

BRIDGING THE GAP BETWEEN ACADEMIA AND PRACTICE

By CATHERINE DUGGAN, PhD, MRPHARMS, DITA ENGOVÁ, MPharm, PhD,
BRYONY DEAN FRANKLIN, PhD, MRPHARMS, AND IAN WONG, PhD, MRPHARMS

Academic pharmacy practice units link the research expertise of university-based academics with the experience of practising pharmacists. This article outlines one partnership between a university and four hospital pharmacy departments

In recent years, the philosophy behind service provision in the NHS has changed in many ways. In particular, there has been a shift towards the greater application of evidence in practice, both in relation to therapeutic choices and to service development. There are corresponding needs for research to compare the options available, and for the application of research findings in practice.

However, the traditional pharmacy model of research being carried out within universities is not always the most appropriate approach, particularly for practice-related issues, which requires access to patient groups, health care professionals, and primary and secondary care practice environments. Conversely, many of the practitioners working in these fields believe that they do not have the skills or confidence needed to carry out research within their sphere of practice.

One solution to this problem is to develop academic units linked to universities but based in the practice environment. Such units facilitate the development of pharmacy-led research by combining the expertise of academia with the relevance of real-world practice.

This article describes the overall objectives, structure and functions of the four practice-based academic units linked to the School of

Pharmacy, University of London (SOP) and gives further details about each of these units (at the NHS Trusts of Hammersmith Hospitals, Barts and The London, Great Ormond Street Hospital for Children and Homerton University Hospital).

Objectives While the four units are structured in different ways, their fundamental objectives (set out below) are shared.

- To co-ordinate and develop pharmacy-led practice-based research within the trusts and to obtain research grants for this purpose
- To provide training and support in research methods for pharmacy staff within the base trust
- To bridge the research interests and opportunities of the trusts and SOP
- To provide placement and research opportunities for undergraduate and postgraduate students from SOP
- To publish in peer-reviewed journals and to disseminate research findings at relevant national and international conferences
- To establish and sustain research collaborations locally, nationally and internationally
- To evaluate pharmaceutical services developments and make recommendations for service modification
- To implement research into professional developments and ensure evidence-based practice

Structure All four units are led by pharmacists with experience of both clinical practice and academia, with PhDs in pharmacy practice or clinical pharmacology. However, the objectives are delivered through different structural arrangements. The level of staffing differs as do the department-related duties. The unit leaders may either hold full-time research posts or positions that are combined with clinical activities. The leaders of the Barts and the London NHS Trust, Ham-

smith Hospitals NHS Trust and Homerton University Hospital NHS Trust units are members of staff of the base department and honorary contract holders at SOP. These units also have between one and five part-time staff or limited-contract personnel. The Centre for Paediatric Pharmacy Research director and four members of staff are full-time employees of SOP and hold honorary contracts at Great Ormond Street Hospital for Children NHS Trust, with one person having the reverse arrangement. The Centre for Paediatric Pharmacy is based at SOP, while the other units are embedded within their base departments. Directors of the four units meet at SOP every two months at the Academic Departments of Pharmacy (ADP) Forum, providing an opportunity for networking, peer-support and development of joint research proposals.

Research The *raison d'être* of the units is to carry out research. This typically involves preparing grant applications to obtain funding to carry out specific projects, and advising on existing research and audit projects that may be carried out within the pharmacy department. Successful grant applications mean that additional staff can be appointed to carry out research under the supervision of the head of the unit. There are different research portfolios associated with each unit, depending on the research interests and expertise of the staff involved, as well as local priorities and needs.

Dissemination of the research carried out at national and international conferences serves as a means of sharing the findings with professional peers and policy makers, as well as assisting in raising the academic profiles of the base departments and hospital trusts.

Teaching Teaching is another key element of the academic units, whether in-house or at undergraduate and postgraduate level at SOP. This includes providing hospital placements for final year undergraduate students, formal teaching to undergraduate and post-

Dr Franklin is principal pharmacist clinical services and director, Academic Pharmacy Unit, Hammersmith Hospitals NHS Trust and the School of Pharmacy, University of London. Dr Duggan is director, Academic Department of Pharmacy, Barts and the London NHS Trust, Royal London Hospital and the School of Pharmacy, University of London. Dr Engová is senior research fellow, Academic Practice Unit, Pharmacy Department, Homerton University Hospital NHS Trust. Dr Wong is director and reader, Centre for Paediatric Pharmacy Research, the School of Pharmacy, University of London, The Institute of Child Health, University College London and the Great Ormond Street Hospital for Children NHS Trust. Address for correspondence is Bryony Dean Franklin, Pharmacy Department, Hammersmith Hospitals NHS Trust, Du Cane Road, London W12 0HS.

graduate MSc students, and provision of supervision and mentoring to doctorate students. The link with SOP also provides a wide range of learning opportunities for pharmacy staff at our hospital sites.

HAMMERSMITH HOSPITALS

The Academic Pharmacy Unit (APU) at Hammersmith Hospitals NHS Trust was established in June 2000 when the chief pharmacist realised that SOP and the trust could both benefit from having a formal link. It was envisaged that this would not only improve the quality of pharmacy research already conducted in the department, but also provide SOP students and academics alike with access to real life medicines-related issues.

Hammersmith Hospitals NHS Trust is a large postgraduate teaching trust and consists of two main hospitals: Charing Cross Hospital and Hammersmith Hospital. The trust also includes two smaller hospitals: Queen Charlotte's Women's and Children's Hospital, and Ravenscourt Park Hospital. The Hammersmith Hospital is recognised as a unique national institution in terms of the quality and volume of its clinical research. In addition, many of the trust's tertiary referral specialities are internationally recognised for their research output. Establishing formal links between this organisation and SOP therefore created many exciting opportunities. The post of principal pharmacist clinical services and director, Academic Pharmacy Unit is jointly funded by Hammersmith Hospitals NHS Trust (four-fifths) and SOP (one-fifth). The post-holder, Dr Bryony Dean Franklin, therefore manages clinical pharmacy services on each site, as well as being responsible for the APU. To reflect the way in which the post is funded, Dr Franklin generally spends one day a week at SOP and the remainder at the trust. Also working in collaboration with the APU are a part-time database co-ordinator who assists with data entry and analysis from departmental research and audit projects, a number of research pharmacists, and undergraduate, MSc and PhD students.

The APU's main research areas and examples of current projects are set out in Panel 1. Since it was set up in 2000, a total of 13 peer-reviewed papers and more than 20 abstracts and other articles have been published by the APU. Several grants have been obtained, allowing additional research to be carried out.

Education and training organised by the APU includes an in-house management development course for senior pharmacy staff, an accredited certificate in clinical pharmacy course and a new MSc in infection management for pharmacists set up in collaboration with Imperial School of Medicine and the Health Protection Agency. This MSc started in October 2003 and represents

a significant development in pharmacy post-graduate education. The APU also co-ordinates placements in the trust's pharmacy department for SOP undergraduate and postgraduate students, and medical students from Imperial College School of Medicine. Dr Franklin leads SOP's research methods and statistics module together with Dr Catherine Duggan from the Barts and the London NHS Trust.

BARTS AND THE LONDON

Barts and the London NHS Trust comprises several hospital sites: The Royal London Hospital, St Bartholomew's Hospital, The London Chest Hospital, The Queen Elizabeth's Children Service and Royal London Hospital Mile End. Barts and The London NHS Trust serves east London and the City, an area of striking contrasts. It covers one of the most affluent boroughs in the country (City of London) and some of the poorest (Tower Hamlets, Hackney and Newham). The patient population served by the trust is varied and diverse in health and social needs and the problems associated with medicines management are a rich source for practice research and service development.

For more than a decade, the ADP at Barts and the London NHS Trust has been formally linked with SOP through the establishment of joint appointments, joint teaching and research. The current director, Dr Catherine Duggan, was appointed in August 2000 and her post is funded jointly by Barts and the London NHS Trust (four-fifths) and SOP (one-fifth). The team consists of a principal pharmacist for interface research, two joint appointments with SOP (undergraduate and postgraduate clinical lecturer posts), and a joint appointment lecturer practitioner with the School of Nursing, City University.

The ADP research strategy was developed to meet effectively the research needs of both the trust and SOP. The strategy broadly

covers the role of the pharmacist in medicines management: risk, interface, information and education. One of the main ADP objectives is to integrate research and practice within the pharmacy department. This takes place at various levels: audit meetings and the development of a pharmacy audit programme. The ADP team assist staff with audit design and analysis, supervise extramural student placements, ERASMUS and masters research projects. The team also provides support for many practitioners keen to research novel and innovative roles and practice, for example, a specialist high-risk drugs pharmacist. The ADP has secured funding for five PhD students registered at SOP, together with a growing portfolio of collaborative research and an increasingly large cohort of visiting students from Sweden, Croatia, Holland, Belgium and Spain.

Since August 2000, the ADP has been active at national and international conferences, with over 50 presentations at national and international symposia and 45 reviewed publications. A total of £490,000 has been secured in grant income over the past six years, representing steady and continuous growth and establishment of the research culture within the ADP and between the institutions.

The ADP has sought to not only sustain the existing teaching and clinical placements but to develop new and innovative teaching roles and methods of delivery in collaboration with SOP and other institutions. Examples include implementing a programme for B and C grade pharmacists to teach on the MPharm programme. The ADP has also developed and undertaken a specialist module for third year students with a team comprising senior pharmacists and consultants, which has further integrated teaching and practice.¹

The established links with SOP have been strengthened by developing new ways of working together and the development of new joint posts. In addition, links are being

Panel 1: Main research areas and current research projects at the Hammersmith Hospitals academic unit

Main research areas:

- Medication safety (this is the main focus)
- Prescribing audit
- Use of anti-infectives
- Pharmacy services development

Examples of current projects:

- Study of the causes of dispensing errors
- Evaluation of a ward-based computerised prescribing and automated dispensing system
- Evaluation of a dispensary-based automated dispensing system
- Developing methods for measuring and bench-marking the use of anti-infectives
- Exploring the impact of "one-stop dispensing"

forged with other academic units, the London region and other institutions of higher education. One example is that with the School of Nursing at City University, where a joint appointment has been established and new lectureships in prescribing are being developed. The ADP collaborates closely with local primary care trusts and primary care research networks, universities in London, the rest of the UK and internationally (Uppsala, Sweden; Lisbon, Portugal; Utrecht and Groningen, The Netherlands; Navarra, Spain and Zagreb, Croatia).

— PAEDIATRIC RESEARCH UNIT

Paediatric medication poses special challenges: the medicines themselves, their adaptation for use in children from the neonate until early teens, the process of administering the medicine and the monitoring of effectiveness. These are issues for health care practitioners, parents, carers, the pharmaceutical industry and, of course, the child.

The UK Select Committee's report in 1997 and EU Commissioner's report on "Better medicines for children" in 2002 highlighted the problems of the use of unlicensed, off-licence and orphan drugs in paediatrics. They encouraged the pharmaceutical industry, health professionals and academics to conduct research into medicines for paediatric use. The establishment of the academic centre serves this purpose.

SOP and the Institute of Child Health, University College London have recently been rated as top-rank research institutes by the UK Government. Together with the Great Ormond Street Hospital for Children NHS Trust they have combined their expertise to establish the Centre for Paediatric Pharmacy Research based at SOP and Dr Ian Wong was appointed as the director in April 2002.

The centre focuses on research into the use and formulation of paediatric medicines. This centre can readily obtain expertise from formulation scientists, pharmacists, clinicians and social scientists based in the institutions and is a unique place for paediatric pharmacy research. Areas of activity will include formulation optimisation, research and development, drug delivery and targeting research, clinical trial, medicines usage issues, risk assessment, training of undergraduates and graduate pharmacists and organisation of symposia for physicians, nurses and pharmacists.

The centre is currently holding a £1.5m research grant from the Medical Research Council, Department of Health and various pharmaceutical companies. Examples of current projects are set out in Panel 2. In the future, the centre is to focus on two aspects of research, namely the research and development of clinically effective formulations for children and research into the risk of paediatric medication including the adverse drug reactions and medication errors

Panel 2: Examples of current research projects at the Paediatric Research Unit

- Child and Adolescence Psychotropic Therapy Evaluation Research (CHAPTER)
- Children's Over-the-counter Medicines Purchase Evaluation (COPE)
- Prescribing OTC Medicine by Pharmacists Trial (PROMPT)
- Parents' perception of paediatric medicines
- Various other commercial projects in the development of paediatric medicines

The centre is currently working with the director of taught postgraduate studies at SOP and other senior paediatric pharmacists in the development of an advanced module in paediatric clinical pharmacy. The plan is to apply for accreditation by the newly formed Faculty of Neonatal and Paediatric Pharmacy at the College of Pharmacy Practice.

— HOMERTON HOSPITAL

The Homerton University Hospital NHS Trust is a 500-bed general district hospital serving the population of Hackney, East London. In recent years, the department of pharmacy has been modernised to reflect the developments in the NHS. The specialised posts of admission and discharge pharmacists and a pharmacist for older people have been introduced. The most recent development involved establishing the APU in February 2002.

The aim of the APU is to establish and maintain pharmacy-led multidisciplinary research within the hospital and in collaboration with external partners. The unit is led by Dr Dita Engová. This research position existed for 18 months as a full-time position fully funded from the pharmacy department budget, and has recently become an honorary position. The staff of the pharmacy department are involved in the unit's operation by contributing research ideas and completing research projects and audits.

During the first year of operation, external funding of £92,000 has been secured for APU-based research projects. Currently, research encompasses three clinical areas: anticoagulation, tuberculosis and mental health. All projects are collaborative, involving specialists from the relevant fields.

In addition to the externally funded research, a range of projects and audits are in progress, investigating medicines use and evaluating aspects of services provided by the department. These projects are mainly undertaken by the pharmacy department

staff. They are supported by the unit leader who advises on methodology and analysis.

Some of the projects are fully based in the hospital, while other are carried out in cooperation with SOP. Two PhD students registered with SOP to carry out their projects through the APU and supervision of SOP undergraduate dissertations is also part of the APU's activities. Tutoring and lecturing at SOP on undergraduate and postgraduate programmes is another way in which the APU contributes to SOP's educational agenda. Dr Engová and the chief pharmacist, Dipak Duggal have been awarded honorary lecturer appointments at SOP.

The APU has functioning links with other clinicians within the hospital and outside. A respiratory medicine consultant provides advice for the PhD project in tuberculosis. The same consultant and the respiratory medicine nurses have been involved in the APU-facilitated delivery of a teaching module in tuberculosis for SOP undergraduate students. A haematology consultant is engaged in the project in anticoagulation service developments. A forensic psychiatry consultant is collaborating on the antipsychotics side effect management project.

Dr Engová is a member of Homerton University Hospital Research and Development Committee and she has established a multidisciplinary health services research group in the trust, bringing together physicians, nurses and allied health care professionals undertaking or interested in health services research.

The first year of the APU resulted in a number of achievements and assisted in demonstrating the feasibility of establishing a practice-based research unit in a general district hospital. The APU has facilitated the pharmacy department's contributions to the research and clinical governance agendas of the Homerton University Hospital NHS Trust. The introduction of intensified research activity within the pharmacy department has increased staff participation in generating research data, and resulted in the formation of new, and development of existing, professional links with other health care professionals and research institutions.

— CONCLUSION

Practice-based academic units are bridging pharmacy practice with academia and provide common ground for the two worlds, where discussion and sharing of needs and solutions can take place. The four units at SOP suggest this is a successful model for both research and education initiatives that span the academic and practice environments.

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