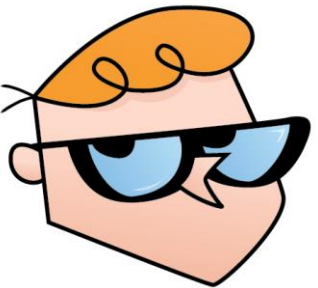


# Medicine Answers

# WAGOLLS

(What a Good  
One Looks  
Like)



**Do you expect to see much progress in medicine and understanding of health during the medieval period? (12) Explain your answer.**

You may use the following in your answer:

- The power of the Christian Church
- The attitudes of Kings and governments

You **MUST** also use information of your own.



Overall, I do not expect to see much progress in medicine during the Medieval period. There are a number of reasons for this, linked with the beliefs, attitudes and actions of people at that time.

Firstly, the church was a very powerful organisation in Medieval times. It had huge influence over people's lives and controlled knowledge. Libraries were controlled by the church and monks wrote the books. The church disliked change and people who had new ideas or challenged church teachings in some way could be punished. For example, the church taught that disease was often sent as a punishment from God. This was unhelpful as far as medicine was concerned because people would believe it was God's will whether you recovered or not and therefore may not have tried to seek out the real causes or treatments and may have been punished if they did. Also, the majority of books that were produced in Medieval times were religious books, there were few science or medical books for example which would further hold back progress.

Secondly, the kings and governments of the medieval period had different priorities than governments today. Their chief preoccupations were defending the country and punishing law breakers. The health of the people or public health in towns were not a priority. Taxes were not raised to pay for public health but for war. This lack of concern for public health would not help medicine and health make progress.

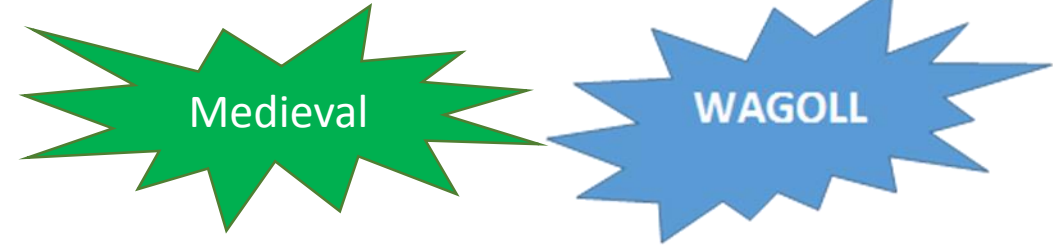
Finally, towns had public health problems caused by food and transport at this time. Animals were slaughtered for their meat in the towns and their blood and waste products contaminated the streets, often running down open gutters, as did their manure as transport was horse drawn. As there was no public health provision this would not have been dealt with effectively and would have caused health risks.

Overall I do not expect there to have been much progress in medicine in this period. However, by the end of the period there were the beginnings of change. The printing press was invented which meant knowledge could spread more easily and also the Catholic church was beginning to be challenged which may have helped loosen their influence. These changes, coming so late in the period (the Printing Press first came to England in the 1470s) would have had more impact on medicine in the next period however, than the medieval period itself.

**'The 4 humours theory was the main idea about the causes of disease in medieval times.'** How far do you agree? Explain your answer. (16 marks)

You may use the following in your answer. You must also include information of your own:

- Galen
- Bloodletting and Purging



The theory of the 4 humours proposed that the human body contained four liquids or humours, namely blood, yellow bile, black bile and phlegm. Good health required these to be in the correct balance. Poor health and illness occurred when these liquids became unbalanced. This theory originated in Ancient Greek times and was continued in the Roman period, particularly by the famous doctor Galen.

By the medieval period the 4 humours theory was certainly still a common belief. This can be seen in the attempted cures and treatments tried, particularly with the Black Death. Galen's theory of opposites where symptoms believed to be caused by too much blood were treated with cooling foods such as lettuce and cucumber were tried by medieval doctors. The 4 humours remained an important belief for a number of reasons. A medieval doctor stated that 'as Galen said, the body does not become sick unless it contains evil humours' and Galen was still very much believed in medieval times, partly because he was endorsed by the Catholic church which was very dominant during this time period. To have questioned Galen would have indirectly have meant questioning the Catholic Church which was unwise.

However, the church dominated medicine in other ways also; medieval people were taught by the church that disease was sent by God as a punishment for sin. This was seen as a major cause of illness and groups such as the Flagellants beat themselves to show God they were sorry for their sins as an attempt to avoid the disease.

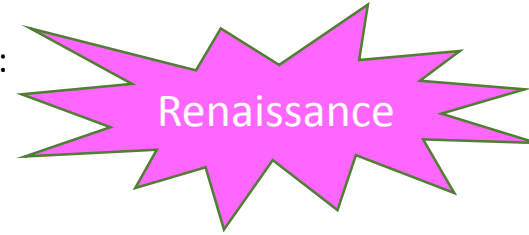
There were other ideas about causes in this period however; religion did not totally dominate medical thinking. A common belief was in bad air or miasma, whereby something such as stagnant water, or an earthquake could release foul smells into the air and spread disease. Also the movement of the stars and planets was thought to influence events on earth and could be a sign of 'terrible or wonderful things happening'.

In summary, I do not fully agree with the view expressed in the question, the 4 humours theory was one of a number of ideas about the causes of disease in medieval times. It had been believed for over a thousand years and continued throughout the medieval period but people clearly had other ideas about the cause of disease too as is evident by the cures and treatments they tried.

**“Vesalius’ work on anatomy was a major breakthrough in medical knowledge during the period 1500-1700.” How far do you agree with this view? Explain your answer (16 marks)**

You may use the following in your answer. You must also include information of your own:

- Galen
- Cambridge University



Vesalius was a pioneer in the study of anatomy, taking huge risks to understand more about the human body, even stealing the bodies of criminals to dissect and investigate. His work resulted in him publishing a book called *The Fabric of the Human Body* in 1543. I agree his work was a major breakthrough in many ways as it was the first accurate book of the human body with anatomical illustrations showing the muscles, skeleton and location of major organs. He was one of the first to challenge Galen’s work; in fact he corrected over 200 mistakes Galen had made. Galen, who mostly had to dissect pigs and apes made mistakes about the human body by assuming the human body was similar. In fact he was wrong; the human jaw bone is made of one bone, not two as he had said. This was one of many mistakes Vesalius corrected.

Despite many people being unwilling to accept Galen could be wrong, Cambridge University was using Vesalius’ book by 1560 thus ensuring future physicians would have better, more accurate knowledge. This would make Vesalius’ work a significant breakthrough. He was aided by the time in which he lived. The printing press meant his work could be widely circulated and the Renaissance artists meant the illustrations were accurate.

However, it could be argued Vesalius’ work did not really achieve a great deal in terms of people living longer, having better health or curing disease. His work was an important stepping stone for the future, rather than having a big impact immediately. He did however help make dissection much more acceptable with Cambridge University carrying out dissections from the 1560s.

Also, there were other important breakthroughs during this time period, Harvey’s work on the heart and circulation of blood around the body was also significant. However, Harvey came later and perhaps might not have been able to do his work if Vesalius had not been the trailblazer. Harvey also dissected bodies and was determined to understand things for himself. Harvey also corrected mistakes made by Galen such as proving that blood circulated around and was not consumed by the body as a fuel.

Overall I agree to a large extent that Vesalius was significant in terms of knowledge of the human body and his work, along with Harvey’s, corrected many mistakes that had been widely believed for over a thousand years. Other, later discoveries would be needed by other doctors and scientists before people were living longer, healthier lives but Vesalius was certainly significant in understanding the structure of the body and advancing anatomical knowledge.

**‘There was little progress in medicine in Britain during the Renaissance period. (1500 – 1700)’ How far do you agree with this view? (16 marks)**

You may use the following in your answer. You must also include information of your own:

- Vesalius
- Royal Society



It would be incorrect to say there was no progress in medicine during the period as the Renaissance saw big steps forward in terms of a questioning approach, big improvements in terms of understanding the structures and workings of the body and changes for the better in terms of the training of physicians. It was also a period where ideas could be communicated more easily. However, no effective cures were found for killer diseases and life expectancy did not improve so progress was limited to some extent.

The work of Vesalius and Harvey both brought about progress in knowledge of the human body and meant incorrect ideas that originated with Galen over a thousand years before could now be challenged. His ideas about the skeleton were challenged by Vesalius in his published work - ‘The Fabric of the Human Body’ in 1543. Universities started to teach Vesalius’ work rather than Galen’s meaning future physicians would have a better understanding of the body’s structure, organs, skeletal system and so forth.

Similarly, Harvey’s work resulted in publishing work showing the heart was a pump and that blood continually circulated, and was not burned up as a fuel as had been thought previously. Both of these men produced work that was an important stepping stone to the future, especially for better and more accurate surgery. The Renaissance was also a time where, thanks to the printing press, new ideas could be more quickly exchanged and spread and groups such as the Royal Society helped circulate these new ideas.

However, progress in understanding the causes of disease, and therefore how to treat disease was more limited. Ideas about the causes of disease, as can be seen in the ideas about the outbreak of the plague in 1665, had not advanced much since medieval times. Beliefs about causes still centred around the 4 humours, miasma, astrology and the idea that God sent disease as a punishment. Nothing really new emerged.

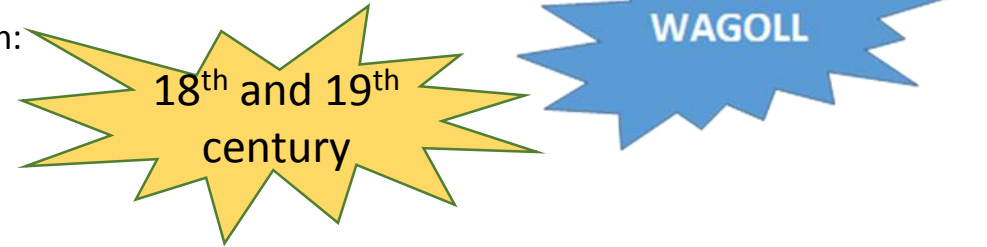
Consequently, this meant that ideas about cures and treatments did not change much either with bloodletting, purging, attempting to balance the humours or prevent miasma with sweet smelling herbs still dominant as they had been in the medieval period. Perhaps the only progress might be seen in the fact that in the Renaissance period they appeared to understand better that human contact could spread disease, hence the closing of the theatres in London during the plague outbreak and the village of Eyam isolating itself from outsiders to prevent the disease spreading.

Overall, despite the Renaissance being a more questioning time with factors such as the printing press and even early microscopes to help advance knowledge I would agree progress was still limited and confined to one area, knowledge of the human body. Until more was understood about the causes of disease, progress was always going to be limited, therefore I only agree with the statement to a limited extent.

## Explain why there was rapid change in surgery during the 19th century (12 marks)

You may use the following in your answer. You must also include information of your own:

Anaesthetics  
Joseph Lister



The nineteenth century saw big changes in surgery. At the beginning of the period, survival rates in operations were very low. Blood loss, infection and medical shock killed many patients. Operations were seen as a last resort and patients feared surgery greatly. Due to the pain of surgery, surgeons worked extremely quickly meaning mistakes could be made. Robert Liston was a high speed surgeon who accidentally amputated more than he should have in several operations. Patients needed to be held down to stop them thrashing around and this increased the difficulty for the surgeon.

However, as the century progressed, some important breakthroughs were made that improved surgery greatly. Pain was the first of the problems to be tackled. In the 1840s surgeons were becoming interested in chemicals that could be inhaled to make patients unconscious. Laughing gas (nitrous oxide) and ether were both tried although neither were ideal. The effects of laughing gas were fleeting and ether was flammable and irritated the respiratory system and made patients vomit. James Simpson, a Professor of Midwifery was seeking a better alternative and discovered the anaesthetic properties of chloroform in 1847. It seemed to have none of the side effects and proved an effective anaesthetic. Despite objections from some quarters, it began to be used by many surgeons thus greatly reducing the fear and dread of surgery and making childbirth less of an ordeal.

However, change is not always progress. The next twenty years of surgery became known as the 'black period' of surgery due to mortality rates increasing as surgeons tried longer, more complex and more internal surgery which made infection rates soar.

A break through for this came in the 1860s. Louis Pasteur published the germ theory which led to Joseph Lister seeing the possible application of this in surgery. He used carbolic acid to kill the germs that Pasteur had written were present everywhere; he later developed a spray to mist over the operating site. As a result of this his survival rates in operations increased to 85% by 1867.

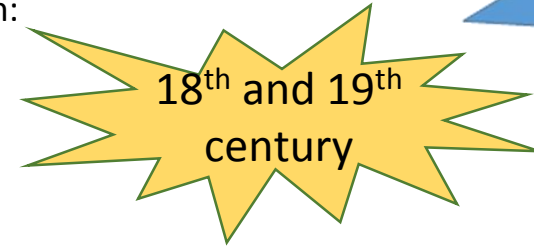
Lister's antiseptic surgery soon evolved again into aseptic surgery. This was an attempt, as far as is possible to keep the operating theatre germ free. Masks, gloves, sterilising equipment and scrubbing up all became common practice by the end of the century. This was an important change in surgery as it made survival rates much better as infection was much less likely.

Overall the work of key individuals, some chance and the application of new scientific thinking to medicine, all helped to make surgery much safer by the end of the nineteenth century than it had been at the start. Only one major issue was still present at the end and that was blood loss. The twentieth century would have to solve that.

## Explain why there was rapid change in nursing care during the 19th century (12 marks)

You may use the following in your answer. You must also include information of your own:

Crimean War  
St Thomas' Hospital



The quality and standards of nursing changed dramatically in the nineteenth century largely due to the work of Florence Nightingale. In the early 1800s, nursing was a job, in the words of Nightingale herself, that was for those “too old, too weak, too drunken, too dirty, too stupid or bad to do anything else.” It was a job with low status, no training and nurses were often accused of being drunk or idle.

However, Florence Nightingale, a wealthy upper class woman, was determined to become a nurse and despite considerable opposition from her family went to train to be a nurse in Germany. Later, her work in the Crimean War in the 1850s where she nursed injured British soldiers and transformed the death rate from over 40% to just 2% made her a national hero. This gave her, on her return, a platform back in Britain and she used this influence to make changes to the hospitals back in Britain. She wrote two bestselling books that became standard texts for nurses and advised architects on hospital designs, emphasising the need for airy, well ventilated wards. Most crucially of all she opened the first training school for nurses at St Thomas' Hospital London where good character was emphasised and strict standards of behaviour were expected.

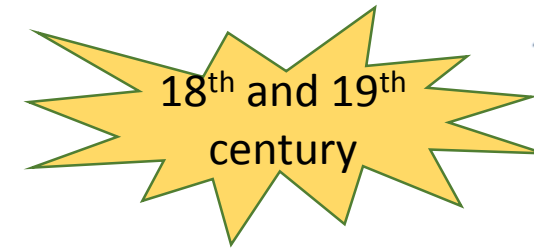
Nightingale's work had a considerable impact on nursing standards. However, much of what she did, emphasising cleanliness and good ventilation was right but done for the wrong reasons. She believed in miasma, the 'bad air' theory as the cause of infection and was sceptical about the germ theory when it was published in the 1860s.

Nevertheless, her work, combined with the work of Lister and antiseptic and later aseptic methods in hospitals did much to transform nursing, patient care and hospital standards and the overall status of nurses in the public's mind.

**'John Snow's work linking water with the spread of cholera led to major breakthroughs in preventing the spread of disease' How far do you agree? Explain your answer (16 marks)**

You may use the following in your answer. You must also include information of your own:

The Broad Street Pump, Soho  
The Public Health Act 1875



John Snow's work on cholera was an important breakthrough in some ways as he was the first person to realise that cholera was spread through contaminated water rather than miasma as had been previously thought. His work in Soho around Broad Street in 1854 proved water was the source of the outbreak. By plotting the cholera deaths onto a map he showed that the water pump was at the centre of the outbreak and was therefore a likely cause. He took action in the locality and removed the handle. There were no more deaths so in that regard he was important to the local area.

However, despite presenting his findings to the government in a report, he did not succeed in influencing things much further. He was unable to prove scientifically that water was the cause and cholera did return again in the 1860s. The government, probably reluctant to commit large sums of money that to improving water supplies, did nothing in the short term.

Despite this initial reluctance to take action, by 1858 the Great Stink had forced the issue up the noses of the MPs and made it very difficult to ignore. These two events, Snow's work and the hot stinking summer of 1858 did seem to influence the government into taking some action as they gave £3 million for a new sewage system to be built which would have helped prevent the spread of water borne diseases like cholera. It took over two decades to be built but it was an engineering masterpiece.

Other scientific and medical breakthroughs were needed though before real progress could be made on preventing disease and before Snow's work would be fully accepted. Louis Pasteur's germ theory, published in the early 1860s meant increasing numbers of people were prepared to accept disease could be caused by germs and microbes and Robert Koch's work on identifying specific bacteria meant, by the late nineteenth century, the cholera bacteria could be identified for the first time, thus proving John Snow's theory correct.

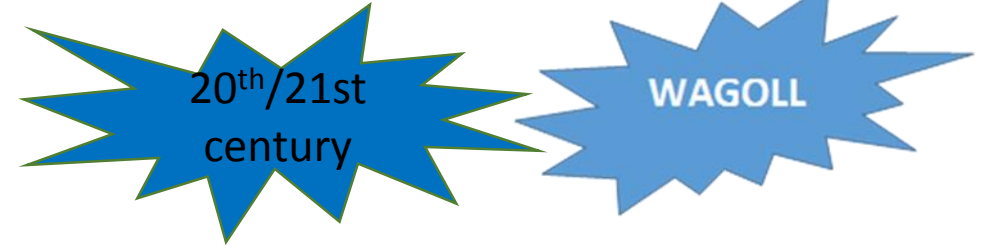
Overall, Snow was an important first step in making the connection between water and cholera but other further scientific breakthroughs were necessary before the link could be proven. By the late 19<sup>th</sup> century a number of factors had come together to force the government to act and pass the 1875 Public Health Act, of which John Snow's work was just one.



**The development of penicillin was a major breakthrough in the treatment of illnesses during the twentieth century.' How far do you agree?**

You may use the following in your answer. You must also include information of your own:

Florey and Chain  
Infections



Penicillin was the first antibiotic; the first person to recognise its potential was Alexander Fleming in 1928 as he saw it had the capacity to kill bacteria. However, it wasn't until the Second World War that teams led by Florey and Chain found ways to mass produce it. It has been hailed as the greatest medical advance of the 20<sup>th</sup> century as it was an effective cure against a whole range of infectious diseases and infected wounds. It was crucial in the Second World War during D Day in June 1944 where it helped save thousands of injured soldier's lives and may have helped tipped the balance of the war more quickly towards victory for the allied forces. It, and other later forms of antibiotics, have helped save millions of lives world wide and it continues to be an important drug today.

However, a drug is only useful if people have access to it and without the NHS being set up in 1948 in Britain, it is possible it would have been too expensive for ordinary people to benefit from, so it could be argued that the NHS is as, or perhaps a more important factor in the treatment of illness in the twentieth century. Furthermore, there are now some strains of bacterial infection that are now resistant to most antibiotics including MRSA, an infection that can cause terrible problems in hospitals. It is also noteworthy that antibiotics have become over used in many cases and are prescribed where they cannot really help. For example, antibiotics cannot treat viruses. Also, their routine use in the food chain by being put into animal feed means they are being over exposed and new strains of antibiotic are needed to be developed to stay one step ahead of the bacteria.

Overall I largely agree that penicillin has been a significant turning point and has saved countless lives. Simple cuts that get infected or infections in the body no longer cause the fear they once did and people no longer die in large quantities from infection. Whether antibiotics continue to be effective well into the 21<sup>st</sup> century remains to be seen however.