

Clinical Pharmacy in Uk Universities

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For many years, compounding of pharmaceutical preparations was the primary function of pharmacists, but with the advent of an organised pharmaceutical manufacturing industry, this role became virtually redundant. Pharmacists became more concerned with the provision of information in relation to drugs, and this led to the development of a more specialised clinical role particularly, within the hospital sector of the profession. The precursor to this defined clinical role was that of ward pharmacy in which pharmacists visited hospital wards to monitor prescription sheets.

There are many different definitions of the term "clinical pharmacy", but perhaps the most succinct and descriptive is as follows:

"The safe, effective and economic use of medicines".

Equally, the role of the clinical pharmacist is very wide-ranging, encompassing activities such as being a member of Drug

and Therapeutic Committees, providing clinical services at ward level, including adverse reaction monitoring, and involvement in clinical trials. It has been suggested that the aim of a clinical pharmacist is:

"to individualise patients, medication, promote patient compliance and promote the safe, rational and economic use of medicines".

In 1974, in the UK, the publication of the Noel Hall Working Party report advocated the involvement of the pharmacists in this more clinically oriented role. This function was supported by the Nuffield report on pharmacy services, in which it was stated that the pharmacist had a distinctive and valuable role in the treatment of individual patients in hospitals which did not infringe or undermine the authority of the clinician in charge of the case. The importance of clinical pharmacy within hospitals was endorsed further by the Department of Health in 1988 by the publication of "The Way Forward" circulars. The key theme that emerged from these publications was that patient care could be optimised through more cost-effective use of medicines and the improved use of pharmaceutical expertise.

Clinical pharmacy has represented an evolution in the profession rather than a dramatic and rapid introduction into practice. The USA led the way in the acceptance of this new model of practice, largely as a response to the extent of medication errors being reported. Extensive changes were made in pharmacy distribution methods to reduce this problem. In Australia in 1987, a series of policy guidelines were published outlining the standard of practice of selected clinical pharmacy services, e.g. medication, order review and patient medication counselling. In Europe, clinical pharmacy was introduced more slowly and gradually,

partly due to fewer pharmacists being employed in the hospital sectors, and because of the traditional concentration on the basic sciences in pharmacy courses. Clinical pharmacy was a minority subject.

Until 1997, pharmacy was a three year course (BPharm; BSC) taught within the Schools in England, Wales and Northern Ireland; a four year course has been in operation in Scotland for some time. As previously mentioned, traditional sciences featured prominently in these courses. Within the School of Pharmacy in Belfast, the three year course content has been as follows:

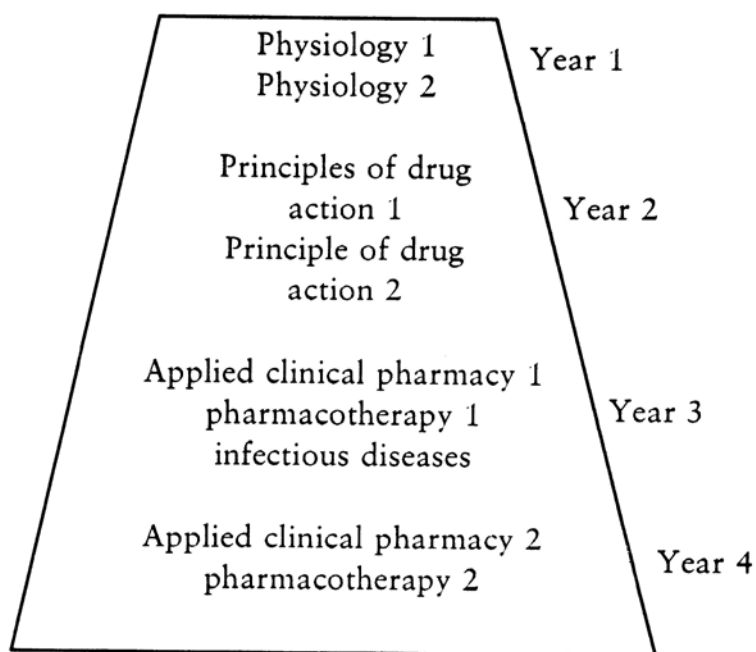
First Year	Second Year	Third Year
Chemistry	Pharmacology	Pharmacology
Physiology	Pharmaceutics	Pharmaceutics
Pharmaceutics	Pharmacy Practice	Pharmacy Practice
	Pharmaceutical Chemistry	

Clinical teaching was largely reserved for the final year and was delivered through lectures, practical classes and visits to a number of hospital departments. Clinical pharmacists also assisted in some teaching through the forum of ward rounds. Students were given the opportunity to prepare a case study, focusing on pathophysiology and therapeutics. These case studies were presented to their peers. Lectured material was wide-ranging, covering aspects of infectious disease, gastroenterology, cardiovascular disease, respiratory medicine, drugs at the extremes of age and drug interaction.

However, it has long been recognised that three years is a

relatively short time period in which to prepare students for the professional challenges which they will face when they leave university. Additionally, there have been important developments in both medicine and pharmaceutical practice which are being addressed at a very superficial level at present. Therefore, in 1997, an extended degree course was introduced to schools of pharmacy. The first graduates will receive their degree in 2001, and the degree will be known as the MPharm.

It is envisaged that in many Schools of Pharmacy, the four year course will differ from the older degree. At the School of Pharmacy in Belfast, the pharmaceutical sciences will feature prominently in the first and second years, while clinical pharmacy will assume greater importance in the final year, prior to students entering practice. The following diagram demonstrated the increasing emphasis which will be placed on clinical and practice elements:



This new clinical course will use a variety of teaching methods such as lectures, workshops, tutorials, laboratory classes and directed self-study. The latter encourages students to take some responsibility for their own learning and will hopefully instill a commitment to continuing education throughout their professional careers. In addition, a number of topics and subjects will be addressed in more depth than was formerly achieved in the shorter course. Social science, epidemiology, pharmacoepidemiology, pharmacoconomics, health promotion and the importance of interdisciplinary working will feature strongly in the clinical modules. In Belfast, continued support from the large teaching hospitals will be seen as an important element in exposing students to the everyday practice of clinical pharmacy. We will also be liaising with an Academic Practice Unit which has been established at a local hospital; this Unit carries out a number of research projects with academic support from the School of Pharmacy.

However, it has also been recognised that despite excellence of teaching at the undergraduate level, pharmacists have continuing educational and professional needs. This has been addressed in some way by the provision of a number of post-graduate courses in clinical pharmacy to Diploma or Masters, (MSc) level. Many of these courses adopt a distance learning approach, i.e. students work at their base hospital and complete assignments and projects which are assessed at the University. Some courses require students to attend the University for a limited time; other programmes are conducted entirely by distance learning, as is the case with the course offered by the School of Pharmacy in Belfast.

This latter course aims to improve the knowledge base and practice skills of hospital pharmacists so that they can contribute

more fully to clinical pharmacy programmes. The course has three main components, in addition to an examination:

- * Self-teaching units
- * In-practice training
- * Critical review (Diploma) or research project (MSc).

The self-teaching units comprise of printed booklets and are accompanied by a tutor-marked assignment. The units may be broadly categorised into Monitoring Efficacy and Toxicity (e.g. Clinical Pharmacotherapy), Pharmacotherapy (e.g. Endocrinology, Upper GI disease) and Professional and Research skills (e.g. Drug Information).

In-Practice training is undertaken at the student's base hospital and other suitable sites to ensure that wide experience in many clinical areas is obtained. This involves the completion of a number of case reports and clinical workbooks, all of which seek to build the student's clinical knowledge. Students are also assigned a local tutor who is responsible for the training and assessment of this part of the programme.

For those students who register for a Diploma in Clinical Pharmacy, they are expected to prepare a Critical Review in a selected topic provided by the School of Pharmacy. Students progressing to a MSc will undertake a research project lasting one year. The School of Pharmacy provides a list of project titles, but we also accept projects which have been proposed by students.

This paper has largely focused on clinical pharmacy in the hospital setting; however, during the 1990's, the UK has seen major changes in the way that health care is organised and delivered. Government policy has sought to focus health care in

the primary care setting and this has resulted in major challenges for general practitioners and community pharmacists. Many pharmacists are now providing objective information to general practitioners on issues related to prescribing, both at a local level and at a practice level. Therefore, clinical pharmacy has been introduced into the primary care sector, and with this development, the training needs have been recognised by a number of Schools offering clinical and professional training to community-based pharmacists.

At the School of Pharmacy in Belfast, a distance learning course is offered, leading to the award of Diploma in Community Pharmacy or a MSc in Community Pharmacy. The aim of the course is to improve the knowledge base and practice skills of community pharmacists so that they can contribute more fully in primary healthcare.

The format of this course is somewhat similar to the Clinical Pharmacy programme. Students are expected to complete self-study units and practice experience; for those students who wish to proceed to read for a MSc, a research project is undertaken. The self-teaching units cover Responding to Symptoms, Drug Therapy, Professional Skills, Health Promotion and miscellaneous topics. Practice experience is obtained through the completion of workbooks which aim to assist the student to develop skills in specific areas of practice. For those students undertaking a MSc, a research methods unit is completed; the topic of the research project is usually relevant to community pharmacy.

A common theme which has emerged from the discussion of the clinical programmes offered by Schools of Pharmacy is the importance of research work. Clearly, research contributes to the

development of practice and students undertaking such work contribute to the development of clinical services within the hospital and community settings. A brief description of two projects which were performed by pharmacists undertaking the Clinical Pharmacy course and the Community Pharmacy course illustrates how their work contributed to improved patient care.

In the hospital research project, the student expressed an interest in improving pharmaceutical care to elderly patients and sought to assess the incidence and factors leading to hospital admissions due to adverse drug events. Ninety five patients participated in the study and hospital admission was found to be related to medication in 18 patients. Drug-related problems associated with admission were linked to poor compliance (thyroxine and metformin), drug-drug interactions, and the use of contra-indicated drugs in certain disease states (e.g. enalapril in chronic renal failure). The key finding from the study was that those patients receiving more than eight doses of medication per day were at risk of experiencing an adverse drug event.

In the community-based study, the student also sought to improve the pharmaceutical care of elderly patients; prescribing trends were assessed for patients living in their own homes, and those living in nursing and residential homes. Pharmacist intervention was performed where appropriate. Over 100 patients participated in the study, their drug therapy was reviewed, interventions were made according to a number of criteria e.g. adverse effect suspected and unnecessary length of treatment. A follow-up of prescribing trends was carried out 6 months after the interventions. For patients living in nursing and residential homes, significantly more drugs were prescribed, the most frequently used agents being laxatives, analgesics and diuretics. In many cases, these drugs were being used without a relevant medical

condition being recorded in the notes. The main finding of the study revealed that following pharmacist intervention, there was a significant reduction in the number of drugs being prescribed for elderly patients in nursing and residential homes.

These studies illustrate the value of clinical pharmacy in both hospital and community settings, and community-based projects demonstrate that clinical practice is no longer confined to hospital wards. Additionally, both studies were part of distance learning programmes which sought to improve the knowledge base and practice skills of the pharmacists concerned, and hopefully, the didactic part of each programme contributed in some way to the success of the research projects. Schools of Pharmacy have had to respond in an active and positive way to meet the needs of undergraduate students and qualified pharmacists, and ultimately, the primary objective of these study programmes is to improve patient care through improved medicine management.

