BEHIND THE SCENES OF PHARMACY: RESEARCH AND THE PhD

Have you ever considered doing a PhD after your MPharm? Emma L. McConnell explains everything you need to know about choosing a career in research

Emma L. McConnell was a post-doctoral research fellow at the School of Pharmacy, University of London and is currently working in the pharmaceutical industry.

The journey from disease target to medicine takes many years. The next time you read about a new medicine or a new breakthrough therapy, think about the research that brought it to fruition. Pharmacists can be involved at any stage of the research process, working behind the scenes to improve disease treatments and therapies. Research might not have been a career option that you have considered because the “frontline” of pharmacy is often the more obvious choice. However, the research skills acquired during the pharmacy degree, combined with a clinical perspective, gives pharmacists a unique appreciation of the practical applications of research. The endpoint of pharmaceutical research, just as for community or hospital pharmacists, is improved patient care. For most people who want to start a career in research, the first step is undertaking postgraduate studies, in particular, a PhD.

What is a PhD?

A PhD, or doctorate of philosophy, is a research degree. This is different from the taught pharmacy degree. You will be expected to undertake a piece of original and independent research. In the UK, the PhD programme is three years full-time (six years part-time). This work should be written up in the form of a thesis and defended in an oral examination known as a viva (short for viva voce, which is Latin for “by live voice”).

A PhD is challenging and hard work but it can be a lot of fun and satisfying. You need to be able to focus on long-term goals and not expect easy answers in the short term. There will be a lot of long days and nights and disappointing results. But making a new discovery, solving a problem or simply satisfying your curiosity is the pay-off. If you think that sounds like a fair exchange, then maybe research is for you.

Choosing an area

Pharmacy opens up many areas of science, so your choice is wide. There are pharmaceutics, drug discovery, microbiology, clinical pharmacy, and pharmacology to name just a few. You will be spending three years of your life working in the area of your chosen PhD, so make sure it is one that you enjoy and are curious about. Read as much as you can before you make a choice: look at the science press, either newspaper science sections or in journals in your university library, and see what interests you. Careful choice of your final year research project can be useful to give you a feel as to whether you would enjoy research and all that is entailed.

Applying

Look for PhD studentships advertised on university websites or in the science press. New Scientist Jobs website lists current postgraduate posts (www.newscientistjobs.com) or try www.findaphd.com or www.jobs.ac.uk. These posts will usually be associated with funding, either from research councils, charities or industry. Some universities fund research projects and the recipient of this funding is often decided from the applicants who attend the open days, which is a good way to get an overview of the research carried out in a particular school or department and to meet potential supervisors and current PhD students. Another way of applying is simply to identify the people you would like to work with and contact them directly. Try looking at their websites or publications and send them your CV or give them a call.

It is a good idea to try to meet your potential supervisor in person, not only to convince him or her you are the right candidate but also to make sure you would be happy to work closely with them for three years. You will also get the opportunity to ask them more detailed questions about the project and the working conditions of the department. For example, how much time do they spend out of the office? This can affect your PhD progress and, although it looks nice on paper to have worked with a professor, a junior lecturer may have more time to spend with you. If you are doing laboratory-based research, it is good to know whether there are other PhD students or post-doctoral researchers who can help you learn the skills you will need. It is useful to know what type of PhD training courses are offered and whether you will have the opportunity to go to conferences.

Money

When you see your pharmacy colleagues going out after their preregistration year to jobs in community, hospital or industry and earning pretty comfortable salaries, you might be disappointed to realise that
the stipend for a PhD is usually £10,000—£15,000. However, take comfort in the fact that this is tax-free and, if you have registered as a pharmacist, you will have the option to locum to supplement your income.

**Expectations**

Everyone’s experience is different but there are a few common themes. First, you will be expected to manage your own time. Sounds easy enough, but it is easy to fall into bad habits — you need to be highly self-motivated. Remember, this will be your work and no one else is going to do it for you. You can expect to work long hours because experiments do not always fit into the 9–5 schedule and things may go wrong.

You will read a lot — many supervisors expect their students to read for at least three months before starting their laboratory work and it is essential to keep up to date after that.

Do not expect everything to go to plan — be prepared to be flexible and communicate with your supervisor if things are not going well. There is a steep learning curve and your first year can be especially hard.

The best piece of advice is not to compare your PhD with anyone else’s because each project is different and will progress at different rates. This might paint a fairly negative picture of the whole PhD experience but there are positive sides. There is the opportunity to meet lots of interesting and creative people. Your PhD colleagues will all be going through the same ups and downs as you so it is great to have a support network of empathetic friends.

Doing a PhD does not mean you have to give up your social life either since most universities have post-graduate societies that organise social events. There are fantastic opportunities to present your work at national and international conferences. Finally, doing a PhD gives a great sense of achievement and gives you myriad skills for your future career.

**Careers**

The letters “PhD” after your name can provide a lot of options. A doctorate does not just show an ability to work in a laboratory or carry out research, it demonstrates self-motivation, time management, oral and written communication skills, and organisational skills. It also shows problem solving, creativity and initiative, all of which are attractive traits for potential employers.

After the PhD there are two main career paths taken by pharmacists. First, the academic route will usually involve post-doctoral research posts, followed by lectureships. Second is the pharmaceutical industry, which encompasses research, regulatory affairs, clinical trials and more. Outside these, the opportunities are varied and include patent law, civil service, medical writing, publishing, marketing or careers with regulatory authorities.

As pharmacists, we have a fantastic opportunity to have input into all stages of medicines research in the UK and abroad. Pharmacists are needed in pharmacies but they are also needed behind the scenes. If you want to be part of this, then consider a PhD and a career in research.