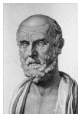




MEDICINE REVISION MAT 1 – MEDIEVAL 1250 – 1500 COLLECT THE SET!

Hippocrates

'Father of Medicine'
 From Ancient Greek times
 Developed 4 humours theory – had to be in balance
 Used clinical observation looked at symptoms
 Believed diet, exercise, rest etc important to health.
 Logical ideas but 4 humours wrong.
 Books he wrote copied out for hundreds of years!



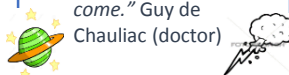
Galen

From Ancient Roman times
 Developed Hippocrates ideas – use of opposites for imbalance of humours
 Wrote books on dissection BUT dissected pigs, chimps etc so got things wrong about humans (assumed same when were not)
 Wrote many books copied out and used into 1500s.
 In Medieval times his work still hugely important as Cath church backed his work, arguing against Galen = arguing against church. Not a good idea!



Ideas about Causes

- 4 humours (blood, phlegm, black bile and yellow bile) imbalanced
- Disease a punishment for sin sent from God
- "Terrible is God towards the sins of man..he uses plagues, famine, war and other suffering to terrify and torment and drive out sins" 14th century monk
- Miasma (bad air) Disease transmitted through foul smells
- Movement of planets – astrology "Such a coming together of planets is a sign of terrible, wonderful or violent things to come." Guy de Chauliac (doctor)



Ideas about Diagnosis

Wound Man chart – showed surgeons how to deal with specific wounds
 Urine charts – colour, clarity, taste considered!
 Zodiac Man charts suggested when to treat specific ailments
 Look for symptoms of excessive humours – flushed, nose bleeds,runny nose etc



Ideas about Treatments/ Prevention

Prayer, lighting candles, holy charms, fasting, pilgrimages – showing God you are sorry "The only hope is to pray to God to urge Him to remove the pestilence and drive away infection..." Archbishop of York
 Bleeding/purging/ exercise/rest
 Herbal remedies (onion, garlic and wine used – all have antibacterial properties)
 During Black Death King issued orders for streets to be cleaned believing miasma was the cause

Who treated the sick

Women - wives, mothers, midwives. – herbal remedies and assistance at births
Physicians – trained at Uni 7 years studied Hippocrates & Galen's books – very theoretical v little practical experience
 Fewer than 100 of them in 1300. V expensive, only for rich
Barber Surgeons performed basic surgery, bleeding, (blood letting) splints, tooth pulling etc
 Trained via apprenticeship or self taught
 Apothecaries (chemist/pharmacist)
 Mixed ingredients for ointments, medicines
Nuns (in hospitals)



Religion! Big one! Catholic church V powerful and they taught Disease a punishment for sin and also Galen was correct and not to be challenged. Held back new ideas. Also disapproved of human dissection

Governments – Public health not Medieval kings' priority generally speaking. All the old Roman public health systems collapsed

Communication – everything handwritten, books rare, expensive and contained errors from endless copying out by monks.. Church controlled education and what was taught...

Factors that influenced health and medicine (for good and bad)



1348 – 1349 swept across England

40% of population died
 25 million across whole of Europe
 Probably bubonic plague – bitten by fleas carrying virus from black rats – painful swellings in armpit, neck, groin (glands) High fever, headaches
 Also pneumonic plague (mutation?) Even more deadly. Attacked lungs
 Edward III ordered streets to be cleaned, Flagellants beat themselves to try to show sorrow for sins in hope of avoiding plague
 Came back many more times but first time most deadly

Hospital Care
First hospitals in 11th century
Provided CARE – food, warmth, prayer
St Bart's in London – oldest hospital in Britain - set up in 1123
By 1400 there were 500 hospitals, many with only 5 or 6 beds
Occasionally a hospital set up for specific cases – 'poor and silly persons'....pregnant, unmarried women.. Etc

Key Vocabulary to enhance your answer!

Continuity

Progress

Regress

Christendom

Monasteries

Miasma

Pestilence

Natural

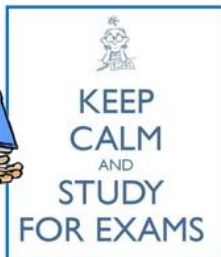
Supernatural

Exam Technique

Don't let this be you...



Plan ahead!



Explain one way in which ideas about the causes of disease were similar in the fourteenth and seventeenth centuries. (4 marks)

What does this question want?

How could this response be improved?

Ideas about the causes of disease were similar in both periods because they believed in bad air in both centuries.

- Explain why there was continuity in ideas about the causes of disease during this period c.1250—1500.

What does this question want?

Plan

MEDICINE REVISION MAT 2 – RENAISSANCE 1500 - 1700 COLLECT THE SET!



Hippocrates



Galen

They still have influence during this period, especially at the beginning. However it is during this time that people begin to question them, especially Galen's writings on the human body and anatomy. By the end of the period, universities are no longer teaching from their works. 4 humours no longer widely believed by end of period

Communication – Printing press – books could be produced cheaper, quicker and outside of the church's control, also Voyages of exploration – new plants as remedies

Religion – power of Cath church weakened by new Protestant church Henry VIII closing monasteries shut a lot of hospitals

Science and Tech – first microscopes! Blurry but realised there was another previously invisible world

Individual Genius – questioning approach of Vesalius and Harvey Attitudes, generally more questioning Royal Society – *Take no one's word for it. Renaissance – great art!*

Factors that influenced health and medicine (for good and bad)

The Great Plague

1665 – another big outbreak in London
 Mayor of London – watchmen to guard plagues affected homes to make sure sick stayed indoors. Crosses on doors. Over 20 watchmen murdered
 Pubs, theatres closed. Fires lit to cleanse the air
 Carried herbs, fresh flowers (Plague doctors wore strange bird like beaks with herbs and flowers inside)
 Strange (desperate) cures – live chickens, toads applied to buboes, chewing tobacco (new plant from Americas)
 Days of public prayer and fasting
 Pigs, dogs etc banned from city centre

Last major outbreak in Britain



Ideas about Causes

A lot of continuity with Medieval period – God, Imbalance of humours, **miasma**, planets

PLUS knew person to person contact possible (Eyam plague – left food and stuff at boundary stone and quarantined themselves)



Ideas about Diagnosis

Urine charts no longer used

Astrological charts were

Ideas about Treatments

Continuity – herbal remedies, bleeding, prayers, charms, street cleaning during epidemics,

NEW – new herbal remedies from overseas (voyages of exploration – quinine from tree bark etc)
 Transference – rub body with an object (e.g stone) to transfer illness onto it.

Who treated the sick

Most religious based hospitals closed down when Henry VIII shut down the monasteries
 Some charity hospitals set up but not until 1700 hospital numbers the same as pre Henry VIII.

Same people Barber surgeons, Physicians, Apothecaries etc (now need a license after a lot of quacks)



Thomas Sydenham 1660s and 1670s *"You must go to the bedside. It is there alone that you can learn about disease."* Stressed importance of careful observation, not just using the old works from ancient times. He was one of the first to use quinine for malaria. Identified scarlet fever. Wrote an important textbook *Observationes Medicae* in 1670s.

Andreas Vesalius

1543 – book published *'The Fabric of the Human Body'*

Took risks – stole dead bodies to dissect – wrote and had printed highly illustrated book on anatomy (helped by Renaissance art)

Proved Galen wrong on several counts (300 in fact!)

Human jaw in one part, not two

Men did not have one pair of fewer ribs than women etc

Encouraged other doctors to find out for themselves and dissect bodies themselves

Controversial though – some refused to accept Galen could be wrong, some claimed the anatomy of humans must have changed since Galen's time!

William Harvey



Physician to the English king. Particularly interested in blood. Worked out veins have valves pushing blood in one direction. Published a book *An Anatomical Account of the Motion of the Heart and Blood in Animals*. (1628)

Proved Galen wrong on several counts – Galen had said that blood was made in the liver and then consumed by the body – (like petrol in an engine or wood on a fire) Harvey proved the blood circulated

And wasn't continually re-made. It was pumped round by the heart

Many people thought he was a crank. Cambridge Uni did start teaching his ideas in the 1670s (but 50 years later!)

Key Vocabulary to enhance your answer!

Royal Society

Dissolution of the Monasteries

Protestant church

Pest houses

Anatomy

Dissection

Printing Press

Alchemy

Microscopes

Transference

Scrofula



Explain one way in which people's reactions to the plague were similar in the 14th and 17th centuries.
(4 marks)

What does this question want?

How could this response be improved?

People's reaction to the plague were similar in the 14th and the 17th centuries as tackling or removing bad air was attempted in both periods.

• Explain why there were changes in the way ideas about the causes of disease and illness were communicated in the period 1500—1700.
(12 marks)

What does this question want?

Plan

What ideas continued?

No real new ones yet but some old ones no longer widely believed (4 humours)

Miasma still believed

However, Science started to win over religion..

What's New?

Microscopes have improved – more powerful lenses – microbes can be seen and this leads to a **new theory – SPONTANEOUS GENERATION**

This is the idea that microbes (even maggots and flies in some versions of the theory) are the result of decay and illness. (Whereas in fact they are the cause)

Also cities starting to grow rapidly (Industrial Revolution) leading to big threats to health (overcrowding, poor housing, lack of clean water, poor sewage disposal etc)

Smallpox – What's so frightening?

Many epidemics in 18th century

Big killer of children

Survivors severely scarred and could have other severe side effects – blindness, deafness

Work of Edward Jenner

Country doctor from Gloucestershire (important)

His surrounding led him to observe milkmaids never got smallpox but did catch cowpox (a mild disease) from the cows they milked. In the 1790s Jenner decides to investigate this.

Take fluid from a cowpox blister from milkmaid Sarah Nelmes and inserted it into James Phipps' (7 year old boy) via a cut in his arm. Later gave him smallpox matter by same method. Boy never developed smallpox. Repeated the experiment another 23 times then published his findings.

Vacca = latin for cow hence vaccination



Inoculation v Vaccination – What's the difference?

Inoculation was the method used by some before Jenner's work. It meant taking smallpox matter from someone suffering from a mild case and inserting it into someone who had not had it. The hope was they would also just get a mild case. Pretty brutal and did not always work.

Plus expensive- doctors charged a lot for this procedure

Why so many objections to the vaccination??

- Inoculators were afraid they would lose money (Jenner gave vaccinations for free and government gave him money to provide free vaccines.) Propaganda like picture above produced by inoculators to put people off vaccines.
- Jenner could not explain exactly how or why it worked
- Religious objections -
- New idea – people suspicious plus a bit odd
- Snobbery – Jenner was 'only' a country doctor – not a smart city doctor

Explain why there was rapid change in the prevention of smallpox after 1798. (12 marks)

You may use the following in your answer:

- **Inoculation**
- **The government**

You must use information of your own as well.

- 1) Inoculation –was the existing (risky and expensive) method of preventing smallpox– give detail
- 2) After 1798 a new, safer method was developed by Edward Jenner (detail about his work and the importance of him as an individual and his careful scientific approach) etc
- 3) Government played a part in reducing smallpox deaths after 1798 too – gave Jenner £30, 000 to provide free vaccines although did not make the vaccine compulsory until 1852 although this was not strictly enforced until 1871. After this date deaths from smallpox fell dramatically. From 1840 the government also made inoculation a crime to try and stop people using that method.
By 1979 (a century later) it was wiped out across the whole world thanks to vaccination – now a dead disease.



MEDICINE REVISION MAT 4 – 19TH CENTURY SURGERY/HOSPITALS COLLECT THE SET!

What's New?

Lots!

Anaesthetics

Germ Theory!

Antiseptic Surgery

...leading to aseptic surgery

Better nursing

Surgical landscape transformed....



What ideas continued?

Miasma (this one takes until the late 1880s to totally be disproved)

Still don't know about blood groups so any kind of blood transfusion usually went wrong

Key Dates

Anaesthetics – 1840s

Antiseptic Surgery -1860s

Improvements to nursing - 1850s/1860s

1880s aseptic surgery

Surgery prior to 1840s – What was so frightening?

Pain! Conscious throughout the procedure! Medical shock! Infection! Bleeding to death!

Nothing clean (surgeons' clothes, tools etc....as no knowledge of germs), loads of people watching the operation (operating theatre..)



Characteristics of surgeons prior to 1840s

Brave, strong (amputation is a physically strenuous thing), Quick!

Surgeons were prized for their speed e.g Robert Liston the high speed surgeon – led to mistakes though

Experienced surgeons let it show on their jackets...

Early attempts at anaesthetics

Opium – calmed patients but did not kill pain

Laughing gas discovered 1790s, used from 1830s – wore off quickly though – useful for teeth pulling and minor quick procedures

Ether – made patients unconscious but flammable, irritating to lungs and caused vomiting – not ideal

James 'sleepy' Simpson 1847 discovers properties of chloroform after inviting colleagues round to inhale the vapours of various new chemicals – after chloroform they were all passed out unconscious. **1853 – Queen uses it during childbirth – royal seal of approval – it becomes popular**

Kills pain, so removes fear and dread of surgery but dosage could be a problem – some died from an overdose (e.g Hannah Greener – 14 year old girl)

1840s – 1860s known as Black Period of Surgery as more operations were done but surgeons trying more internal, complex operations so infections and bleeding became even bigger problems. Some also thought pain was 'God given'

Joseph 'lathery' Lister

Read Pasteur's germ theory when it was published in 1860s. Thought the germs he described that made wine etc. go off may also be responsible for infection in operations. Experimented with carbolic acid in 1865 – dipped bandages in it to dress a broken bone operation wound. The wound healed with no infection.

He later developed a carbolic spray. His own success rate was 85% survival rates in his operations. Did not catch on with all surgeons – carbolic acid is nasty stuff to work with and many refused to believe air full of germs capable of causing infection **By 1890 antiseptic surgery replaced by aseptic surgery (trying to make sure no germs there in first place) – steam sterilising, masks, gloves etc**

Florence 'Nurse' Nightingale

From rich, aristocratic, influential family. Had a vision God wanted her to be a nurse much to her parents' disgust. Took 7 years to persuade them – she trained in Germany and France. Nursed in a home for sick 'gentlewomen' 1854 -asked to go out to Crimean War – British soldiers dying of injuries in terrible hospital conditions.

Took 38 selected women with her.

300 scrubbing brushes ordered, bedding, better food, better drainage. She had the clout and influence to change things. Death rate fell from 40% to 2%. Also presented her work and findings well – good statistics. Allegedly first to present info as a pie chart!

On her return – nation hero. She used this to get 1st training school for nurses opened in 1860 at St Thomas' Hosp in London.

This gave nurses proper status and training.

Also wrote two best selling books – Notes on Nursing and Notes on Hospitals. Architects consulted her – tiled walls, separate wards etc

She was convinced on the importance of fresh air – stressed good drainage and ventilation. Believed in miasma.

Doing right things but for wrong reasons.



Hospitals in the 19th century

Few in number, most in London

Rich not treated there, mostly were charity hospitals for the poor

St Bart's in London charged a burial fee

Sanitary conditions often poor

Nurses not trained – bedding, wards etc dirty.

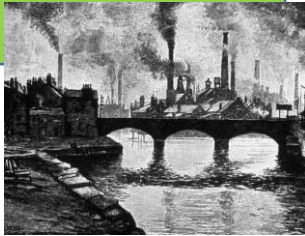
Nurses had poor reputation – 'lowest of the low'

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

- Joseph Lister
- Anaesthetics

MEDICINE REVISION MAT 5 – 19TH CENTURY – BREAKTHROUGHS IN UNDERSTANDING CAUSES OF DISEASE AND PUBLIC HEALTH

FINALLY! Some understanding of the causes of disease! (1860s – germ theory)



Key Dates

1840s -1848 – 1st Govt action on Public Health (1848 Public Health Act)
1854 John Snow and Cholera
1858 Great Stink
1860s GERM THEORY
1870s – 2nd Govt action on Public Health (1875 Public Health Act)
1870s/1880s Identification of many specific microbes that cause disease and more vaccines developed (Koch/Pasteur)

Key People

John Snow, Edwin Chadwick, Louis Pasteur, Robert Koch

State of Towns/Cities in early 19th century

Grown too quickly, overcrowded, poor quality buildings (back to backs), lack of sanitation, (privies) water supplies contaminated, pollution (factories), disease and death rampant – life expectancy in Liverpool 17 years in 1840s. Laissez faire politics meant little action taken in first decades of 19th century.

Why were they so bad?

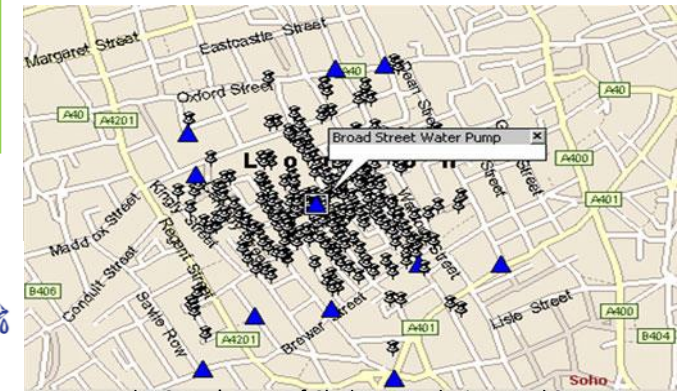
Laissez faire politics meant little action taken in first decades of 19th century. Working men did not have vote, rich did not live/visit in the slum areas, ignorance of causes of disease, profit above everything else, etc

Cholera!

New! Arrived in 1831 in NE (Sunderland) Spread across whole country the following year. Killed quickly (24 hours) Symptoms horrible. Killed rich and poor. Spread through faeces of sufferer contaminating the drinking water.

The work of John Snow and Impact

Doctor, surgeon, well respected. Investigated an outbreak of cholera in Soho area of London (Broad St). 500 people had died there in two weeks in just a few streets. Plotted deaths on a map (see above) Realised pump at centre of outbreak and therefore concluded water must be the cause, not miasma (air). Took handle off pump no more deaths. Published findings to Parliament but they did not immediately act (Laissez faire, no concrete proof etc). Took another 30 years to conclusively prove he was right when Koch identified cholera bacteria.



John Snow's map of Cholera Deaths in Broad St

Government Action on Public Health

When and why?

- Snow's work (to a limited extent) 1854
- Great Stink (forced problem up their noses) 1858
- Some working men get vote 1867
- Germ theory published (1861)
- Laissez faire politics starting to be replaced by 'New Liberalism'
- Bazalgette given £3 million to build London's sewers
- 1875 Public Health Act forces councils to take action on water, drainage, paving etc

Louis Pasteur – French Chemist

1860s Working with wine and brewing industry led him to conclude microorganisms (germs) growing in the wine the cause of the sourness and wine going off, not the result of it.

Concluded same thing probably happening in people and animals and causing infections. – Lister read this and started developing antiseptics to kill these germs in surgery

Later, develops first vaccine since Jenner for anthrax and later chicken cholera and rabies. Established the principles of vaccination – a weakened version of disease can protect against a serious case.



Robert Koch – German Doctor

Fierce rival of Pasteur (Franco Prussian War of 1870s between France and Germany)

Proved a disease caused by specific microbes not ‘bad air’ Took anthrax tissue from a dead sheep and injected into mice. Mice developed the disease and died each time. Accused Pasteur of stealing his work when Pasteur went on to develop the vaccine for it. Koch and his team developed good ways of growing and identifying bacteria – staining them to better see under a microscope, producing a substance like agar jelly for petri dishes.

Successfully identified the microbes for Cholera, TB among many others and established the principles for others to follow

By 1900, twenty-one germs that caused diseases had been identified. “As soon as the right method was found, discoveries came as easily as ripe apples from a tree.” (Koch) It was Koch who had developed the right methods.



‘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

- Broad Street Pump
- Jenner and Smallpox Vaccination

MEDICINE REVISION MAT 6 – 20TH CENTURY – BREAKTHROUGHS IN UNDERSTANDING CAUSES OF DISEASE AND NEW TREATMENTS PLUS GOVERNMENT ACTION

What's New?

Government becomes more involved in health
Further advances in surgery (blood transfusions)
Treatments for infections and diseases (Magic bullets, penicillin etc)
Understanding of genetic role in medical poor health
Advances in prevention and medical screening

Key Dates

1909 – 1st magic bullet
1928 – Discovery of penicillin mould
1940s – Mass production of penicillin
1948 NHS set up
1950s Discovery of DNA
1990s - Genetic screening



Key People

Paul Ehrlich
Alexander Fleming
Howard Florey and Ernst Chain
Aneurin Bevan

The first chemical compound to kill specific bacteria – the magic bullet

Paul Ehrlich searched for a chemical compound that would track and kill the microbe causing syphilis (sexually transmitted infection). Tested arsenic compounds - looking for **selective toxicity** (something that would kill the microbe but not the patient) Found one after 605 previous attempts in 1909. Called it Salvarsan 606. The active ingredient was sulphonamide. Other sulphonamide drugs were developed to treat blood poisoning and pneumonia in the 1920s and 1930s.

Penicillin! Alexander Fleming had worked in the First World War in hospitals treating the wounded. He was dismayed by the numbers dying of infected wounds. He was conducting research in the 1920s and noticed one of his petri dishes contained some mould and that the bacteria he was cultivating in the dish seemed to have been killed off by the mould. He identified the mould as penicillin and wrote a paper but did not take his findings further. By the late 1930s Florey and Chain were working together at Oxford University and looked again at Fleming's work. It seemed promising but penicillin was hard to produce in large quantities. They grew it in milk churns, bed pans, bath tubs. They needed a great deal of it as the active ingredient is only one part per two million. Early trials seemed encouraging but the war had broken out and the British government and pharmaceutical companies were preoccupied. So they went to USA. US government agrees to fund the research. 21 pharmaceutical companies get involved. Enough is made by 1944 to treat all injured soldiers in D Day. First ever antibiotic. Has saved millions of lives preventing and killing infections. However some bacteria are now resistant to antibiotics.

Improvements in Diagnosis

The impact of technology on this area of medicine is massive. Machines and computers now can scan inside a body (X-rays, CT scans, MRI, ultra sound etc). Doctors no longer have to open a patient up to see what's going on inside. Other forms of monitoring (blood sugar for example) helps manage conditions like diabetes. Blood tests (from 1930s) test for a massive range of conditions by measuring hormone levels, white blood cell counts etc.

Genetic screening

Improved Surgery and high tech treatments

Blood transfusions

Replacement of worn out joints (hip replacements etc)

Radiotherapy and Chemotherapy
to shrink tumours

Prosthetics limbs and robotics – developed in response to injuries sustained in wars – Afghanistan etc

Transplants – first kidney transplant was 1956. Needed development of microsurgery to re-attach tiny nerve endings and blood vessels

Key hole surgery – tiny cameras and narrow surgical instruments means a small incision and less trauma to recover from.

Case Study: Lung cancer

Very few deaths from lung cancer in the 19th century or earlier but a huge killer in 20th century. Over 80% of cases linked to smoking. Smoking was aggressively advertised after World War one and deaths from lung cancer rose accordingly.

Hard to treat – as symptoms often mistaken by the sufferer as something else and it is advanced by the time it is discovered.

CT scans or bronchoscopy used for diagnosis.

Transplants, radiotherapy and chemotherapy all treatments

Government action – to prevent deaths important although they were slow to act, they did in the early years of the 21st century

Bans, high taxes in cigarettes, ban on advertising, raising age to buy tobacco products etc

Government Action and Attempts to Prevent Disease

1948 – NHS set up. Free health care from 'cradle to grave', free at point of use, paid for by a tax called National Insurance. Set up by Labour government after Second World War as part of the Welfare state. Faced a lot of opposition initially. The Minister in charge was Aneurin Bevan. Aimed to provide the same level of care for everyone no matter how rich or poor, no matter where you lived.

The government now takes an active role in people's health:

- Vaccination campaigns (MMR, HPV, polio, diphtheria, tetanus etc)
- Passing laws to help with health. Clean Air Acts of 1956 and 1968. Smoking ban of 2007 in all public enclosed spaces
- Ban on cigarette advertising, plain packaging etc
- Advertising Campaigns warning about dangers to health – unprotected sex, smoking, binge drinking etc
- Initiatives such as 5 a day and Change for Life, Sugar Smart
- Producing apps for diet and exercise



What's New?

- **Thomas Splint**

Early in war a broken thigh bone (femur) killed up to 80%. Broken ends of bone ground together causing massive blood loss. The Thomas Splint pulled the leg lengthways, reducing any grinding. Used from 1916 onwards in RAPs and Dressing stations to reduce blood loss. Reduced deaths and need for amputations massively.

- **Mobile X ray machines**

X rays meant locating bullets, shrapnel could be done quickly, mobile ones developed to be as close to front line as possible

- **Blood transfusions and storage of blood**

Discovered sodium citrate could be added to blood to stop it clotting – refrigerating helped also. Blood banks could be set up

- **Plastic Surgery**

Harold Gillies pioneered the use of skin grafts – taking skin from one part of the body to use to reconstruct another (usually faces) Queens Hospital in Kent specialised in repairing facial injuries

- **Motor Ambulances**

None sent out to front at start of war – this was quickly realised to be a mistake. Public appeal for donations to buy some. By Oct 1914, 512 ambulances sent out. Horse ambulances were still used in the muddiest conditions though

MEDICINE REVISION MAT 7 – THE WESTERN FRONT – ILLNESS, INJURY AND TREATMENT IN THE TRENCHES 1914-1918

Key Features of the trenches

Front line trench – closest to enemy, most badly damaged. Reinforced with sand bags, barbed wire etc

Support trench – 50 – 100 metres further back, often had a RAP (Regimental First Aid Post) and dugout for rest/shelter

Reserve trenches – further back still. Supplies and new soldiers would be sent forward from the reserve trenches. Usually less damaged.

Communication trenches – linked all the others together. Men, supplies, food, weapons and injured soldiers moved up and down these. Could be very crowded.



Four Key Places on the Western Front

Ypres – scene of several battles lasting months. There was so much fighting there as the town was on a direct route to the ports of Calais and Dunkirk. If Germany could capture these ports it could cut off supplies to British army. The Ypres Salient (Salient means bulge) was a vulnerable part of the British line. The Germans were on higher ground and could fire down on British trenches and see troop movement etc. quite easily. German trenches were well drained too so they could dig deep dug out etc. British trenches in low lying ground which easily became water logged. British used mines to blow the top of the hill the German were on (Hill 60) and eventually took control.

The Somme – July –Nov 1916 – infamous for huge casualty rate. 400,000 allied casualties. Medical consequences were enormous. Nearly 20,000 British soldiers killed or seriously injured on first day.

Arras – Here, soldiers from New Zealand and Britain dug a network of tunnels in the chalky ground. Joined up with ancient tunnels dug hundreds of years before. Underground rooms were created with running water and electricity – creating accommodation for soldiers and even a 700 bed hospital. Could also use tunnels as shelter against artillery fire and for moving troops and supplies secretly.

Cambrai – British used over 450 tanks in this battle and took German ground that day with this surprise attack. However tanks were not followed up with infantry (foot soldier) support and they ground taken was recaptured by the Germans.

How might the terrain impact on the wounded?

Difficult to move injured soldiers in very muddy water logged conditions with ground full of shell craters etc

The fighting took place largely in farmers' fields – that had been manured for 100s of years – soil, fragments of clothing driven into wounds by bullets, bits of shrapnel caused big problems with infection.

Weapons and the Injuries they cause

Rifles

Had become more efficient weapons. Bullets had a more pointed shape which drove them deeper into the body. No longer had to be reloaded one bullet at a time.

Machine Guns

Could fire 500 rounds per minute. Major part of trench defences. Could devastate troops approaching across No-Man's Land.

Artillery

The successors to cannons. Some were so powerful they could launch a 900 kg shell 12 miles. The greatest killer of all the weapons. Caused half of all casualties and terrible injuries. Millions and millions of shells were fired. High explosive shells broke into many fragments upon detonation, used against soldiers in the trenches.

Shrapnel

Shrapnel was a hollow shell packed with steel or lead balls with gunpowder and a timer. Designed to explode mid air above soldier's heads as they advanced across No-Man's Land. Particularly devastating before 1916 as soldiers did not have metal helmets until then.

Gas

Chlorine gas used for first time in 2nd Battle of Ypres – surprise attack, soldiers had no protection. Phosgene and mustard gas also used later. However gas was difficult to control (wind direction etc) and was more feared than actually a big killer. Less than 5% of soldiers died of gas poisoning. Gas masks etc quickly developed. Symptoms were nasty though although usually temporary (blindness, loss of taste and smell, breathing difficulties) and sufferers clogged up treatment areas when a gas attack occurred.



Helping the Wounded – The Evacuation Route



1. Stretcher Bearers

Recovered dead and wounded, sometimes under fire, sometimes during a break in the fighting. Had to deal with mud, shell craters and twisting crowded trenches. 1 stretcher usually needed 4 men. Only 16 stretcher bearers per 1000 soldiers. Carried bandages and morphine for pain relief.

2. Regimental Aid Post (RAP)

Close to front line, often in the support trench or it could be in a ruined building. A medical officer there would assess the cases – light wounds were dressed and men sent back into action, The rest sent to Dressing Stations for treatment. Often poorly lit and under fire.

3. Field Ambulance and Dressing Stations (Advanced and Main)

Field Ambulance NOT a vehicle but a mobile medical unit with medical officers and some nurses from 1915 onwards. The staff set up Dressing stations in tents or derelict buildings. Assessed cases using triage. Between a quarter of a mile and a mile behind the lines.

4. Casualty Clearing Station (CCS)

First well equipped medical facility on the chain of evacuation. Several miles behind the lines in large tents or huts (or sometimes in schools or factories) Increasingly, operations were performed here, more so than in the base hospitals by 1917. They had operating theatres, mobile X ray machines, wards with beds for around 50, kitchens, toilet blocks and accommodation for the staff. Could deal with several thousand cases. As the war progressed, more operations were carried out here rather than base hospitals as wounds needed to be dealt with quickly before infection or gangrene could set in..

5. Base Hospitals

These often were hospitals already or large converted buildings. Near railway lines for transporting the wounded (there were specially converted ambulance trains) They had operating theatres, laboratories, X ray centres etc. They often had specialist wards and continued the treatment started at the CCS. Often on or near the coast so patients could be sent back to England to recuperate if a serious injury by ship.



Sources!

You will be asked to consider a source that might be useful to you for a particular enquiry – what are your options?

Photographs – of scene of battle, of terrain, of any aspect of the evacuation route, of problems stretcher bearers had, aerial ones showing trench system etc, photographs of injuries and illnesses (trench foot etc)

Personal accounts - of soldiers, nurses, doctors or others who were there. (Diaries etc)

National Army records – for individual soldiers – showing when/where they fought, any injuries sustained etc

Newspaper reports – useful for how the war was being presented to the British public

Government reports - on a particular aspect of the war, such as munition supplies etc.

Hospital records – a base hospital, casualty clearing station etc, numbers treated, sent on to other places to recover, died, number of operations done etc

Medical articles published in medical journals by surgeons etc who took part in war and maybe pioneered new techniques.

Army statistics – on numbers of cases of trench foot, % of injuries from artillery guns etc

Maps – showing terrain of trenches and difficulties in fighting and recovering injured from there etc.

Etc!

Try to make it specific to the enquiry question and don't use an example already given on the paper

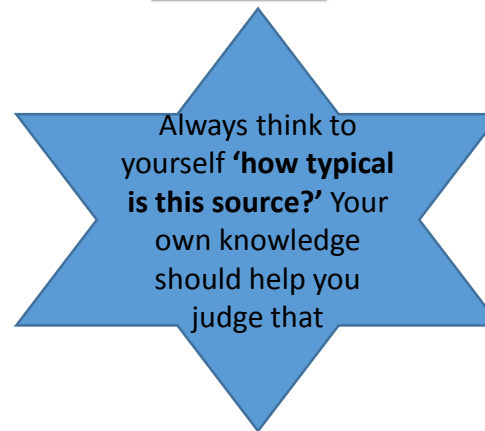
Utility Question
(How useful)
Remember to consider the content and the NOP of the source!

Paragraph One
Explain what is useful/of value in the content of the source (what it says /shows)
Back up with your own knowledge

Paragraph Two
Explain what is useful/of value in the NOP of the source (who, when, why)
Back up with your own knowledge

Paragraph Three
Harder section
Consider limitations— why might you need to exercise care or caution with the source?

Still stuck? Ask for the phrase map to help you get going



Q: How useful are sources A and B for an enquiry into the impact of the terrain on caring for the wounded on the Western Front? Explain your answer using the sources and your own knowledge.



Source A
A wounded soldier being carried back from the front near Ypres in 1917

Source B

We went out at night to put some wire entanglements in front of the trenches. The sights were too awful for words. In our advanced trench when the flares went up we could see how things really were. Numbers of poor fellows lay in the bottom of the trench, the wounded amongst the dead crying for water and the stretcher bearers. Some had been waiting a day and a half..

From the diary of Sapper J. Davey, Royal Engineers, 10th May 1915

Question response continued..



Illnesses of the Trenches

Trench Fever (PUO - Pyrexia of Unknown Origin first called))

Flu like symptoms, high temperature, aching muscles. Affected over half a million men. Kept coming back – bad enough to make the men unfit to fight.

Attempted solutions

By 1918 cause identified – contact with lice (grey backs).

Delousing stations set up, disinfecting and fumigating uniforms, bathhouses, louse repellent gel, picking off the eggs and burning them by hand.

Trench Foot

Painful swelling of the feet, caused by standing in cold mud and water without a change of socks or boots. In the second stage, gangrene set in. This is the decomposition of body tissue due to a loss of blood supply.

Attempted Solutions:

Prevention was key – rubbing whale oil into feet, regularly changing socks.

Use of water pumps in the trenches to pump out standing water.

If gangrene occurred amputation was necessary

Shellshock (NYD.N Not Yet Diagnosed – Nervous)

Psychological response to danger – tiredness, headaches, shaking, loss of speech, uncontrollable shaking and jerking, complete mental breakdown.

Attempted Solutions

Not well understood at the time, some accused of cowardice. Rest, and counselling sometimes available. Generally the officers suffering with it were treated more sympathetically than the ordinary soldiers.