Clinical pharmacology

A career in clinical pharmacology — the study and use of drugs in humans — offers a variety of career opportunities, including the design and running of clinical trials and teaching. This month, clinical pharmacologists from industry and academia discuss their respective roles.

Pauline Williams, MBBCh, FFPM. Vice President and Head of the Academic Discovery Performance Unit, GlaxoSmithKline, UK.

The Academic Discovery Performance Unit (DPU) at GlaxoSmithKline (GSK) based in the UK comprises a group of physicians and scientists that manage the early development of a small portfolio of drugs in partnership with academics from across the world.

"The Academic DPU business model is an experiment to challenge the traditional way we evaluate potential new medicines," says Pauline Williams, Head of the Academic DPU. "We combine the drug discovery and development expertise of GSK with the in-depth scientific and clinical expertise of the academics. Together, we design and execute a preclinical and clinical plan, up to the proof-of-concept stage — the point at which we have enough evidence for the safety and efficacy of a promising new drug to invest in larger Phase II clinical trials."

Early in her medical career as a junior hospital doctor, Williams gained experience in clinical pharmacology by taking a short-term post at GHBA/Hazleton (now Covance), a Phase I contract research organization (CRO) based in Leeds, UK. This position fitted well from a timing and geographical perspective, after which she intended to complete her postgraduate training.

However, her experience as an investigator for a clinical study being run by the CRO for Glaxo (now GSK) changed her career plan and she was subsequently offered a job in Glaxo's Clinical Pharmacology Unit. "I absolutely loved the combination of designing clinical protocols, hands-on experimental medicine and being part of a multidisciplinary drug development team," she explains.

Williams has remained at GSK during her 17-year career, and throughout various mergers she has taken on positions of increasing responsibility within the Clinical Pharmacology and Discovery Medicine Department. Throughout this time she has "always been passionate about integrating experimental medicine and smart study design into our drug development plans." Recognizing that industry could collaborate with academic institutions in a more integrated and productive way, Williams was responsible for the start-up of the Academic DPU.

Now, as Head of the DPU, Williams particularly enjoys the autonomy of her role: "I have been given unprecedented freedom to operate — how to spend the money, who to employ, which academics to work with, and how to develop our portfolio." The interaction with academic partners has helped GSK to be more selective about which novel drugs are tested, and in which disease indications. However, as many academics have experienced challenges with previous interactions with big pharma, such as conflicting priorities and different approaches to publication, she highlights the need for a commitment to joint objectives between the two partners.

The high rate of attrition in drug development has taught Williams important lessons. "It is difficult not to become emotionally involved with your project. In fact, you need to be a champion for a particular drug to keep it moving through development. But you also need to know when it is time to stop. Fortunately, the knowledge that I have the opportunity to play a pivotal role in making a medicine that could help many patients worldwide makes it all worthwhile."

Jeff Aronson, MBChB, FRCP, DPhil Reader in Clinical Pharmacology, University of Oxford, UK.

For nearly 40 years, Jeff Aronson has been involved in basic and clinical research at the University of Oxford, UK. His current research interests include methods of classifying, detecting and reporting adverse drug reactions, and methods of monitoring drug therapy. He teaches clinical medicine and practical prescribing, and is also involved in policy formation in relation to the use of drugs, having served on committees of UK national bodies such as the British National Formulary and the National Institute for Health and Clinical Excellence (NICE).

"I was inspired to become a clinical pharmacologist because drug therapy spans the whole gamut of medical experience and offers wide clinical opportunities," explains Aronson. When he was a medical student at the University of Glasgow, UK, in the 1960s, clinical pharmacology was an emerging specialty, having been recommended for further development by the Royal College of Physicians in the UK and by the World Health Organization. "It was exciting to be part of a growing discipline. I was struck by how little we knew at that time about how to use medicines properly in clinical practice, and by the potential power of pharmacological tools to solve practical therapeutic problems."

Following his medical degree, Aronson began his research career under the guidance of Professor David Grahame-Smith at the Medical Research Council's then newly formed Unit of Clinical Pharmacology in Oxford. His thesis involved studies on the clinical pharmacology of cardiac glycosides. "Professor Grahame-Smith taught me to be intellectually rigorous and critical — attributes that I try to bring to all aspects of my work," he says.

Throughout his career, Aronson has enjoyed all aspects of clinical pharmacology, particularly the successful application of pharmacological principles to the management of clinical problems. "Seeing a therapy actually work to the benefit of the patient at the bedside is perhaps the most rewarding experience of all."

He finds the practice of clinical medicine the most challenging: "Making an accurate diagnosis, choosing the appropriate therapeutic option, and seeing the therapy through to a successful conclusion to the satisfaction of the patient is emotionally, intellectually and physically demanding, but this is also the most rewarding aspect of the job." He also notes that conflicts can arise between balancing the needs of the individual patient and the needs of society as a whole — for example, when planning the use of scarce resources — which can cause tension in his role on committees such as NICE.

In recent years, Aronson has recognized that there is a need to improve the teaching of clinical pharmacology to medical students in the UK. Indeed, as President of the Pharmacological Society from 2008 to 2009 his main aim was to initiate its renaissance. "These efforts have been largely successful, although there is still some way to go. I believe that after a period during which clinical pharmacology has been neglected by UK universities and the National Health Service, we are about to enter a period of re-growth."

WEB SITE
Career snapshots: http://www.nature.com/drugdisc/nj/nj_dd_arch.html