Some examples of Factors of Change in the development of medicine.

You will need to apply these examples appropriately with specific dates and details for the highest grades at GCSE.

INDIVIDUALS

It is very important to know about people who made a contribution to medicine. Exam boards often ask questions about the importance of individuals as Factors of Chance. Therefore for each person you will need to know the period that they came from and some clear facts about their contribution. You will also need to describe what other factors over and above the contribution of the individual were important for each example.

Hippocrates (460-377BC) , Galen (129-199 AD), Avicenna (980-1037AD), Pare (1510-1590 AD)

Vesalius (1514-1564 AD)

Harvey (1578-1657 AD), Jenner (1749-1823 AD), Pasteur (1822-1895 AD) Koch (1843-1910)

Lister (1827-1912), Garret-Anderson (1836-1917)

Chadwick (1800-1890), Simpson(1811-1870)

Nightingale (1820-1910).

GOVERNMENT

Romans had a strong government organisation backed up by an extensive civil service and were thus able to develop their excellent public health system

French and German governments helped Pasteur and Koch. In the 1860s -1880's - tremendous progress in the development of vaccinations e.g. Chicken cholera, rabies, anthrax etc.

Liberal government in Britain (1906-1916) - first social security reforms and National Insurance for health care set up in 1911

British and American governments fund work in penicillin - Florey and Chain 1938-1944

Labour government set up NHS 1948 - free health care for all

CHANCE

Pare runs out of oil 1536 - had to use a mixture including eggs, rose oil and turpentine - proved far more effective than boiling oil!

Charles Chamberland (Pasteur's assistant) injected chickens with weakened strain of chicken cholera by mistake - discovered by chance then the weakened or attenuated culture had made the chickens immune 1880.

Pasteur and his meeting with the boy bitten by a dog - developed rabies vaccination 1885

Fleming and Penicillin. Fleming noticed by chance the bacteria killing qualities of the mould penicillin notatum by chance in 1928

RELIGION

Egyptian religious belief in life after death helps knowledge of the Human body. Bodies were mummified by priests increasing knowledge of anatomy. Surgical tools also advanced.

Islamic belief in looking after the sick and the elderly

Work of Christian monks in the Middle ages - a Christian duty to look after the sick

Renaissance and reformation - questioning of RC belief by religious reformers such as Luther, Calvin and Zwingli led to a questioning atmosphere in which more progress was possible

SCIENCE AND TECHNOLOGY

Scientific observation and enthusiasm for scientific enquiry during the Renaissance e.g. The Royal Society founded 1660.

Science develops during the Industrial Revolution allowing scientists and chemists to use technologies like the microscope in the mid Nineteenth century.

Use of science in research, chemicals developed.

Scientific and technological advances lead to machines and materials e.g. Wilhelm Roentgen discovered X rays in 1895

Surgical technology and scientific progress allowed for the first heart transplant operation by Christian Barnard 1967

WAR

Building an Empire involved WAR. The Romans needed fit soldiers so they developed a good public health system. Roman soldiers also provided the need for progress in battlefield surgery

War wounds give surgeons like Pare (1510 1590) opportunities. Pare developed a soothing lotion to replace cauterisation. Also developed artificial limbs and new surgical tools

Crimean War (1853 -56) helps the development of nursing. Gave Florence Nightingale the opportunity to conduct her work in Scutari.

Franco - Prussian 1871 war helps rivalry between Pasteur and Koch. Both men's work fuelled by nationalist pride.

First World War (1914-18) and blood transfusions. War created the impetus for the application of Landsteiner's work on blood groups and transfusions

Second World War helped to develop penicillin and plastic surgery. Penicillin first mass produced in 1942 in response to the demand created by the casualties of War

COMMUNICATIONS

Invention of the printing press by Johann Gutenberg 1454 and its use by Caxton in England in 1476 greatly speeded up the spread of new "Renaissance" ideas

Industrial revolution 1750 onwards:

Better transport; canals, roads, rail

Electric telegraph and greater and greater communication stimulates debate.

Medical journals such as the "The Lancet" allowed scientists to share and developed idea. E.G. Lister first read about Pasteur's germ theory in "The Lancet" which led to his development of carbolic spray in surgery in the 1860's