STUDY GUIDE

Changes in Medicine, c1848–c1948

Edexcel - IGCSE

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Treatments in the First World War
In this study guide, you will see a series of icons, highlighted words and page references. The key below will help you quickly establish what these mean and where to go for more information.

**Icons**

- WHAT questions cover the key events and themes.
- WHO questions cover the key people involved.
- WHEN questions cover the timings of key events.
- WHERE questions cover the locations of key moments.
- WHY questions cover the reasons behind key events.
- HOW questions take a closer look at the way in which events, situations and trends occur.
- IMPORTANCE questions take a closer look at the significance of events, situations, and recurrent trends and themes.
- DECISIONS questions take a closer look at choices made at events and situations during this era.

**Highlighted words**

- Abdicate - occasionally, you will see certain words highlighted within an answer. This means that, if you need it, you’ll find an explanation of the word or phrase in the glossary which starts on page 17.

**Page references**

- Tudor (p.7) - occasionally, a certain subject within an answer is covered in more depth on a different page. If you’d like to learn more about it, you can go directly to the page indicated.
Changes in Medicine c1848 - c1948 is an Edexcel iGCSE Breadth Study. It covers the changes in and development of medicine in Britain from the Public Health Act of 1848 to the beginning of the National Health Service, examining developments in medical knowledge, surgery, nursing, treatment and public health, as well as the impact of the world wars.

**Purpose**
This course allows you to understand the nature, extend and process of change in medicine. You will be able to identify the key features and characteristics of medicine in this time period, and develop the ability to explain, analyse and make judgements about the developments in medicine during this time.

**Enquiries**
The course is split into the following enquiries:

- The development of nursing, including the role of Florence Nightingale and the impact of women in nursing during the world wars.
- Surgical advances, including Lister and the development of aseptic surgical practices, anaesthetics, Simpson and the discovery of chloroform, Landsteiner and the development of blood transfusions and surgical practices in the world wars.
- Developments in public health, including the work of Chadwick, the Public Health Acts of 1848 and 1875, the impact of industrial cities on health, cholera and the work of John Snow, the Liberal reforms of 1906 and the introduction of the NHS.
- Improving medical knowledge. This includes the work of Pasteur and Koch on germ theory, the development of Magic Bullets, the discovery of penicillin and the work of Fleming, Florey and Chain.
- The impact of the world wars on medicine, including the challenges of trench warfare and advances in medical understanding, surgical practices, and nursing.

**Key Individuals**
The following key individuals are covered in this course:
- Edwin Chadwick.
- James Simpson.
- Joseph Lister.
- Louis Pasteur.
- Robert Koch.
- Paul Ehrlich.
- Karl Landsteiner.
- Harold Gillies.
- Harvey Cushing.
- Alexander Fleming.
- Howard Florey.
- Ernst Chain.
- Archibald McIndoe.
- Dwight Harken.
- Wylie McKissock.

**Assessment**
This unit is assessed on Paper 2 Section B. The paper contains three questions.

- Question (a) is worth 6 marks. It will ask you to explain two differences or similarities across the time period. You must use specific details from each example to fully explain the similarities or differences.
- Question (b) is worth 8 marks. It will ask you to explain two causes or consequences of an event. You must use accurate, relevant and detailed historical facts to show how each cause led to the event, or how each consequence resulted from it.
Question (c) is worth 16 marks, and you will have a choice of one of two questions. It will ask you to make a judgement about 'how far' a historical statement is true. You must select at least three points to support your answer, use accurate, relevant and detailed knowledge to explain and analyse whether they support the statement, and reach a judgement based on the points that you have made. The question will give you two bullet points to help you to answer, but you must use at least one more of your own.
THIS IS A SAMPLE.
REVISION SECTION REMOVED.
CHANGES IN MEDICINE, C1848-C1948

1842

1847
- Chloroform discovered by James Simpson

1848
- Public Health Act

1854
- Broad Street Pump identified by John Snow as source of cholera epidemic

1861
- Pasteur's first publication on germ theory

1865
- First use of carbolic acid in surgery by Lister

1875
- Public Health Act

1876
- Medical Act allowed women to be doctors

1878
- Pasteur's 'Germ Theory' published

1882
- Tuberculosis germ identified by Koch

1895
- X-rays discovered by Roentgen

1901
- Different blood groups identified by Landsteiner

1906
- Liberal Party won the General Election

1907
- Free medical checks introduced in schools

1909
- 'Magic Bullet', Salvorsen 909, discovered by Ehrlich

1910
- Radiation treatment for cancer developed by Curie

1911
- National Insurance Act established national health insurance

1914
- 1914 - 1918 - First World War

1915
- Techniques for improving the storage of blood developed by Weil

1917
- Plastic surgery unit opened at The Queen's Hospital, Kent

1925
- Penicillin discovered by Fleming

1932
- Prontosil discovered

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Florey and Chain worked on penicillin

Beveridge Report

National Health Service established
MEDICINE BEFORE 1848
Slow progress in medical understanding for centuries

What was medicine like before 1848?
For hundreds of years before 1848 (p.0), progress in medical knowledge had been very slow.

Why didn't medicine progress much before 1848?
There were a number of reasons why medical knowledge took a long time to progress before 1848 (p.0).

- Medical knowledge was based on ideas which were ultimately wrong, but which seemed rational and logical to people at the time.
- Scientists weren't very clear about anatomy and how the human body worked.
- People, including doctors and their patients, preferred to stick to their traditional ways of doing things.
- The technology used to make discoveries took a long time to develop.
- Some people and institutions - for example the medieval Church - benefitted from controlling the level of understanding around health.
- Nobody took responsibility for funding and encouraging research. The government did not see it as its business.

What medical theories did they have before 1848?
The theories of medicine before 1848 often appeared logical, but prevented further discoveries.

- For a long time, many diseases were believed to be caused by supernatural forces. These could only be countered by non-medical treatments.
- The Theory of the Four Humours was developed by Hippocrates in Ancient Greece. He believed that illness was caused by an imbalance of four liquids in the body - blood, choler (yellow bile), black bile, and phlegm.
- Galen, in the second century BCE, developed Hippocrates' Four Humours Theory with the Theory of Opposites. He suggested that diseases could be cured by providing food and conditions that were opposite to the illness. For example, cold wet food should be eaten by someone with a hot, dry fever.
- Miasma, or 'bad air', was believed to cause a lot of illnesses. This belief lasted from medieval times until the nineteenth century.
- The spontaneous generation theory suggested that microorganisms were created by decay, and went on to create miasma.

How did understanding of anatomy help medical progress before 1848?
There were 4 important ways the understanding of anatomy help medical progress before 1848 (p.0).

- For hundreds of years, anatomical understanding was based on the work of Galen.
- Anatomical discoveries helped doctors to understand the human body and illness better.
- In 1543, Andreas Vesalius's book called 'On the Fabric of the Human Body' based on his discoveries in dissection helped doctors to understand the human body better.
- In 1628, William Harvey's book 'On the Motion of the Heart and Blood', helped understanding the circulation system.

What technology helped medicine to progress before 1848?
The development of technology made some medical advances possible.

- The introduction of the printing-press to England in 1476 made it easier for doctors and scientists to share ideas.
- A growing understanding of iatrochemistry in the 1600s gave doctors new minerals and metals to work with.
- The development of water pumps in the 1600s inspired William Harvey to understand the circulation system.
- The invention of the microscope in 1665 meant that scientists could see microorganisms.
- The invention of the thermometer in 1709 meant that doctors could observe and record body temperature.
New ideas gather pace

Did you know: Each of the four humours was believed to cause a different sort of mood.
People with too much blood were thought to be 'sanguine' - cheerful and energetic. Too much choler made them bossy and 'choleric'. Too much black bile made the 'melancholic' and sad, while too much phlegm made them 'phlegmatic' - calm and slow to react.

THE UNDERSTANDING OF DISEASE IN THE 19TH CENTURY

What was the understanding of disease in the 19th century?
In the mid-nineteenth century, understanding of disease was based on miasma and spontaneous generation.

What did people believe about miasma and disease in the 19th century?
People still believed that disease was carried through bad air.

What was the understanding of spontaneous generation in the 19th century?
Spontaneous generation was a theory that rotting material - such as food and excrement - created microorganisms, which caused miasma and disease.

Why did the understanding of disease not progress in the 19th century?
There were 2 main factors affecting medical progress and understanding in the mid-nineteenth century.
- Hospitals relied on charity for funding. There was generally little money available for research.
- Doctors wanted to continue to work as they always had, and were reluctant to try new methods for treating patients.

What were the main changes that led to understanding disease in the nineteenth century?
There were 5 main changes that allowed for medical progress in the 19th century.
- The development of microscopes allowed Louis Pasteur (p.0) to develop and publish his germ theory (p.0) in 1861.
- Supernatural and religious ideas about disease were dying out.
- More hospitals were built, and the work of Florence Nightingale (p.0) meant they were a lot cleaner.
- The development of anaesthetics and antiseptics led to improvements in surgery.
- The government began to take more action and implemented measures to improve public health.
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THIS IS A SAMPLE.
REMAINING PAGES REMOVED.
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Abolish, Abolished - to stop something, or get rid of it.

Alliance - a union between groups or countries that benefits each member.

Amputate, Amputation - to surgically remove a limb from someone's body.

Anaesthetic - a drug used in surgery to remove pain by causing a temporary loss of sensation or awareness.

Anatomy - the study of how the body is made up internally, what it looks like, how it is structured and how the different parts are positioned.

Antibiotics - microbes that can kill germs that cause diseases.

Antiseptic - a substance that kills harmful bacteria to prevent infection.

Artillery - large guns used in warfare.

Aseptic - an absence of germs and harmful bacteria; surgically sterile.

Bacteria, Bacterium - a microorganism that causes diseases.

Bacteriology - the study of bacteria.

Bile, Black bile - one of the four 'humours' in medieval medicine. A black substance observed in excrement and vomit, it probably constituted clotted blood.

Blood group - refers to the type of blood someone has and used to distinguish between different types for blood transfusions.

Blood transfusion - the process of giving a patient blood from a donor.

Campaign - a political movement to get something changed; in military terms, it refers to a series of operations to achieve a goal.

Casualties - people who have been injured or killed, such as during a war, accident or catastrophe.

Catgut - a material made from the dried, twisted intestines of sheep or horses and used as a ligature.

Cesspit - a hole which has been dug to store sewage and waste.

Charters - a legal written grant, issued by a monarch or country's legislative power, permitting certain rights or privileges.

Choler - pus or stomach acid found in vomit. It was one of the four 'humours' in medieval medicine.

Circulation, Circulatory - the movement of blood around the body, pumped by the heart.

Civil servant - a person who works for the government, either at national or local level.

Conference - a formal meeting to discuss common issues of interest or concern.

Contagious - something that spreads from one person or organism to another, usually referring to illness or disease.

Council - an advisory or administrative body set up to manage the affairs of a place or organisation. The Council of the League of Nations contained the organisation's most powerful members.

Culture - the ideas, customs, and social behaviour of a particular people or society.

Diagnose - to work out the nature or type of a disease, illness or medical condition by looking at the symptoms.

Diphtheria - a serious bacterial infection that can lead to breathing difficulties, heart failure, paralysis and even death. It mainly affects children.

Dissection - the careful and methodical cutting apart of a body or plant to inspect its structure.

Empire - a group of states or countries ruled over and controlled by a single monarch.

Epidemic - an outbreak of disease that spreads quickly and affects many individuals at the same time.

Eradicate, Eradication - to destroy something and completely wipe it out.

Extreme - furthest from the centre or any given point. If someone holds extreme views, they are not moderate and are considered radical.

Fasting - to deliberately refrain from eating, and often drinking, for a period of time.

Fatalities, Fatality - Deaths.

Front - in war, the area where fighting is taking place.

Gangrene - the death of body tissue due to either lack of blood or serious bacterial infection.

General anaesthetic - a state of controlled unconsciousness using drugs, usually during surgery so the patient can not feel any pain or move.

Germ - microorganisms that can cause disease. The name was coined by Louis Pasteur as he saw them germinating.

Hygiene, Hygienic - a term for conditions or practices with the aim of maintaining good health and preventing disease, especially in regard to cleanliness.
Iatrochemistry - a branch of both chemistry and medicine, seeking chemical solutions to disease and illness, popular during the 16th and 17th centuries.

Independence, Independent - to be free of control, often meaning by another country, allowing the people of a nation the ability to govern themselves.

Industrial - related to industry, manufacturing and/or production.

Industrialisation, Industrialise, Industrialised - the process of developing industry in a country or region where previously there was little or none.

Industry - the part of the economy concerned with turning raw materials into into manufactured goods, for example making furniture from wood.

Infection - the result of disease-causing microorganisms finding their way into a wound or suitable body tissue and multiplying.

Laissez-faire - the idea a government should take a hands-off approach to matters such as public health or the free market; it translates from the French as 'let it be'.

Liberal - politically, someone who believes in allowing personal freedom without too much control by the government or state.

Ligature - something used to tie or bind tightly; an example in medical use is around a limb to slow bleeding from a wound.

Limb - an arm or leg.

Local anaesthetic - a way to numb an isolated part of the body using medication, for example to prevent pain during minor surgery or stop an injury hurting.

Magic bullet - a chemical compound that will kill a specific germ without harming other cells.

Malnutrition - lack of proper nutrition caused by not eating enough of the right things or not having enough to eat. It can also be caused by the body not being able to use the food that is eaten.

Mass - an act of worship in the Catholic Church.

Medic - someone who has medical knowledge but is not a doctor.

Medical chemistry - a branch of both chemistry and medicine, seeking chemical solutions to disease and illness, popular during the 16th and 17th centuries.

Medieval era, Medieval times, Middle Ages - the period from circa 1250 to 1500.

Miasma, Miasma theory, Miasmata - the theory that diseases were caused by a bad air.

Microbe - a living organism that can only be seen through a microscope.

Minister - a senior member of government, usually responsible for a particular area such as education or finance.

Mortality, Mortality rates - refers to death; the mortality rate shows how many people are dying in a society.

Neurosurgeon - a surgeon who specialises in neurosurgery.

Neurosurgery - the medical specialism concerned with the diagnosis and treatment of injuries to the brain, spinal cord and spinal column.

No man's land - the land between the opposing sides' trenches in the First World War.

Pharmaceutical - relating to medicinal drugs, the industry that manufactures them, and their preparation, use or sale.

Phlegm - the thick liquid produced by the mucous membranes, usually coughed or sneezed out during illness.

Physician - someone qualified to practise medicine, often used as another name for a doctor.

Pioneer - the first person to explore or settle in a new area.

Poverty - the state of being extremely poor.

Prevent, Preventative, Preventive - steps taken to stop something from happening.

Printing press - a machine that reproduces writing and images by using ink on paper, making many identical copies.

Production - a term used to describe how much of something is made, for example saying a factory has a high production rate.

Prosthetic, Prosthetic limb - an artificial body part.

Provision - the act of providing or supplying something for someone.

Psychological - referring to a person's mental or emotional state.

Raid - a quick surprise attack on the enemy.

Rational - when something is based on reason or logic, like science.

Reform, Reforming - change, usually in order to improve an institution or practice.

Revolution - the forced overthrow of a government or social system by its own people.

Satellite state - a country under the control of another, such as countries under USSR control during the Cold War.

Sepsis, Septicaemia - life-threatening and potentially fatal blood poisoning, where an existing infection triggers a chain reaction throughout the body.

Shrapnel - small pieces of metal from exploding shells or bombs.
which caused injuries to soldiers.

**Skin grafts** - a surgical procedure that involves removing healthy skin from one part of the body and transplanting it to a different area.

**Splint** - a strong, straight device used to protect and support a broken limb, keeping it in place.

**Spontaneous generation** - the theory that rotting material, for example food and excrement, created disease.

**State, States** - an area of land or a territory ruled by one government.

**Sterilisation, Sterilise** - to clean something so it is free of bacteria; also refers to a medical procedure that prevents a person from being able to reproduce.

**Supernatural** - an unscientific explanation for an event or manifestation unattributable to the laws of nature.

**Symptom** - an indication of something, such as a sign of a particular illness.

**Syphilis** - a bacterial infection usually transmitted through sexual contact.

**Terrain** - a stretch of land and usually used to refer to its physical features, eg mountainous, jungle etc.

**Territories, Territory** - an area of land under the control of a ruler/country.

**Transfusion** - the process of transferring donated blood to a patient.

**Vaccination, Vaccine** - from the Latin ‘vacca’, meaning cow. Originally it referred to giving a person cowpox to prevent smallpox, but is now used for all methods of introducing a weak strain of a disease as a way of building immunity.

**Ward, Wards** - A ward is someone who is taken under the protection and power of someone else, usually because it is believed that they do not have the capacity to know what is best for them.

**Welfare** - wellbeing; often refers to money and services given to the poorest people.

**Workhouse** - a place for poor people who were unable to work or support themselves.

**Yellow bile** - pus or stomach acid found in vomit. It was one of the four ‘humours’ in medieval medicine.
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