MODERN MEDICINE 1900S- PRESENT

INTRO TO THE ERA:

Pathogens were accepted as the primary cause of communicable diseases & heredity conditions were linked to lifestyle & risk factors. The state took on responsibility for public health- under the NHS & focused on preventative measures to combat ill health.

DNA:

WATSON & CRICK discovered DNA's double helix structure in 1953

Diseases were thus attributed to genetics e.g. sickle cell anaemia: improving diagnosis & treatment e.g. via gene therapy

2003: completion of the human genome project: enabled the tracking of migration patterns & developed a better understanding of hereditary conditions (quickened diagnosis & treatment= enables a better life quality)

Diseases were finally linked to lifestyle choices: excess alcohol & cigarette misuse were linked to cancers & poor diets could cause obesity & heart disease, exposure to UV rays was linked to skin cancer

Poor lifestyle choices were established as risk factors, encouraging better individual life choices to PREVENT diseases.

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DIAGNOSIS DEVELOPMENTS:

Landsteiner discovered blood groups in 1901, meaning: transfusions faced less rejections, blood tests could be used in diagnosis e.g. of cholesterol levels-> quickening diagnosis & treatment for optimum effectiveness

MEDICAL SCANS: 1895 Röntgen discovered x-rays (pass through soft tissue but not bone) to scan for fractures, adding accuracy to diagnosis & treatment plans.

Ultrasounds were used to reflect waves at boundaries between body tissues, which are computerised in the 1950s

1972: CT scans, 1970s: MRI scans discovered to aid in EARLY diagnosis & treatment, increasing survival rates

PORTABLE MACHINES:

Patients can monitor BP & glucose levels @ home to inform doctors about their condition in dealing with hypertension or diabetes remotely

This gives patients autonomy & convenience in their lives, despite having to live with difficult medical conditions

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PENICILLIN CASE STUDY:

WW1: FLEMING saw soldiers die of septic wounds

1928: noticed bacteria colonies had been killed by fungus in his lab, producing the 1st antibiotic

1930: Fleming's results were published but the UK gov refused to invest in him

WW2: Florey & Chain devised a freeze-drying technique of penicillin, funded by US pharmaceutical companies in 1941

Freeze-drying technology: prevented deaths from strong bacteria who developed antibiotic resistance if a course of the drugs was incomplete

1943: UK began mass producing penicillin, but antibiotic resistant bacteria strains proved problematic

Florey, Chain & Fleming awarded Nobel Prize in 1945

Penicillin was the 1st antibiotic, paving the way for discoveries of new antibiotics to treat bacterial infections, rife during the Great War- preventing death from infected wounds!

MODERN MEDICINE 1900S- PRESENT

MODERN TREATMENT:

1909: 1st MAGIC BULLET: SALVARSAN 606 discovered (synthetic antibodies targeted specific antigens to kill them)

Encouraged pharmaceutical industries to put more money into research & development

CANCER TREATMENTS:

1989- Radiotherapy was used to target cancer cells (after Curie's & Becquerel's discovery of radiation)

Chemotherapy was founded in WW2 when folic acid was found to block tumour growth, now drugs are taken commonly to kill cancer cells to increase life span of the terminally ill

Development in treatments were key, especially cancer which kills 500,000 annually in the UK & puts a massive strain on the NHS.

MODERN MEDICINE 1900S- PRESENT

MODERN SURGERY:

Landsteiner's discovery of blood groups & the use of sodium nitrate as saline, preventing blood clotting in 1914 made surgical transfusions smoother

1917: Battle of Cambrai: 1st ever blood bank set up

1946: National blood transfusion service set up

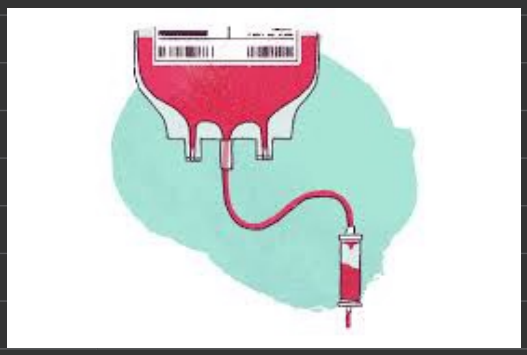
TRANSPLANTS:

1967: Barnard carried out the 1st successful heart transplant, but the patient died 18 days later due to pneumonia

Immunosuppressants were created to combat rejection of foreign organs in the 1960s

Keyhole surgery: (1901) less invasive technique to shorten recovery time & endoscopies using micro cameras reduced tissue scarring so less surgical trauma

1985: 1st surgical robot created, the Da Vinci system made robotic surgery more widespread, reducing: blood loss, surgical trauma & recovery times!



MODERN MEDICINE 1900S- PRESENT

NHS: 1948

WW2: Air raids e.g. the Blitz prompted for the creation of a centralised emergency services system

1948: Labour created the NHS which was declared to be 'free to the point of use' & 'from cradle to grave', national insurance tax funded the NHS

1948: 80% of doctors joined the NHS

1973: number of doctors doubled to meet demand

NHS is a provider of free: dental, laboour, mental health & emergency care

2000s: long waiting times & accessibility in poorer communities was improved

The creation of a free national health service shows immense progress in the state's involvement in public health matters, contributing to the prevention of many diseases too.

MODERN MEDICINE 1900S- PRESENT

GOVERNMENT ROLE IN HEALTHCARE:

Vaccine programs: 1956 polio campaign lowered cases from 30,000 to 40! 1940 diphtheria campaign lowered deaths by 20x

Lifestyle campaigns: 2009 Change4life campaign-centred around diet & exercise, 2014 Drinkaware campaign- tackling alcoholism, Great Smog of 1952 lead to air pollution acts being passed

LUNG CANCER CASE STUDY:

drinkaware

change 4 life
Eat well Move more Live longer

20% UK cancer deaths = lung cancer

Doll & Hill proved link between smoking tobacco & developing lung cancer - 1950

Technological advances: improved diagnosis e.g. via the use of chest x-rays, CT scans, bronchoscopy which lead to treatment plans being initiated sooner e.g. radio & chemo therapies, transplants ect which increase survival rates from the terminal illness

1962: Royal College of Physicians requested a ban on tobacco adverts
1971: health warnings put on cigarette packets
1965: tobacco TV ads were banned
2006: smoking ban in public places

Government legislation shows an active regard for public health in preventing diseases to avoid having to treat ones that could be otherwise avoided via lifestyle changes. The state's role in public health starkly contrasts the Laissez faire attitude prevalent in medieval & renaissance eras- showing great progress & change in attitudes towards healthcare.

MODERN MEDICINE 1900S- PRESENT

ANALYSIS OF ERA:

The modern period of medicine saw the adoption of new theories/discoveries from the industrial era to breed innovation, with a particular focus on disease prevention (especially cancers stemming from lifestyle choices- focused on by government campaigns.)

The creation of the NHS was a turning point in medicine, for it marked health as one of the government's main priorities. The taxation collected to fund the service reiterates the significance of good health on the general population.

Developments in technology, surgery & treatment have worked to increase survival rates from diseases and to enhance the life qualities of those suffering from terminal illnesses e.g via portable machines for patient autonomy.

The wider understanding of hereditary conditions has given the NHS a more inclusive variety of services e.g. gene therapy to accommodate for all, facilitated by Watson & Crick's discovery of DNA.

Fleming's penicillin discovery & the creation of the 1st magic bullet encouraged pharmaceutical industries to fund heavy research & development, allowing innovation to continue even today, evident in the rapid COVID vaccine development.

Overall, major medical progress has been made, accredited to individuals & notably the government!!