

# **BBC Bitesize**

Welcome to the modern era. A time of huge medical progress, a shifting role for government, and a brand new bevy of scientific superheroes.

Meet Marie Curie, the first woman to win not one, but two Nobel prizes for science. She even carried radioactive matter around in her pockets, for goodness sake. So frankly she deserves ten of them.

Anyway, Curie, with her pocketful of glow in the dark goods, made a few epic discoveries, including polonium and radium. Curie paved the way for radiology, from the first-ever X-ray, to modern day cancer treatments. She even coined the term 'radio-actif'.

So brave was the confident Curie that during the First World War she personally drove to the front line of battle, armed with her rudimentary X-ray machine, to examine wounded soldiers. Forget ten. She deserves eleven Nobels!

The First World War was, of course, risky biz for everyone involved, but it was also hugely influential in helping push modern medicine forward. Faced for the first time with grisly shrapnel wounds, doctors were forced to innovate.

Harold Gillies, 'the father of plastic surgery,' performed the world's first skin graft during the war in 1917. Some 25 years later during the Second World War, Harold's cousin, Doctor Archibald McIndoe, used all manner of early plastic surgery procedures to treat an estimated 645 scarred servicemen. So experimental and pioneering was maverick McIndoe's work that his patients called themselves the Guinea Pig Club. McIndoe even prescribed his patients trips to the pub. Cheers, Doc.

The Scottish biologist, pharmacist, and botanist Alexander Fleming witnessed some seriously ghastly infections on the battlefield, and set out to find a better way to treat them. It was during this time that Fleming 'accidentally' discovered the first type of antibiotic. It happened by chance when he noticed that penicillin mould had grown in a petri dish, killing off the surrounding staphylococcus bacteria, a common cause of the troublesome boil...

But, not realising that he was on the brink of one of the biggest breakthroughs in the history of medicine, Fleming didn't really act on this discovery. It wasn't until Doctors Howard Florey and Ernst Chain fought for funding a decade later, that they could elaborate on Fleming's fantastic 'accident,' developing a stable penicillin that could be mass produced. And before long, penicillin was flying off production lines quicker than you could say 'staphylococcus.'

6.8 trillion units of penicillin were produced in 1945 alone, playing a massive role in the allies' war effort. As the middle of the 20th century approached, governments were really starting to throw money at medical research. And two doctors that benefited in particular were Crick and Watson. These chaps, with the help of Maurice Wilkins and Rosalind Franklin, discovered a little something called: Deoxyribonucleic Acid. Or more simply: DNA.

This is the tiny, tiny, tiny stuff inside us that pretty much determines everything about our bodies: the building blocks of life, if you will. Miniscule matter...monumentally HUGE discovery!

Two World Wars had a huge human cost, and the government now felt a duty to protect people. Not only were the government willing to support medical research financially, they were getting even

more concerned with the health of the general public. Social reform was gaining momentum, and this culminated in the birth of the Welfare State. Ta daaaaa.

A raft of Acts were passed to help improve people's lives, and 1948 saw the creation of the glorious NHS, thanks to social reformers Aneurin Bevan and William Beveridge. Cue free medical treatment for everyone, including the eight million people who had never even seen a doctor before.

And so ends another 100 years of mighty medical progress. Thanks to some serious developments in technology, some brilliant individuals like Curie, Crick, Watson, Fleming, and Beveridge, and some crucial government intervention, the 20th century saw more medical breakthroughs than any other period in history.

Our present day health system owes so much to these advances, though doctors are facing new challenges, as antibiotic-resistant diseases such as MRSA raise their ugly heads. Nevertheless, progress continues at a pace, and we now see such medical wonders as heart, liver, and even face transplants.

So, let's give a big hand to all our pioneers for paving the way for modern medical science, making our National Health Service the envy of the world.