Just as at local levels, statistical analysis was an important tool for governments. In Britain, the Chadwick Report provided an overview of the health of the whole country, compiled from a series of local reports by Edwin Chadwick (1800–1890), who viewed disease as the main cause of poverty. His work led to the Public Health Act (1848), which aimed to put sanitation and water supply under the control of local boards of health who would appoint medical officers in their jurisdictions. Such boards were legally empowered to act in order to ensure sanitary conditions were upheld. Subsequent acts, such as the Local Government Act (1858) and the Sanitary Act (1866) extended the powers of local municipalities still further.

In terms of reducing the rate of infectious disease, such measures appear to have worked. Historians have identifying twin trends of increasing population and declining infection rates as indicators that disease was gradually coming under control. However, there is debate over the true cause of these trends. The physician and historian Thomas McKeown argued that improved living conditions, and especially better nutrition after 1850 were more important than any public health measures. This has been challenged by Simon Szreter who emphasises the importance of human agency and public health in the decline in infectious diseases. Alternatively, Sumit Guha looks beyond human factors in the decline by suggesting that the diseases themselves became less lethal in this period. Whatever the answer, this debate nicely illustrates the difficulty in ascribing concrete causal factors to long-term statistical trends in health.

It is also valuable to look beyond bald numbers in assessing the effects of policy on the public. Returning to Britain, many public health measures and medical practices were actively opposed by members of the public, who were concerned with the extension of state power over people's lives. Consider the Contagious Diseases Act (1864). Intended to reduce instances of venereal disease amongst the army and the navy, it allowed police forces in specific localities to remove women who they deemed to be prostitutes from the street, subject them to examination for venereal disease, and place them in special hospitals if they were



found to have venereal disease. There was huge opposition to the act. As well as being hypocritical—it protected diseased men whilst criminalising potentially all women—the act extended medical supervision and control over the population. The feminist and social reformer Josephine Butler (1828–1906) was successful in having the act repealed in Britain in 1867, and continued to campaign against similar acts enacted in British controlled India.

Other campaigns attacked medical practice more directly. The experimental vivisection of animals was viewed by many in Britain as encouraging the needless suffering of animals. Frances Power Cobbe (1822–1904) founded the National Anti-Vivisection Society in 1875 and found some success in tightening the laws around experimental vivisection. A similar campaign concerned with the extension of state power over the individual was the anti-vaccination movement. Vaccine acts were passed in 1840, 1853, 1867, and 1898 in Britain, all aimed towards increasing the number of people vaccinated, with children particularly targeted for compulsory vaccination. Whilst opposition to such measures might seem surprising—it was for the greater good, after all—in a context where the Contagious Diseases Act passed, it is understandable why such measures were viewed with suspicion.

5. Conclusions

The resistance that public health measures perceived as particularly onerous and invasive by society encountered emphasises that medicine and medical practice is fundamentally social. Throughout this lecture, we have returned repeatedly to the relationship between the medical practitioner and the patient. Whether illness was understood as an imbalance of humors or a specific, anatomically located lesion, the ultimate subject of concern was necessarily the patient. Changes in medical understanding and practice from 1600 to 1900 fundamentally changed the doctor-patient relationship, but the fact is that individuals still needed treating, even as they were referred to even more specialised doctors, or considered as a statistic that needed improvement.

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