

Industrial Pharmacist

Introduction

Industrial pharmacists are involved in the discovery and development of safe, effective drugs and medicines. They can work at any stage of the process, including research, development, clinical trials, overseeing production, quality testing, marketing and applying to have the drug legally registered.

Also known as

- Pharmacist, Industrial

Work Activities

Apart from discovering and developing drugs and turning them into useful medicines, industrial pharmacists also improve existing medicines.

Within the pharmaceutical industry, they are very much part of a team. For example, they might work alongside pharmacologists, biochemists, biotechnologists, statisticians, toxicologists and chemical engineers.

The industrial pharmacist's involvement in the project might begin in the research and development stage. Researching and developing a new medicine takes twelve years, on average.

It can begin with the study of how a disease spreads and its effect on the body. Then, it might involve testing thousands of chemical compounds to see which one might work best in having an effect on the development or actions of the disease.

The process of medicine formulation involves selecting the appropriate chemical compound and turning it into a useful product that can deliver the drug safely and effectively to the patient's body. Here, the industrial pharmacist might also help to decide which form the drug should take, for example, as a liquid, tablet, ointment or injection.

The next stage in development is to assess the strength, purity and stability of the medicine.

In clinical trials, industrial pharmacists work closely with doctors, nurses and other medical staff. Clinical trials usually involve four stages: tests on healthy volunteers, then a small number of patients, then larger-scale tests on patients and, finally, studies in patients after the drug has become available to buy and use. Clinical trials therefore involve the industrial pharmacist in close contact with patients. Pharmacists involved in other stages of the process will not usually have any patient contact.

Some industrial pharmacists specialise in making the drug (manufacturing and production). To begin with, they have to create a process that will make the drug in the same way each time, using the same machinery and technology. This is known as 'standardisation'. They also have to produce the drug on a large scale, compared to the small amounts that will have been made in the laboratory during the development phase. This is known as 'scaling up'.

Other industrial pharmacists work in quality assurance, making sure the final product is of the quality needed if it is to be sold to and used by the public.

This work involves making tests at each stage of the process. For example, they check the concentration and purity of raw materials, through to the shelf life and stability of the finished product.

Industrial pharmacists can become Qualified Persons (QP), giving them responsibility for making sure that medicines have the correct ingredients, in the right amounts.

Apart from laboratory work, some industrial pharmacists work in offices, for example, in the pharmaceutical company's registration department. There are also general management roles.

Before the company can market a new or improved drug, it must get a licence from the Medicines and Healthcare products Regulatory Agency (MHRA). In the registration department, pharmacists collect the relevant data for presentation with the licence application to MHRA.



Other industrial pharmacists act as medical representatives. This is a marketing role, making doctors, community and hospital pharmacists aware of the new drug's uses and effects. This side of the work can involve a lot of travel.

Some pharmacists provide an information service about the company's products. They might use online databases to search medical and scientific literature, in order to answer a customer enquiry.

Pharmacists in information work have a variety of duties, including writing technical booklets, approving the content of advertising campaigns for the medicine, and organising medical libraries.

Being able to read, write and speak Welsh may be an advantage when you're looking for work in Wales.

Personal Qualities and Skills

To be an industrial pharmacist, you'll need:

- A high level of scientific ability and an interest in fighting illness and disease.
- Practical laboratory skills and familiarity with computers.
- Communication skills, for example, to explain how a new medicine works to a doctor or hospital pharmacist.
- A thorough, methodical and logical approach to your work.
- Patience and perseverance - it can take many years to research and develop a new medicine.
- Teamwork skills, to work alongside other scientists and medical professionals.
- Report-writing skills, for example, if you're working in a registration department.

Pay and Opportunities

Pay

Pay rates for industrial pharmacists vary depending on role and responsibilities. The pay rates given below are approximate.

Industrial pharmacists earn in the range of £25,000 - £32,000, rising to £40,000 - £52,000 with experience.

Hours of work

Industrial pharmacists usually work a 37.5-hour week, Monday to Friday.

Where could I work?

Employers include major pharmaceutical companies and producers of agricultural and veterinary products. Opportunities for industrial pharmacists occur in towns and cities throughout the UK.

What's happening in this work area?

The UK's pharmaceutical industry employs around 70,000 people, mostly at technician level and above. Despite taking on around 1,000 graduates/postgraduates a year, there are scientific skills shortages, and science posts are hard to fill.

Where are vacancies advertised?

Vacancies are advertised on major employers' websites, in local/national newspapers, and on job boards.

Entry Routes and Training

Entry routes

To become a registered pharmacist, you need to complete a degree in pharmacy that is accredited by the General Pharmaceutical Council (GPhC).

This degree is known as a Master of Pharmacy (MPharm); courses usually take four years to complete.

Five-year courses for people with non-science A levels are available at a small number of universities.

Training

After successfully completing your degree course, you will need to spend a 'pre-registration' year in a pharmacy.

You can train in any type of pharmacy setting, including a pharmaceutical company, as long as you spend at least six months of the year in either the community or hospital sector. Both the training site and the tutor supervising you must be approved by the GPhC.

The University of Bradford has a five-year sandwich course, incorporating the 'pre-registration' year.

When you have completed the pre-registration year, you need to sit the GPhC or Pharmaceutical Society of Northern Ireland (PSNI) registration exam. You must pass this exam before you can join the GPhC/PSNI Register.

For research work, a postgraduate qualification can be very useful, although this is not essential for entry.

Progression

Progression could be into supervisory or management roles. Industrial pharmacists can specialise in particular areas of research or in work such as quality control, regulatory affairs (securing product licences from health authorities) and marketing.

With specialist training and experience, you can become a Qualified Person, responsible for certifying that a medical product is suitable for release to the public.

Rehabilitation of Offenders Act

This career is an exception to the Rehabilitation of Offenders Act 1974. This means that you must supply information to an employer about any spent or unspent convictions, cautions, reprimands or warnings, if they ask you to.

This is different from other careers, where you only have to reveal information on unspent convictions if you are asked to.

Qualifications

For entry to a degree course in pharmacy, the usual requirement is:

- 3 A levels, including Chemistry and two other subjects from Biology, Maths and Physics. Biology might be a preferred or essential subject. Some universities accept Chemistry or Biology.
- GCSEs at grade C or above in your A level subjects.
- A further 2/3 GCSEs at grade C and above, including English and Maths.

Alternatives to separate science GCSEs (Biology, Chemistry and Physics) are:

- Science and Additional Science, or
- Science and Additional Applied Science.

Equivalent qualifications, such as the International Baccalaureate Diploma, can be acceptable for entry. Please check prospectuses carefully.

Edexcel (BTEC) level 3 Nationals might be acceptable for entry. However, you should note that A level Chemistry is still likely to be essential at many universities. Please check prospectuses carefully.

Some universities accept the Welsh Baccalaureate as equivalent to 1 A-level.

Adult Opportunities

Age limits

It is illegal for any organisation to set age limits for entry to employment, education or training, unless they can show there is a real need to have these limits.

Courses

If you don't have the qualifications needed to enter an accredited degree in pharmacy, you might be able to start one after completing an Access course, such as Access to Science. You don't usually need any qualifications to start an Access course, although you should check this with course providers.

Funding

You can apply for funding from relevant medical charities and trusts. Some employers provide sponsorship.

The Worshipful Society of Apothecaries General Charity Limited offers grants to a limited number of students who are on the third or final year of their pharmacy degree courses.

Statistics

- 30% of people in occupations such as industrial pharmacist work part-time.
- 6% have flexible hours.
- 4% of employees work on a temporary basis.

Further Information

Professional institutions Professional institutions have the following roles:

- To support their members.
- To protect the public by keeping standards high in their professions.

The Royal Pharmaceutical Society of Great Britain is the professional institution for pharmacy in the UK.

Contacts

- **New Scientist**
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Email: ns.subs@quadrantsubs.com
Website: www.newscientist.com
- **Association of the British Pharmaceutical Industry (ABPI)**
Address: 7th floor, Southside, 105 Victoria Street, London SW1E 6QT
Tel: 0870 8904333
Website: careers.abpi.org.uk
- **Association of the British Pharmaceutical Industry (ABPI) Scotland**
Scottish enquiries
Address: Crichton House, 4 Crichton's Close, Edinburgh EH8 8DT
Tel: 0131 5230493
Website: careers.abpi.org.uk
- **Royal Pharmaceutical Society**
Address: 1 Lambeth High Street, London SE1 7JN
Tel: 0845 2572570
Email: support@rpharms.com
Website: www.rpharms.com
- **Pharmaceutical Society of Northern Ireland**
Northern Ireland Enquiries
Address: 73 University Street, Belfast BT7 1HL
Tel: 028 9032 6927
Email: info@psni.org.uk
Website: www.psni.org.uk
- **Worshipful Society of Apothecaries**
Address: Apothecaries' Hall, Black Friars Lane, London EC4V 6EJ
Tel: 020 7236 1189

Website: www.apothecaries.org

- **General Pharmaceutical Council (GPhC)**

Address: 129 Lambeth Road, London SE1 7BT

Tel: 020 3365 3400

Email: info@pharmacyregulation.org

Website: www.pharmacyregulation.org

- **Royal Pharmaceutical Society in Scotland**

Scottish enquiries

Address: Holyrood Park House, 106 Holyrood Road, Edinburgh EH8 8AS

Tel: 0131 5564386

Email: scotinfo@rpharms.com

Website: www.rpharms.com

- **Cardiff School of Pharmacy and Pharmaceutical Sciences**

Address: Cardiff University, Redwood Building, King Edward II Avenue, Cardiff CF10 3NB

Tel: 029 2087 4151

Website: www.cardiff.ac.uk/phrmy/

Related Careers

- Pharmacy Technician
- Community Pharmacist
- Hospital Pharmacist
- Pharmacologist
- Pharmacist
- Pharmacy Assistant