Section 4: Changes in health and medicine, c.1345 to the present day

Chapter 10: Developments in medical knowledge

10.1 What were the main medical ideas common in the late Middle Ages?

Exam practice (page 106)
Describe the Theory of the Four Humours. [5 marks]

Sample answer: The Theory of the Four Humours was developed by ancient Greek and Roman doctors and it dominated medical knowledge throughout the Middle Ages. It was the belief that the body contained four important liquids called humours. These were phlegm, blood, black bile and yellow bile and they were related to the four seasons (winter, spring, summer, autumn) and to the four elements (air, fire, earth, water). It was believed that a person became ill when the humours became unbalanced, or when there was too much of one humour and not enough of another. If this was the case a medical physician would take action in an attempt to restore the balance. This often meant removing excess liquid. Excess blood was removed by making the patient bleed, and excess bile was removed by making the patient vomit. Belief in the four humours continued until it was challenged by advances in medical knowledge during the Renaissance in the sixteenth century.

Comment: This response displays the characteristics of a high performing answer. It is a detailed and well-structured answer which describes the four humours and their links to the four seasons and the four elements. The methods used by medical physicians to maintain a balance between the four humours and therefore keep a person healthy, are also described. The concluding sentence comments how the Renaissance resulted in the emergence of alternative theories to the four humours.

10.2 What were the main developments in medical knowledge, 1500–1700?

Exam practice (page 110)
Look at Sources A and B. Explain why medical knowledge changed during the sixteenth and seventeenth centuries. [7 marks]

Sample answer: Medical knowledge increased gradually during the sixteenth and seventeenth centuries due to influences like the Renaissance which began in Italy before 1500 and then spread across Europe. The contributions made by specific individuals like Paracelsus, Paré and Vesalius did much to advance medical understanding. Source A comments how Vesalius advanced knowledge of human anatomy. By dissecting the body and producing detailed charts and drawings on things like the nervous system, Paré questioned the beliefs of ancient Greek physicians such as Galen. In 1543 Vesalius published a book The Fabric of the Human Body which contained fine anatomical drawings. The publication of such works helped further medical knowledge and encouraged others to experiment. Source B describes the experiments conducted by the Englishman William Harvey in the seventeenth century. In 1628 he discovered through experimentation and dissection that the heart acted as a pump, recirculating the blood in the human body. He also made the distinction between arteries and veins.
Sources A and B therefore show how the Renaissance encouraged experimentation and scientific enquiry and helped fuel significant advances in medical knowledge due to the pioneering work of individuals such as Vesalius and Harvey.

Comment: This response displays the characteristics of a high performing answer. It is a structured and well-informed answer. There is a clear attempt to explain and analyse the content of both sources, expanding on points and providing historical context. Reference has been made to change and the reasons for it – the impact of the Renaissance which opened up a period of experimentation and questioning and the importance of key individuals.

10.3 How much progress has been made in medical knowledge from the nineteenth century to today?

Exam practice (page 112)

How important was the work of Louis Pasteur and Robert Koch in the development of medical knowledge in the nineteenth century? [8 marks]

Sample answer: The work of Louis Pasteur and Robert Koch was very important in the development of medical knowledge in the nineteenth century. Pasteur developed the ‘germ theory’ which suggested that germs were the cause of disease. Through examining the causes of diseases he discovered that the process of heating liquids helped to kill germs, a process which came to be known as pasteurisation. Pasteur went on to develop vaccines for diseases like chicken cholera, anthrax and rabies, and experimented in methods of vaccination and immunisation. Koch developed this work further by isolating the bacteria responsible for TB, cholera and anthrax. He pioneered the new science of bacteriology, proving that a specific germ caused a specific disease, and in 1905 he was awarded the Nobel Prize for his research work. Through their experiments with germs, both Pasteur and Koch played very important and significant roles in the development of medical knowledge. Later scientists were able to use their methods to develop a vaccine for diphtheria and syphilis.

Comment: This response displays the characteristics of a high performing answer. It is a well-supported answer which identifies and explains the contributions of Pasteur and Koch to the advancement of medical knowledge, giving specific examples of their work. Equal weight is given to both scientists and there is a clear judgement in the concluding section which links back to the question, spelling out their importance.

Chapter 11: Changes in the prevention and treatment of disease

11.1 How did methods of treating disease change from the late Middle Ages to the eighteenth century?

Exam practice (page 118)

Describe the work of Edward Jenner in the eighteenth century. [5 marks]

Sample answer: Edward Jenner was a country doctor who pioneered the development of vaccination. He carried out experiments to find out why milkmaids who had suffered from cowpox never caught smallpox. Smallpox was an infectious disease which had no cure and had a high death rate from those who contracted the disease. Through his experiments Jenner discovered the process of vaccination to protect individuals against catching smallpox. He published his research findings in
1798 in a book called ‘An Inquiry into the causes and effects of the variolae vaccinae’ and in 1802 he was awarded a grant by the government to open a vaccination clinic in London.

Comment: This response displays the characteristics of a top performing answer which is structured and well informed. Several key aspects of Jenner’s work are described in some detail, such as his experimentation and the development of the smallpox vaccination. There is good use of specific terminology such as smallpox, vaccination and variolae vaccinae.

11.3 What have been the main turning points from the twentieth century to today?

Exam practice (page 124)
Have methods of preventing and treating disease always been successful from the Middle Ages to the present day? [12 marks & 3 marks for SPaG]

Sample answer: The methods of preventing and treating disease have not always been successful from the Middle Ages to the present day and many people have continued to die from diseases. However, the methods used to treat disease have evolved since 1345 and many of them have benefitted from earlier discoveries.

Developments during the Middle Ages were rather slow and, due to limited medical knowledge and understanding, frequently lacked success. Traditional treatments and remedies like blood-letting were used by barber surgeons from the Middle Ages up to at least the eighteenth century and were not always successful.

Significant change took place during the eighteenth century with improvements in technology. The invention of the microscope helped in the advancement of medical knowledge by allowing the viewing of things not clearly visible to the naked eye, especially micro-organisms. Towards the end of the century Edward Jenner pioneered the discovery and use of vaccination and through his work a vaccine to combat smallpox was developed. In the nineteenth century, as knowledge of the human body advanced, important developments took place in the methods of preventing and treating disease. James Simpson was the first to use chloroform as an anaesthetic which improved surgical techniques by allowing operations to proceed with more care and provide pain relief for patients. Joseph Lister pioneered the use of antiseptics which made infection following an operation less likely thus improving survival rates for patients.

Specific developments took place during the twentieth century, particularly in relation to the discovery of magic bullets. Alexander Fleming brought about the re-discovery of penicillin and the development of wonder drugs like Salvarsan 606 has significantly improved the treatment of disease. In the last decades of the twentieth century significant advances were made in transplant surgery following Dr Christian Barnard’s pioneering heart transplant surgery in the 1960s. The development of immunosuppressive drugs have improved survival rates for transplant patients and today such organs as the heart, liver, lungs, pancreas and corneas can be successfully transplanted.

While much progress has been made in the prevention and treatment of disease it has not always been a story of success or of constant progress. For several centuries, from 1345 to the early eighteenth century, progress was slow and not very successful. The eighteenth and nineteenth centuries saw significant change and each development helped to fuel the next. Rapid change took place during the second half of the twentieth century and this has continued into the present century, particularly in relation to transplant surgery and the development of wonder drugs. However, the story is not always one of continual success and even today doctors can only slow down the pace of certain cancers and diseases like HIV/AIDS rather than cure them. Also, some methods like the use of Thalidomide for pregnant women in the late 1950s were not successful.
Comment: This response displays the characteristics of a high performing answer. It is a very thorough account of the methods used to prevent and treat disease from 1345 to the present day. The introduction and conclusion address the key issue of a line of development, outlining the key periods of change but also periods when the pace of change was slow. The discussion part of the essay provides specific detail on developments within a number of timeframes, paying specific attention to developments in the eighteenth, nineteenth and twentieth centuries. There is a clear focus on the key issue of change and development. The standard of spelling, punctuation and grammar is very good throughout.

Chapter 12: Developments in public health and patient care

12.1 How were the sick cared for from the late Middle Ages to 1800?

Exam practice (page 126)
Outline the methods used to combat the plague during the Black Death. [5 marks]

Sample answer: The Black Death spread rapidly across Europe during 1348–49 causing the death of up to 40 per cent of the population. Several methods were used to try to limit the spread of the disease. Travellers were placed in quarantine zones before being allowed to enter a town, and the bodies of the dead were taken away to be buried in plague pits outside the town walls. Infected families had to board up doors and windows to prevent the spread of the disease. People took potions like theriac or carried scented flowers and herbs in the belief that they would kill off the plague. The clothes of diseased people were burnt and flagellants whipped themselves in a display of suffering, hoping the disease would pass them by. Doctors wore gowns and hoods when making house calls, their hood containing a beak which was stuffed with herbs.

Comment: This response displays the characteristics of a top performing answer which is structured and well informed. Several examples are given of how people attempted to stem the spread of the disease. There is good use of specific terminology such as quarantine, theriac and flagellants.

12.2 What were the main advances in the nineteenth century?

Exam practice (page 130)
Look at Sources A and B. Explain why public health improved in the nineteenth century. [7 marks]

Sample answer: Source A is a picture showing the poor living conditions of a family sharing a single room in the basement of a house in an industrial town in the early nineteenth century. Such rooms were often damp and lacked any running water or toilet facilities. These houses were built quickly by the factory owners to house their workers as close as possible to their factories and they were not subject to any planning regulations. Source B refers to the work of Edwin Chadwick who investigated living conditions in the new industrial towns. In 1842 he published his report which made the link between poor living conditions and poor health. Chadwick put pressure on the government and made recommendations for improvement, believing that laws were necessary to force local authorities to provide a clean water supply, drains and sewers. Eventually parliament took action and passed the Public Health Act in 1848 which set up local Boards of Health. The two sources illustrate the changes that took place in public health due to the campaigns of individuals like Chadwick which helped to persuade parliament to pass legislation, forcing local authorities to take action.
Comment: This response displays the characteristics of a high performing answer. It is a structured and well informed answer. There is a clear attempt to explain and analyse the content of both sources, expanding on points through the inclusion of own knowledge. Reference has been made to change and the reasons for it – the squalid living conditions of industrial workers and the campaigns by individuals like Chadwick which forced the government to pass legislation to improve public health.

12.3 How has health care improved from the twentieth century to today?

Exam practice (page 135)
Why was the establishment of the National Health Service in 1948 a turning point in the provision of health care? [8 marks]

Sample answer: The Beveridge Report of 1942 identified disease as one of the major evils facing British society and recommended the setting up of a free national health service. Beveridge made the point that as people had to pay to see a doctor, have an operation, visit the dentist or have an eye examination, many could not afford these treatments and so went without. These issues created health problems for the nation and in 1946 the Minister of Health, Aneurin Bevan, was successful in passing the National Health Service Act. The NHS came into being in 1948 and by making regular payments into the National Health Insurance Scheme people were entitled to free treatments. This was a major turning point as it provided the same quality of medical care regardless of age, social class or wealth. Everybody was treated equally. For the first time poorer people now had free access to doctors, dentists, opticians and medical treatments which previously they could not afford. As a result the health of the British population improved, proving that the creation of the NHS was a turning point in the provision of health care.

Comment: This response displays the characteristics of a high performing answer. It is accurate and well informed, being supported with specific factual detail. The opening section outlines the reasons why the NHS was needed, and the second half of the answer considers the consequences of its creation. The conclusion makes clear reference to ‘turning point’ and provides a reasoned judgement.

Exam practice (page 136)
Have standards in public health and patient care always improved from the Middle Ages to the present day? [12 marks & 3 marks for SPaG]

Sample answer: Standards in public health and patient care have not always improved from the Middle Ages to the present day. Until late Victorian times governments did not consider it their responsibility to provide measures to improve or monitor public health and it was not until after the Second World War that government took on the responsibility for health care. Up to this point it was believed that it was the responsibility of local communities to sort out public health and standards varied considerably across the country.

During the Middle Ages it was the church which provided some patient care through its hospitals and infirmaries. Such basic treatment remained almost unaltered over the coming centuries. Methods of combating the Black Death in 1349 and later outbreaks of the plague were haphazard and such issues were left to individual towns to deal with. Patient care was ineffective, with no trained doctors or nurses available to look after ill patients.

Change really came about as a result of the industrial revolution which saw the rapid growth in population levels, especially in the fast developing industrial towns and cities like Manchester, Sheffield and Birmingham. London’s population rose dramatically during the early nineteenth
century, resulting in social squalor, poor living conditions and frequent outbreak of diseases such as cholera and typhoid. Victorian gentlemen like Edwin Chadwick attempted to put pressure on government to improve standards of public health and such efforts resulted in the passing of the Public Health Act in 1848 which set up local Boards of Health. This did bring about improvements in public health through the provision of piped water and the building of sewers. In terms of patient care change came about as a result of campaigning by the nurse Florence Nightingale. She laid down new standards for nursing in hospitals, thereby improving conditions for patients.

Change was gradual and it was not until after the First World War that government took action to provide more sanitary housing. It was the result of bombing during the Second World War that brought about the clearance of slum housing, while the passing of the Clean Air Act in 1956 improved air quality, especially in London. Government was slow to recognise its responsibility and it was not until the establishment of the NHS in 1948 that the government became fully involved in patient care. While the NHS is now the main provider of patient care, the late twentieth century has seen the emergence of some private BUPA hospitals. Today there is more emphasis on palliative care, allowing patients the dignity of being cared for at home rather than in hospital during their last days.

While standards in public health and patient care had improved since 1345 the pace of change has varied. Between 1345 and the early nineteenth century developments were slow and improvement was limited. The Victorian era brought about some significant change, forcing the government to take on more responsibility for patient care and public health. Such development has continued up to the present day but it has not always brought about improvement. Even today waiting lists in many hospitals remain long and patients run the risk of further illness from modern infections such as MRSA and C-Diff. Even the ambulance service in Wales is currently under attack for poor performance records, suggesting that change has not always brought about improvement in standards.

Comment: This response displays the characteristics of a high performing answer. It is a very thorough account of developments in public health and patient care from 1345 to the present day. The introduction and conclusion address the key issue of developing and improving standards, outlining the key periods of change but also periods when the pace of development was slow. The discussion part of the essay provides specific detail on improvements in standards within a number of timeframes, with specific attention being paid to developments in the nineteenth and twentieth centuries. There is a clear focus on the key issues of development and improvement in standards of public health and patient care. The standard of spelling, punctuation and grammar is very good throughout.