

Pharmacology Quiz



BRITISH
PHARMACOLOGICAL
SOCIETY



Which pharmacological discovery
has saved millions of lives, but is
becoming less and less effective?






Antibiotics

The first antibiotic discovered was penicillin, by Dr Alexander Fleming in 1928.

While growing bacteria in the lab in petri dishes, he noticed that one of his petri dishes had mould on it. But in the area surrounding the mould, the bacteria had been killed. Fascinated by this, Fleming grew the mould in his lab. He found that the liquid it grew in was deadly to many types of bacteria. The mould turned out to be a species called *Penicillium* and Fleming named the drug penicillin after it.

Without the discovery of penicillin, most of the surgical operations we take for granted today could not take place. Successful treatment of diseases like cancer would not be possible. However, antibiotics are becoming less effective as bacteria are developing resistance.

Clinical pharmacologists are working to develop and test new antibiotics and advise healthcare professionals about using antibiotics appropriately so that they can continue to save lives.



Which once deadly contagious disease, first identified in the 1980s, can now be treated and prevented?





Human Immunodeficiency Virus (HIV)

From the 1980s, HIV spread rapidly and there was no cure. 75 million people have been infected and 32 million have died.

Modern day anti-retroviral medication is able to suppress the virus so it is undetectable in the body, allowing people to lead normal lives and not pass it on to others. Certain at-risk groups of HIV-negative people can also take pre-exposure prophylaxis (PrEP) to stop them getting the disease.



Which drug was originally
made from this plant?



Opium

Opium, with its active ingredient morphine, is extracted from the poppy - *Papaver somniferum*.

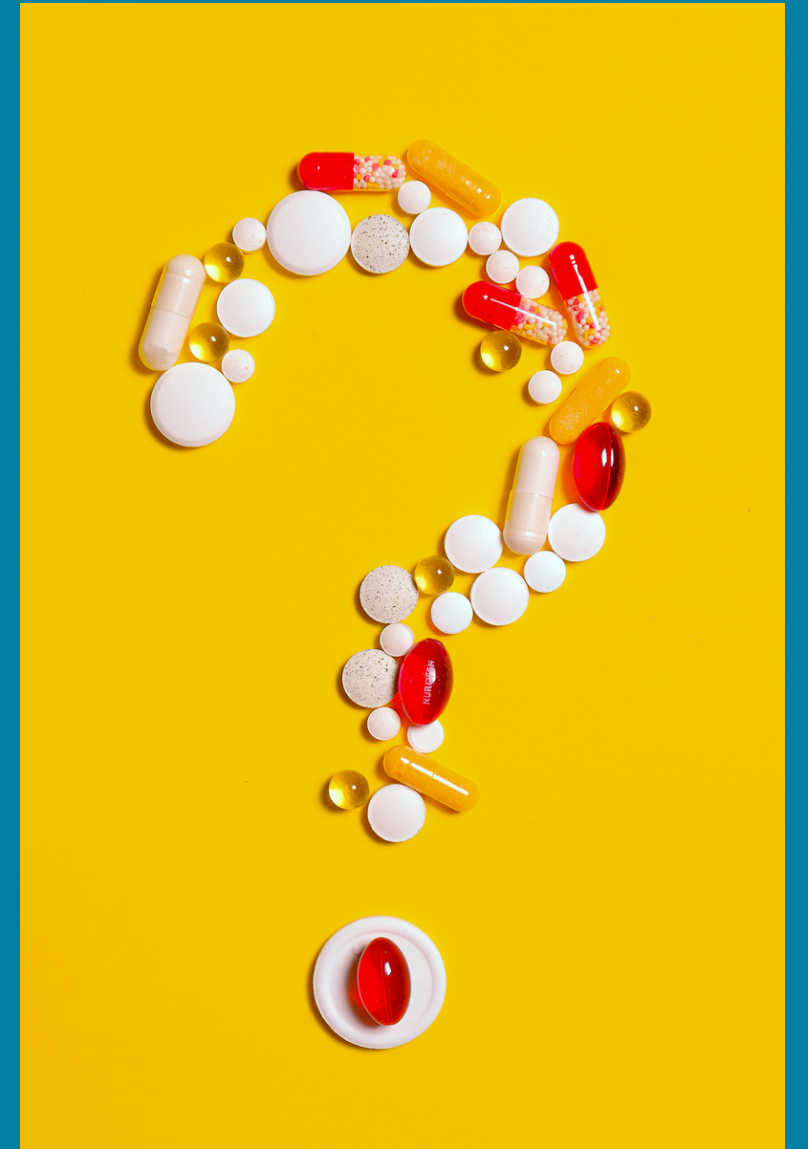
Morphine is an example of a drug initially discovered in plants that is now made synthetically (in a lab). Morphine (and its class of related drugs call opioids) are very effective painkillers.

They are less effective in the long term, however, as the body becomes tolerant to the effects. They can also be addictive.

Clinical pharmacologists work to tackle the growing prevalence of opioid addiction and develop alternative painkillers.



Which inactive pill has
revolutionised research in
clinical pharmacology?



Placebo - the dummy pill

Randomised controlled trials (RCTs) allow researchers to compare the effects of new drugs against a placebo, or a dummy pill, which has no effect.

By not knowing who is receiving which drug, results of these trials are less likely to be influenced by the expectations of the doctors of which drug is better.

RCTs, conducted by clinical pharmacologists, were used in the development and testing of many modern drugs in use today.

Which daily pill, taken by
millions of healthy people,
has transformed society?

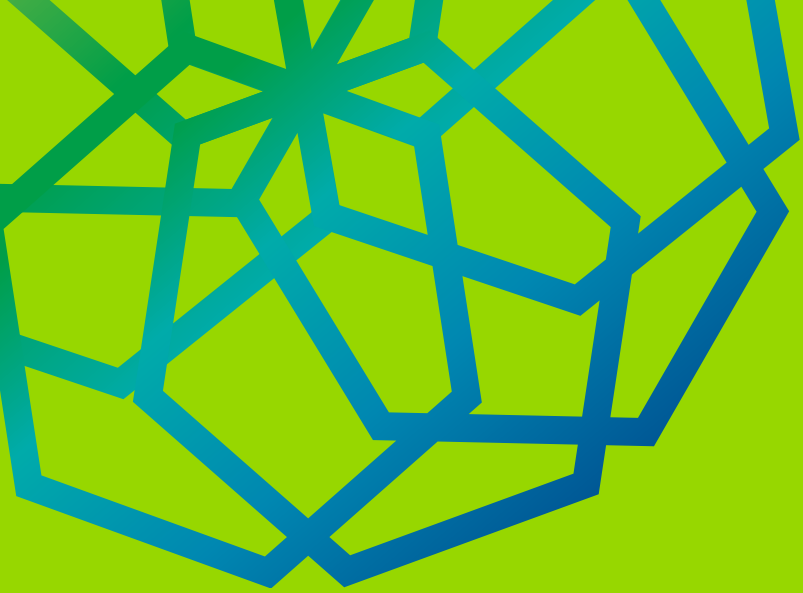


The Oral Contraceptive Pill

In 1921, it was discovered that pregnancy hormones suppress ovulation and could be used as a form of contraception.

The first contraceptive pill, Enovid®, was approved as a contraceptive in 1961.

The impact of oral contraception has been attributed to the empowerment of women, allowing them control over their own bodies, the ability to plan their families and start professional careers



How many medicines were
available in the UK in 2019,
compared to 150 years ago?



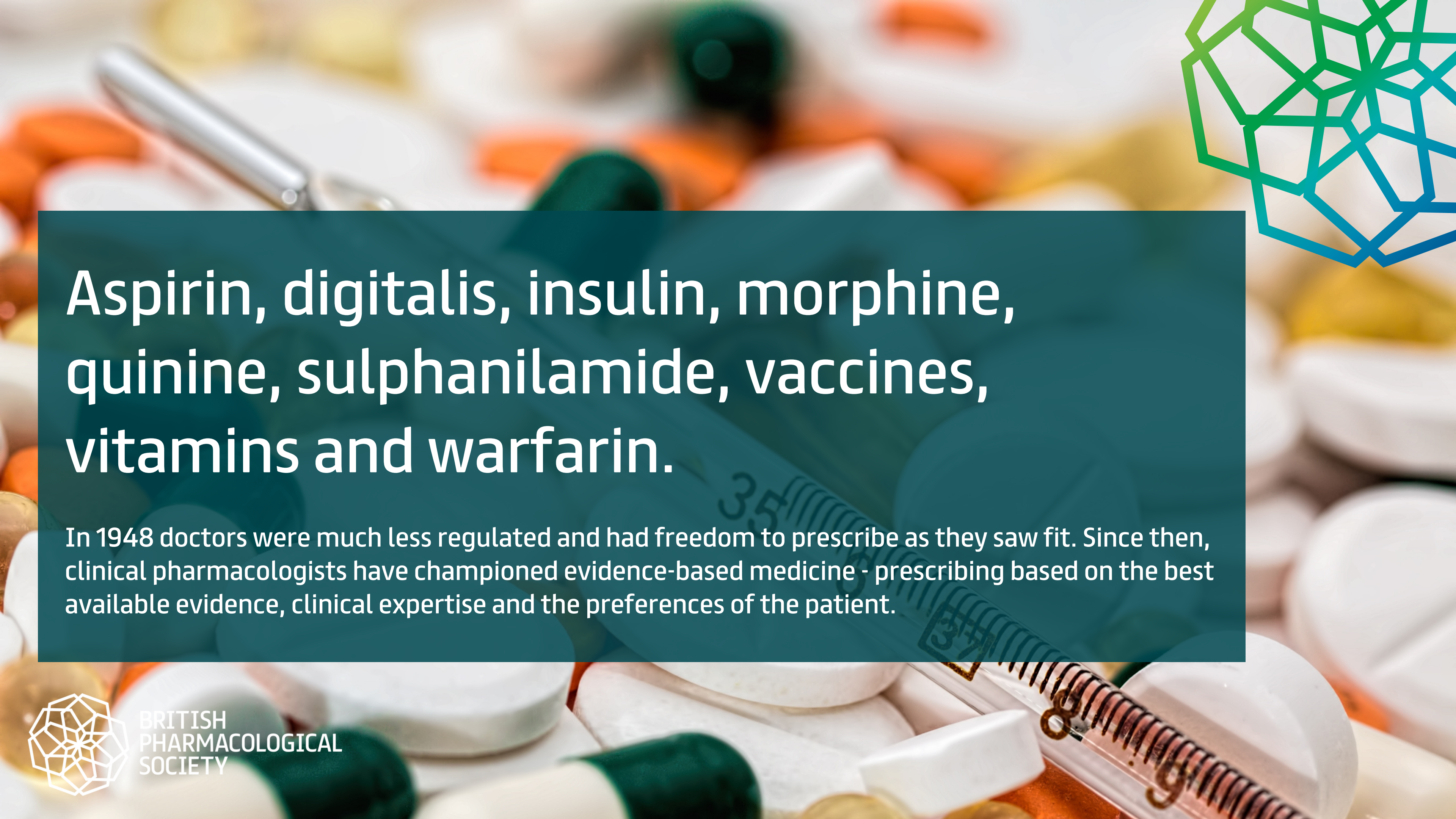
1879: 1,470 drug preparations
2019: 18,400 drug preparations

Pharmacologists work in national organisations, such as the British National Formulary (BNF) and the National Institute for Health and Care Excellence (NICE) to evaluate and assess medicines for use in the UK.

They work to ensure that healthcare professionals use the right drugs, for the right patients, in the right way.



What was in a doctor's bag in 1948,
when the NHS was founded?



Aspirin, digitalis, insulin, morphine, quinine, sulphanimide, vaccines, vitamins and warfarin.

In 1948 doctors were much less regulated and had freedom to prescribe as they saw fit. Since then, clinical pharmacologists have championed evidence-based medicine - prescribing based on the best available evidence, clinical expertise and the preferences of the patient.



BRITISH
PHARMACOLOGICAL
SOCIETY



How many adults in the UK take:

- 5 or more medicines?
- 10 or more medicines?

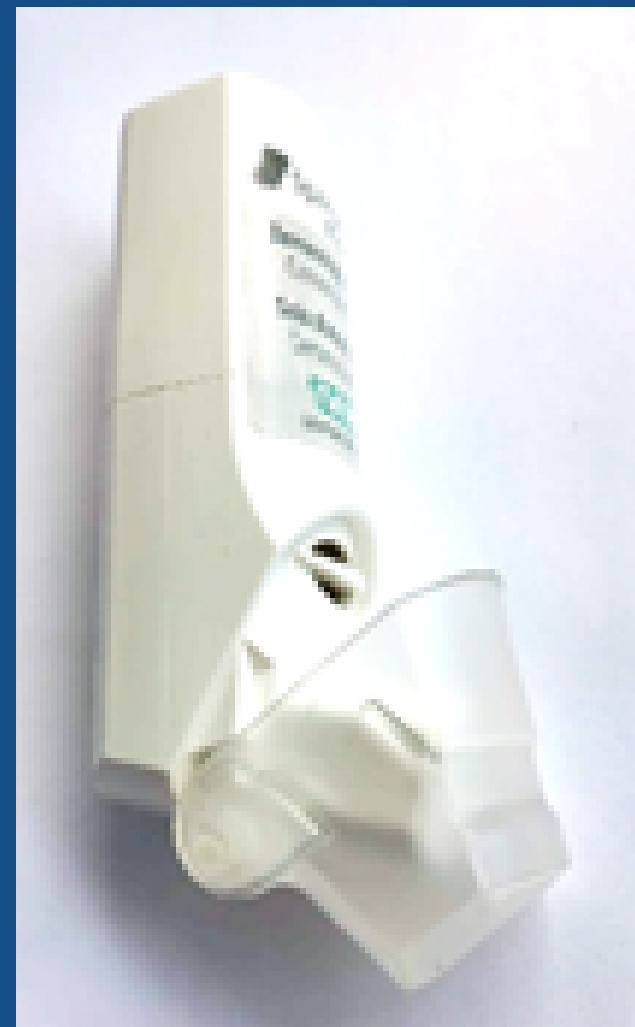
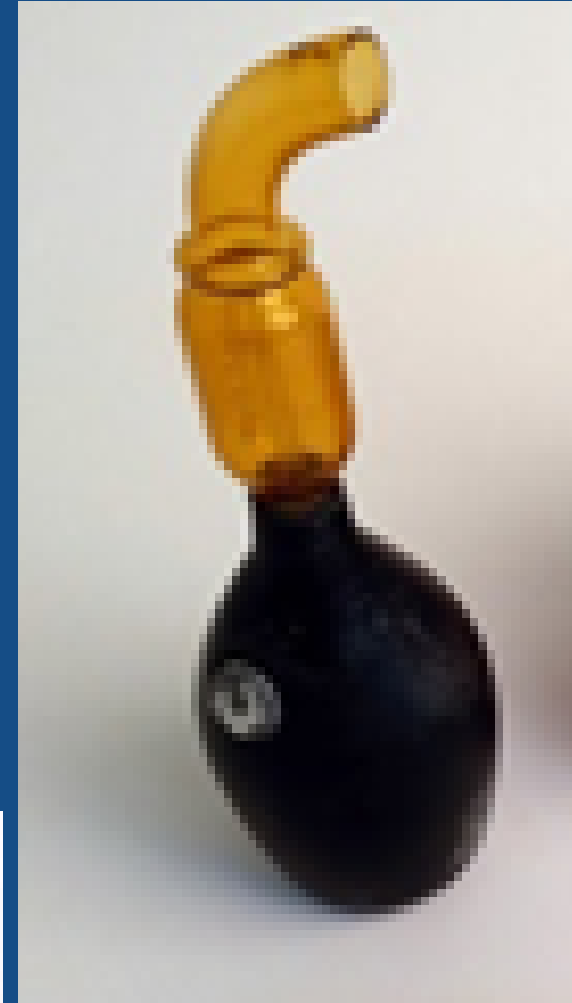


21% take 5 or more regular medicines
6% take 10 or more regular medicines

Taking lots of prescribed medicines can sometimes cause more harm than good. Every additional prescription increases the risk of side effects, medical errors and the chance of not taking medicines correctly.

Clinical pharmacologists work with patients and healthcare professionals to ensure that they are taking the most appropriate combination of medicines

What were these medical devices used for?





Inhalers for lung conditions, such as asthma

These are examples of older and more modern inhalers, the design has evolved over the years to make them easier to use. However, many patients still do not use their inhalers correctly, which can mean that their condition is not adequately treated. Healthcare professionals work with patients to ensure that they are able to use their inhalers correctly.

Research is being carried out to design inhalers that are easier to use.



How has technology changed the pharmaceutical industry?

Computers make analysing research data quicker and easier.

This has enable simulated experiments to help choose the right dose of a drug, which don't need human or animal subjects.

Results of the first pharmacokinetic experiments (looking at how the body handles drugs) were plotted on graphs by hand.

By the 1970s, computers were able to run complex analysis, but the results could take days! Now, complex analysis can be run in seconds on an ordinary laptop computer.

How did you do?

We hope you enjoy sharing your new knowledge with friends and family! You can also join in the conversation by tweeting us @BritPharmSoc using #pharmacologyquiz





This quiz was developed by Dr Chris Threapleton.

Chris is a doctor specialising in clinical pharmacology, based at St George's Hospital in London. He is a member of the British Pharmacological Society's Clinical Committee and Chair of the Registrar Sub-Committee.

For more information on pharmacology, clinical pharmacology and the important roles that pharmacologists have around the world visit our website: bps.ac.uk/careers