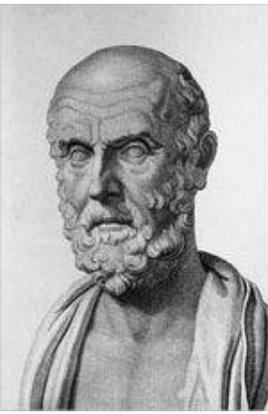


Who's who? Health and the People



Hippocrates



Hippocrates was a Greek philosopher 460BC to 377BC known as the 'father of medicine'

SHORT TERM

Theory of the four humours based on the ideas of greek philosophers like Thales, Anaximander, Pythagoras and Aristotle
Everything made from 4 elements - earth, air, water and fire.
Applied to the human body - blood, phlegm, yellow bile and black bile.
An imbalance caused illness
Using clinical observation the doctor tried to bring the four humours back into balance eg bleeding or purging.

LONG TERM

The Hippocratic Oath - doctors promised to give their best treatment not to harm the patient and keep everything confidential.
Created the Hippocratic collection (books which passed on his ideas to later generations)
Clinical observations - doctor had to study his patients carefully
'Observation, Diagnosis, Prognosis and Treatment'
Hippocrates rejected the ideas of gods or magic

LIMITATIONS

Religion - people still believed in the Gods
Nobody questions the ideas for 2000 years

FACTORS

Communication

Ibn Sina



'Galen of Islam'

SHORT TERM

Compiled a summary of all medical knowledge called 'The Canon of Medicine', chapters on eating disorders and obesity,

LONG TERM

The Canon was used as a standard text in European schools and Universities

LIMITATIONS

Crusades and Christian beliefs meant some people would not trust the new discoveries or views.

FACTORS

Communication
Religion

Al Razi



Medical researcher, especially interested in children's medicine

SHORT TERM

Wrote 200 medical books
Identified the symptoms and developments of smallpox
Wrote 'Doubts about Galen'

LONG TERM

Rejected ideas about the humours
Edward Jenners work on Smallpox vaccination

LIMITATIONS

Crusades and Christian beliefs meant some people would not trust the new discoveries or views.

Rejected Galen's ideas - people not willing to follow this

FACTORS

Communication
Trade
Religion

1800s

DISEASE & INFECTION

Edward Jenner



Jenner 'father of immunology'

SHORT TERM

He noticed that milkmaids who caught cowpox (a non-fatal version) from their cows did not catch smallpox. In 1796 he took pus from a cowpox scab on a girl named Sarah Nelmes and placed it into 2 small cuts on the arm of an 8 year old boy, James Phipps. 6 weeks later he did the same with smallpox but Phipps showed no reaction. The cowpox had prevented him from catching smallpox.

LONG TERM

In 1853 the government made vaccination against smallpox compulsory for children.
2 other people had used cowpox to prevent smallpox before but Jenner's impact was because he proved his theories using scientific methods and experiments.
Carefully recorded his work on Phipps
1799 he carried out a national survey to prove his findings.

LIMITATIONS

Doctors carrying out inoculation were against it because they would lose money.
Religious people said smallpox was a punishment from God and it was wrong to interfere with God's plan
People feared that being vaccinated might turn them into cows
Most doubted that a country doctor like Jenner could make such an important discovery
Jenner could not explain why it worked.

FACTORS

Technology
Individual
(Government)

1800s

DISEASE & INFECTION

Louis Pasteur



Discovered the existence of germs.
Before Pasteur people still believed in miasma (bad air) or spontaneous generation.

SHORT TERM

1857 Pasteur was asked by local wine growers to investigate why wine often became sour. Using a microscope, Pasteur discovered that it was germs that caused the wine to go off. Further experiments showed:
Germ made other liquids like milk go sour
The souring was caused by germs in the air
These germs could be killed by heating the liquid – a process called ‘pasteurisation’.
Many scientists refused to believe him. So he designed an experiment with a swan-necked flask to prove that germs in the air caused decay. He carried this out in public many times.

The next step was to show that germs could cause disease in animals and humans.
In 1865 while working in the silk industry, Pasteur proved that the disease which was killing silkworms was caused by germs. The link between germs and animal disease was made!

LONG TERM

Influenced the work of Robert Koch

LIMITATIONS

- Despite public experiments other doctors refused to believe his ideas
- Pasteur had not been able to identify a germ that caused human disease.
- In 1868 Pasteur was forced to give up his work because of a stroke.

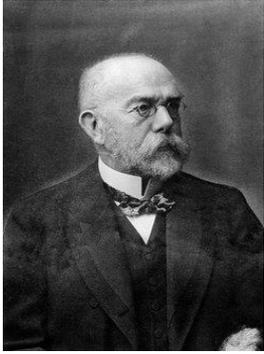
FACTORS

- Technology
- Individual
- Chance

1800s

DISEASE & INFECTION

Robert Koch



Robert Koch (German) had a fierce rivalry with Pasteur (French).
So he employed a highly skilled team of researchers to help him.

SHORT TERM

Koch's methods made it easier to study germs by:
Using new industrial dyes to stain individual germs so that they could be seen.
Devising a way to grow a group of the same germs
Developing a way of photographing germs to share information.
His achievements after 1872:
able to identify the germ that caused tuberculosis

LONG TERM

Other scientists began using Koch's methods and soon the germs causing typhoid, diphtheria and pneumonia were discovered.

LIMITATIONS

•His ideas could not help with viruses

FACTORS

Technology
Individual

1900s

DISEASE & INFECTION

Paul Ehrlich



1. Description of the work of Ehrlich ...

SHORT TERM

2. Identify short term impacts ...

LONG TERM

3. Identify long term impacts ...

LIMITATIONS

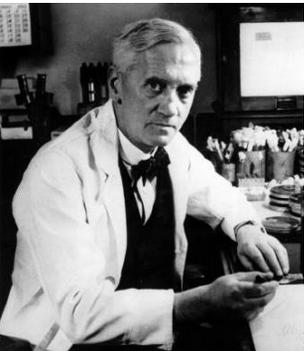
4. Identify Limitations ...

FACTORS

1900s

Alexander Fleming

DISEASE &
INFECTION



1928 - he discovered penicillin

SHORT TERM

He had seen firsthand how soldiers in WW1 died, not from wounds but from simple infections caused by germs getting into those wounds.

While tidying his laboratory he made an accidental discovery. Fleming saw a mysterious mould growing in one of his old culture dishes that seemed to have killed all the harmful bacteria around it. He realised that the mould should be studied and found it was penicillin, the properties had been known for over 100 years.

LONG TERM

Needed Florey and Chain to develop the drug further for human use

LIMITATIONS

He had to turn it into a pure drug to be effective. Unable to do this.

FACTORS

War
Chance
Individual
Government

1900s

Florey & Chain

DISEASE & INFECTION



Created pure penicillin

SHORT TERM

1938-41 Producing pure penicillin.

Howard Florey working with Ernst Chain decided to see if they could produce and experiment with pure penicillin

By 1940 they had produced small amounts - tested successfully on mice. October 1940 tried on a human. It was working on a policeman but they ran out of the drug

WW2 meant big companies could not provide resources to produce the drug

LONG TERM

1941-44 Mass production

1941 Florey flew to America to ask for research funds but US about to enter WW2. The US govt saw potential of using penicillin to treat wounded soldiers. Gave \$80 million.

US govt made companies share research data

By 1944 it was being mass produced and used on D-Day. After the war penicillin being used for civilian use and became known as an antibiotic.

LIMITATIONS

Could not have made progress without Fleming's discovery

FACTORS

Science and Technology
Individual
Government

Galen



Galen very important as he argued that doctors should learn as much as possible about the body's workings and structure. He recommended dissections but they were banned due to religious reasons. So turned to animals instead.

SHORT TERM

At a dissection of a live pig Galen showed how different nerves controlled movement and vocal cords.
He proved that the brain, not the heart, controlled speech.

LONG TERM

Wrote several hundred medical books; these contained works of previous doctors like Hippocrates and his own on diagnosis, treatment and surgery. Galen's books look like a complete encyclopaedia of medical knowledge and this was the reason why Galen became the supreme authority on medical matters for centuries.
Galen's ideas also fitted nicely with the ideas of the Christian Church. Probably why he was unchallenged for 1500 years. During the Middle Ages the Church controlled education. Galen was not Christian but he did believe that that the human body was a work of perfection created by one god. To question Galen was therefore seen as blasphemous as it fitted with the Christian idea.

LIMITATIONS

He did however make mistakes e.g. Human kidneys were arranged one on top of the other.
the heart works as a machine, the blood the fuel.
blood supply could be replenished by eating red meat and drinking wine.

FACTORS

Individual Religion

Ambroise Paré



Paré was a French barber surgeon
Worked in the French army and for the royalty
Wrote the book *Works on Surgery* in 1575

SHORT TERM

Before Paré surgery was brutal (burning oil poured into wounds!)
Contribution
Treated wounds with soothing ointment of egg yolks, turpentine and rose oil for cauterising wounds
Used silk threads called ligatures to stop bleeding
Designed prosthetic limbs for wounded soldiers.

LONG TERM

Helped to focus on improving lives for soldiers on the battlefield

LIMITATIONS

Using ligatures was slow to many surgeons on the battlefield carried on cauterising.
If the silk threads were dirty they could increase infection
He had no formal education so he was looked down upon by others
The problems of pain and infection remained unsolved for 300 years

FACTORS

Individual War

Andreas Vesalius



Vesalius came from an Italian medical family
 He studied in France and Italy and was a professor of surgery at Padua University
 Wrote *The Fabric of the Human Body* in 1543

SHORT TERM

Galen had been unquestioned for 1500 years.
Contribution
 First anatomical textbook
 He proved Galen wrong e.g. Jawbone was one part, not two
 AND that human kidneys were not located one on top of the other.

LONG TERM

People began to question Galen and feel able to do so
 Knowledge of the human body

LIMITATIONS

Impact was limited because many doctors refused to accept Galen was wrong
 Vesalius' work did not cure anyone and had no practical uses.

FACTORS

Individual Communication

William Harvey



Harvey was an Englishman who studied at Cambridge and Padua
He was physician to Charles II
Specialist in blood circulation

SHORT TERM

Galen said the heart was a machine
Contribution
Harvey dissected animals and humans, performed experiments and kept detailed notes
Proved that the heart pumps blood in 1 direction around the body
Showed that blood passes through the heart via the septum and that the arteries take blood away from the heart and the veins bring blood back in

LONG TERM

Harvey's discovery later contributed to Landsteiners blood groups and Barnards heart transplant surgery.

LIMITATIONS

Limited impact because doctors refused to accept these ideas
His account of blood movement was limited as he could not explain how blood moved between the arteries and veins (capillaries - which were discovered in the 17th century with the microscope)
Harvey's work had limited practical value at the time. Did not help people to get better till blood groups discovered

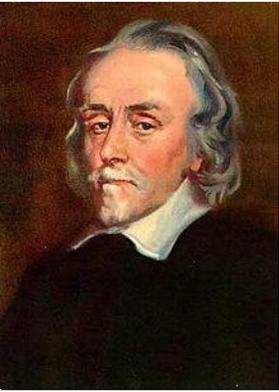
FACTORS

Individual
Communication
Science

1800s

James Simpson

SURGERY &
ANATOMY



Scottish doctor

SHORT TERM

Simpson worked constantly to refine the purity of chloroform and did make himself ill in order to advance anaesthesia. Within weeks of Simpson's discovery, chloroform was being used in surgery and childbirth all over Europe.

LONG TERM

Most of the initial opposition to anaesthetics disappeared after Queen Victoria chose to give birth to her son in 1853 under anaesthetic.

LIMITATIONS

Religious groups felt that pain, particularly in childbirth, was sent by God and should therefore be suffered.

Doctors and dentists were worried about the correct dose of chloroform because they did not realise that men, women and children needed different quantities, and as a result some patients had died.

Some doctors felt that anaesthetics made little difference to the outcome of the operation.

FACTORS

Individual
Communication
Science &
Technology

1800s

Joseph Lister

SURGERY &
ANATOMY



Use Pasteur's work to develop a way to kill germs

SHORT TERM

He developed the use of carbolic acid to kill germs
He soaked his instruments in it and used a carbolic spray to kill germs in the operating theatre
Lister cut the death rate from 46% to 15% in 3 years and promoted the idea of sterile surgery

LONG TERM

Aseptic surgery - stop germs getting into the operating theatre.
Professors Neuber and Bergman insisted that all surgeons clothes, hands and instruments were sterilised before use.
The American William Halstead developed rubber gloves for all doctors and nurses to avoid the spread of germs.

LIMITATIONS

Some doctors thought the sign of a skilled surgeon was the speed with which he worked.
Carbolic acid was unpleasant to use. Dried out doctors skin, made their eyes water and irritated the throat.
Many doctors still refused to accept Pasteur's germ theory and therefore thought them unnecessary.

FACTORS

Individual
Communication
Science &
Technology

1800s

Wilhelm Rontgen

SURGERY & ANATOMY



German doctor

SHORT TERM

In 1895 discovered the x-ray

LONG TERM

During the first world war the government paid for more x-rays to be produced and so helped its development
Helped Marie and Pierre Curie in their radiation research

LIMITATIONS

FACTORS

Individual
War
Science & Technology

1900s

Karl Landsteiner

SURGERY &
ANATOMY



German doctor

SHORT TERM

In 1901 discovered blood groups

LONG TERM

Led to the ability to perform organ transplants

LIMITATIONS

However there was no method of storing blood. The donor had to be in the same room as the patient. The replacement of a patient's blood could not be anticipated and prepared for; this came later with the use of sodium citrate to stop blood clotting.

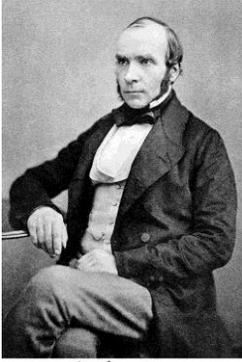
FACTORS

Individual
Communication
Science &
Technology

1800s

Public
Health

John Snow



John Snow

John Snow; London doctor. First to use chloroform and ether as anaesthetics. Helped Queen Victoria give birth. Believed cholera was caused by the water. Seen as the father of modern epidemiology.

SHORT TERM

He mapped where the cholera victims lived and saw that cases were clustered around a water pump in Broad street in 1854. 500 people had died in 10 days. He persuaded the council to remove the handle.

It was later discovered there was a leaking cesspool nearby.

LONG TERM

Influences the government to introduce some public health reforms

LIMITATIONS

Many refused to accept his findings because they did not know why there was a link. Consequently many scientists and doctors held onto theories like miasma and spontaneous generation.

FACTORS

Individual
Communication
Government

1800s

Public Health

Edwin Chadwick



A social reformer

SHORT TERM

In 1842 he published 'Report on the Sanitary Conditions of the Labouring Population'. He proved that poor people in towns lived in overcrowded and unhygienic conditions. This led to illness, low life expectancy, absence from work, no wages, rich having to pay higher taxes.
Chadwick's solution was for the govt to provide public health facilities such as sewers and clean streets and to appoint Medical Officers

LONG TERM

1848 Public Health Act was the first of its kind.

LIMITATIONS

Many rich taxpayers objected to paying for improvements to facilities they would not use.
Local councils resented orders from the central government.
Many people in govt believed in the 'laissez-faire' approach.

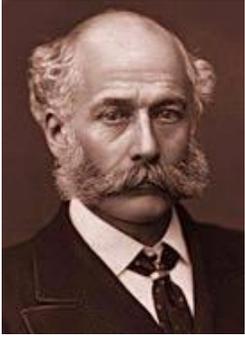
FACTORS

Individual
Communication
Government

1800s

Public Health

Joseph Bazalgette



An engineer

SHORT TERM

The level of the water in the River Thames dropped dramatically and the smell from the river became known as the 'Great stink' - (upset MPs as the Houses of Parliament are on the riverbank!)
Bazalgette was the engineer who designed and supervised the building of the new sewer system. 1000 miles of sewer.
He used an oval tunnel which made it self-cleaning.
Connected the sewers to pumping stations so sewage could be carried out to sea at high tide.

LONG TERM

Ambitious project and took 10 years. His original design and construction is still part of London's sewage system today.

LIMITATIONS

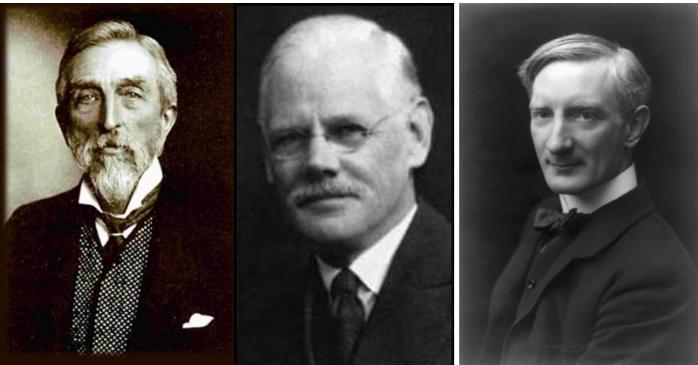
FACTORS

Individual
Chance
Government

1900s

Social Reformers

Public Health



Charles Booth, Benjamin Rowntree and William Beveridge

SHORT TERM

Charles Booth: set out to investigate the East end of London. Discovered 35% of people were living in poverty. Published 'Labour and the Life of the People' in 1889.

Benjamin Rowntree: Inspired by Booth. Carried out own survey about York ('Poverty, a Study of Town Life' (1901). Found that 29% of people in York were living in poverty.

William Beveridge: wrote the report 'Social Insurance and Allied Services' to the government

LONG TERM

Charles Booth proposed Old Age Pensions.

Benjamin Rowntree was a close friend of Lloyd-George and so influenced Liberal reforms.

William Beveridge proposed that workers should pay national insurance each week, so that poor and unemployed people could receive benefits. Formed the basis of the welfare state including the NHS.

LIMITATIONS

Could only propose ideas to the government and hope they would implement them

FACTORS

Individual
Chance
Communication
Government

1900s

Public Health

Lloyd George



Prime Minister - 1916 - 1922

Member of Parliament 1895 - 1916

In 1909 wrote and introduced the People's budget - raising taxes for reforms

SHORT TERM

Provision of School Meals Act, 1906

Old Age Pensions Act - 1908

National Insurance Act (part 1) - 1911

National Insurance Act (part 2) - 1911

LONG TERM

Local councils had to provide school meals

Helped people over 70 who earned less than £21 a year by giving them a pension of 5 shillings a week.

Everyone between 16 and 70 paid 4p into a national fund to which the state and employer added another 5p. This money would then pay for medical care of the sick.

Introduced compulsory unemployment insurance. Workers paid a regular contribution into the fund. The unemployed received 35p of benefit for the first 15 weeks in any one year

LIMITATIONS

Free School Meals not compulsory
Pensions not for those that worked
Labour exchanges did not create jobs
Contributions to the National Insurance scheme were high for poor ppl

National Insurance Act - medical treatment was only for the worker not the family
During 1908 the Liberals lost support to the challenge of the Conservatives and Labour.

FACTORS

Individual
Communication
Government

1900s

Public Health

Aneurin Bevan



Health minister - introduced NHS in 1948

SHORT TERM

Free treatments for patients
National ownership of hospitals
Doctors were paid by the government
Life expectancy in Britain improved.

LONG TERM

Increased pressure to provide services due to the population rising. The range of treatments has increased due to scientific and technological discoveries., costs have risen and people expect more. People are also living longer.
Therefore there are now some limitations to the original principals of free health care for all people;
Some services are paid for; adults now pay for dental, eye tests and prescriptions
Some services are so oversubscribed it takes time to get them e.g. Cancer treatment
Other services are prioritised, whereby each NHS trust decides which treatments should be readily offered based on evidence of effectiveness and good use of taxpayers' money
Some services are not offered universally, e.g. Fertility treatment may not be funded by the NHS in some areas of Britain.

LIMITATIONS

Doctors thought they might become govt employees and lose the freedom to choose treatments and their right to charge fees for seeing patients
Some councils objected to the govt taking over the management of their hospitals
Some people though that poverty and sickness was the result of idleness and therefore a person's fault. Scared poor people would take advantage of it.

FACTORS

Individual
Communication
Government