

# Pharmacy practice research reviewed

In total, 115 abstracts were submitted for presentation at the pharmacy practice research sessions of the 2006 British Pharmaceutical Conference. **Clare Bellingham** reviews a selection of them here. The review supplements her report in our conference week issue (*PJ*, 9 September, p315), which picked out some of the highlights of this year's practice research

**M**edicines use review (MUR) was the most popular topic among this year's BPC practice research papers. This should be no surprise since it is little more than a year since MURs were introduced as a significant new role for community pharmacists in England and Wales.

Other popular subjects were extended roles, such as supplementary prescribing and running clinics, plus over-the-counter sales. Public health came to the fore in several papers this year and medication errors retain a high level of interest.

A review such as this can cover only a selection of the research presented. Among the papers not included, two topics stand out: tools and therapeutics. A number of papers described the development of a tool to test a theory but then stop, not going on to use the tool. Although such tools are certainly useful, it is the result of what the tool tests that is the interesting part.

More disappointing was the number of research papers that did not focus on pharmacy practice. The Society's research and development division says that this is because the selection criteria have been broadened, but it is hard to understand how a paper that makes no mention of either pharmacists or pharmacy can be labelled pharmacy practice research. Therapeutics was the most common of these, with papers that examined other professions' prescribing habits or the efficacy of a medicine. Unless this is linked to the pharmacist's role, it is not pharmacy practice.

So this review starts with MURs and medication review. Next it looks at extended roles, followed by public health. It then moves on to patient safety and specific hospital pharmacy issues. Finally, after returning to community pharmacy with over-the-counter sales, it ends with education issues.

## Medicines use reviews

Around a third of community pharmacies in England are providing MURs, according to **Elvey et al** from the University of Manchester. They presented the results of a survey of primary care trusts at BPC (previously published in the *PJ*, 5 August, p161).

But what has happened to the remaining two-thirds of pharmacies? That is what another team from Manchester aimed to find out. **Hall and Smith** investigated the barriers to providing MURs from both the PCT and community pharmacist perspective. They interviewed 40 pharmacists and 19 PCT managers between October 2005 and February 2006. Six barriers to implementing MURs were found, four of them expressed by

both groups. Of the two differing opinions, PCT managers said that many pharmacists lacked confidence to carry out MURs. Pharmacists disagreed, instead suggesting they had insufficient support from PCTs. The four common barriers were time, difficulties in recruiting patients, space for a consultation room and insufficient financial reward for carrying out MURs.

The theme of confidence in performing MURs was picked up by **Davies and Pugsley** from Cardiff University.

They report that pharmacists want more than accreditation: they want assurance of competency. The key themes identified were: accreditation does not guarantee confidence to perform MURs; pharmacists need to work within their own competency (eg, defined therapeutic areas); and performance-based assessments would increase pharmacists' confidence. Pharmacists highlighted a lack of clearly defined standards of performance for MURs as a problem.

Also researching barriers to conducting MURs were **MacAdam et al** from the University of Brighton, who sent a questionnaire to 140 randomly selected pharmacies across England and Wales. Of the 75 returned, 81 per cent of respondents thought MURs are a good idea but 95 per cent highlighted barriers. Lack of time was the most common barrier (77 per cent), followed by lack of staff (52 per cent), lack of patient knowledge about MURs (45 per cent) and the GP response to



Medicine use review was the most popular topic among presenters of practice research at the conference

the MUR service (42 per cent). The researchers comment that uptake of the MUR service appears to be steady and does not depend on company support, age or gender.

## Medication review

In a follow-up to the controversial HOMER study, **Holland** (University of East Anglia) *et al* looked again at pharmacist-conducted medication reviews in older people. They conducted a systematic review of 33 trials and found that medication review had no significant effect on all-cause hospital readmission or on relative risk of mortality. Reviews resulted in decreased prescribing. They comment that individual trials found varied results which suggests it may be possible to develop higher quality, effective interventions. But in the meantime they conclude that medication review cannot be assumed to yield important health gains.

Positive news for pharmacist-conducted medication review was presented by **Phelan et al** from Keele University. In their study, a pharmacist provided a detailed review of medicines for chronic knee pain, particularly looking at potential risks from non-steroidal anti-inflammatory drugs. A total of 106 patients received 335 consultations. At the final consultation, 77 per cent of patients reported reduced pain. This coincided with a 50 per cent reduction in NSAID prescribing and a 77 per cent increase in simple and compound analgesic use. In all, 63 per cent of patients were advised to change medication, 22 per cent to amend the dose of their current medicines and only 12 per cent to continue on their existing treatment.

**McAnaw et al** from Glasgow found that pharmacist-conducted medication reviews are

## Practice research abstracts

The BPC practice research abstracts are being published as a supplement to the September issue of the *International Journal of Pharmacy Practice*. Copies of the supplement can be purchased for £14.95 from the Pharmaceutical Press, Turpin Distribution, Stratton Business Park, Pegasus Drive, Biggleswade, Bedfordshire SG18 8TQ (tel 01767 604971; fax 01767 601640; e-mail [custserv@turpin-distribution.com](mailto:custserv@turpin-distribution.com)). The abstracts are also available in the form of PDF files, which can be downloaded from the *IJPP* webpages of the Pharmaceutical Press website ([www.pharmpress.com/ijpp](http://www.pharmpress.com/ijpp)).

made more efficient by using supplementary prescribing. In a study of 146 patients, 686 actual or potential drug therapy problems were identified. The pharmacist reviewing the patients, who is a supplementary prescriber, was able to make 82 per cent of the changes required without needing to refer back to the GP. The study also found that medication review improves adherence to cardiovascular evidence-based guidelines.

How community pharmacists compare with nurses when conducting medication reviews was investigated by **Krska** (NHS Tayside) *et al*. A difference in emphasis was found, with pharmacist reviews more likely to involve changes to drug therapy than nurse reviews. Pharmacists identified more problems with medicines not being tolerated while nurses found more problems with medicine administration. More pharmacist reviews than nurse reviews were classed by patients as "very useful", suggesting that pharmacist reviews may be better received.

The information patients receive about their medicines depends on the professional who advises them, according to research by **Patel et al** from Liverpool. They asked doctors, pharmacists, technicians and nurses to rank information statements for 20 of the most commonly prescribed medicines for children. Opinions varied for all but one medicine — paracetamol. For antibiotics, all agreed that completing the course was the key message but after that, pharmacists and technicians concentrated on storage and administration, whereas doctors and nurses prioritised statements on side effects.

### New roles

In Scotland, **Millar et al** (NHS Greater Glasgow) examined how prepared community pharmacists in Glasgow were for their new contract. An audit of 217 pharmacists in November 2005 found that 65 per cent had a consultation area and a further 24 per cent planned to install one. Three-quarters had staff who could be deployed to allow pharmacists to take on additional roles although 93 per cent of these staff required additional training. Five per cent of pharmacists had already qualified as supplementary prescribers and 8 per cent were in training.

Back in England, **Bradley et al** from the University of Manchester assessed which of the new pharmacy contract's third tier of enhanced services are being commissioned by PCTs (see also *PJ*, 19 August, p224). The mean number of services per PCT was six and the most popular were supervised administration (88 per cent), needle exchange (85 per cent), smoking cessation (77 per cent), care homes service (64 per cent) and out of hours services (64 per cent).

But according to **Celino and Blenkinsopp** (Webstar Health and Keele University), commissioning of community pharmacy services was already on the increase before the introduction of the new contract. They surveyed all PCTs in England in late 2003 and then again in late 2004. The most

common enhanced services were supervised consumption (up from 73 per cent in 2003 to 83 per cent in 2004) and needle exchange (84 per cent in 2003 and 81 per cent in 2004). Commissioning of minor ailment services increased from 15 per cent in 2003 to 36 per cent in 2004.

**Bradley et al** (University of Manchester) also investigated how many community pharmacies provide substance misuse services. Although 88 per cent of PCTs surveyed have commissioned supervised administration, only one in four pharmacies are providing the service. Similarly, despite 85 per cent of PCTs commissioning needle exchange, only one in seven pharmacies provides it.

**Matheson et al** (University of Aberdeen) sent a questionnaire to all community pharmacies in Scotland. An interim analysis of 180 responses showed that 86 per cent dispense drugs for drug misuse, compared with 59 per cent in 1995 and 72 per cent in 2000. Provision of supervised consumption rose from 37 per cent in 1995 to 74 per cent in 2006, and needle exchange was up from 17 per cent in 1995 to 31 per cent in 2006.

**Britton and Scott** (University of Bath) quantified the number of community pharmacies providing methadone services in South West England. Of 707 pharmacies that responded, 69 per cent dispensed methadone and 70 per cent of these provided supervised consumption.

Turning to other subjects, an interesting role for pharmacists in weight management is described by **Bescoby** (Giles Pharmacy, Worcester) and **Millar**. Although the sample size is too small to produce a significant result, they report a pharmacy pilot of a weight management clinic in which individuals with a body mass index of above 30 were monitored by a pharmacist. Patients were set goals relating to diet, activity and weight loss. Ten patients completed a six-month pilot. All lost weight with 60 per cent achieving weight loss of 5 per cent or more, a result comparable with GP-run clinics, the authors comment.

On a more negative note, a number of groups looked at barriers to pharmacists' ability to expand their roles. Two groups examined what other people think about community pharmacy. **Celino and Blenkinsopp** (Webstar Health and Keele University) interviewed 10 stakeholders from other professions and NHS management about community pharmacy's role in patients with long term conditions. They found that many GPs are unconvinced about the benefits of pharmacy involvement and that patients are not aware of what pharmacy can offer.

GP opinions were also examined by **Cunningham** (Robert Gordon University) *et al*. They sent a questionnaire to all GP practices in Scotland regarding community pharmacists' role in cardiovascular disease (CVD) risk assessment. Of the 462 practices that responded, 61 per cent thought community pharmacists should be involved in monitoring blood pressure, 71 per cent cholesterol, 83 per cent adverse effects/drug

interactions and 76 per cent promoting compliance. However, 63 per cent did not want pharmacists to have access to patients' medical records for the purpose of CVD risk assessment. In contrast, 87 per cent thought pharmacists should inform GPs of the results of any assessments made in the pharmacy.

Meanwhile, **Candlish et al** from the University of Sunderland investigated the barriers facing pharmacists who had recently become supplementary prescribers. Of 54 questionnaire respondents, 27 were not currently prescribing. Reasons included job change (six), no supplementary prescribing role available (nine), awaiting prescription pads (five) and insufficient time (three).

But do pharmacists want extended roles? Research by **Gidman** (University of Manchester) *et al* suggests that new roles only add to pharmacists' stress levels. They interviewed 30 female community pharmacists aged over 30 years. Most reported reduced job satisfaction as a result of an increasing workload and an expanding role.

One area in which community pharmacies are developing new services is in the out-of-hours period, something that two research groups looked at. The need for pharmaceutical services in the out-of-hours period was assessed by **Bond** (University of Aberdeen) and **Bennett**. They found that in Grampian, in the previous six months, 10 per cent of the public, 33 per cent of GPs and 11 per cent of nurses had wanted to access a pharmacy in the out-of-hours period. Services had been provided by 24 per cent of pharmacies. However, 43 per cent of pharmacies said they would be willing to provide a service in future.

In Glasgow, **Reilly et al** examined referrals between community pharmacy and NHS24. Of 103 pharmacies, 81 per cent had received a referral from NHS24 and 85 per cent had referred a patient to NHS24. Reasons for referrals to pharmacies from NHS24 included supply of an OTC medicine (31 per cent), medication queries (27 per cent), access to a prescription-only medicine (25 per cent) and supply of emergency hormonal contraception (17 per cent). By far the most common reasons for referral to NHS24 was for diagnosis and treatment from a doctor or dentist.

### Public health

Policy-makers in primary care believe community pharmacy can contribute to improving public health but pharmacists need to contribute in areas where planners think they will have most use, according to **Bush et al** from Aston University. Given a list of 12 public health topics, respondents considered community pharmacists to be most useful in tackling smoking, teenage pregnancy, drug misuse, diabetes and cardiovascular disease.

**Elvey et al** from Manchester surveyed PCTs about sexual health. They found that 76 per cent of PCTs provided emergency hormonal contraception through community pharmacies and 23 per cent offered chlamydia testing. In addition, 53 per cent planned to extend sexual health services in the future.

Two public health topics for which pharmacists may need more training are sun awareness and alcohol. **Moffat**'s survey of pharmacists in Glasgow found that half try to persuade customers to choose a sunscreen with a sun protection factor (SPF) above 15 and the same proportion provide safe sun advice "most of the time". However, **Moffat** suggests that more advice should be given about covering up and seeking shade.

**McCaig** from Aberdeen *et al* surveyed pharmacists across Scotland about their role in discouraging hazardous drinking. Although pharmacists thought a role for pharmacy existed, they expressed a lack of competence to deliver it. Only 4 per cent had completed specific training.

### Patient safety

Patient safety research presented at this year's BPC was dominated by work carried out in hospitals. According to **James** (King's College London) *et al*, the most common drug to be incorrectly dispensed is insulin. They analysed data of dispensing errors in Welsh hospitals in 2003–04. After insulin, the most common drugs involved in incidents were angiotensin-converting enzyme (ACE) inhibitors, morphine sulphate, nifedipine, isosorbide mononitrate, prednisolone, clarithromycin, diltiazem, lansoprazole and paracetamol. The overall incident rate was 15 per 100,000 items dispensed.

However, **Cormack** *et al* (University of Manchester) suggest that there is still a culture of under-reporting of medication errors. They surveyed pharmacy staff at three hospitals in North West England and found that 62 per cent said they had reported a maximum of two errors in the previous 12 months. A fear of blame and disciplinary action were found to be reasons for not reporting errors.

Is information technology the answer in patient safety? **Tully** *et al* from Manchester cast doubts. They interviewed pharmacists, technicians, nurses and doctors at two hospitals with established electronic patient record systems. Participants said the systems made the prescribing process more efficient and prescriptions were legible. However, since the electronic systems did not link prescribing and clinical data, many prescribers still relied on pharmacists to perform checks and correct errors.

But it is not all bad news for IT. **Atchia** *et al* report that adding barcodes to dispensing paperwork at St Thomas' Hospital, London, reduces risk and provides an audit trail. They tested the system at the hospital's centralised intravenous additive service. Previously, a computer had generated dose preparation worksheets and product labels on two separate printers. Mismatching the two was identified as a weakness. Barcoding solved this problem.

Preparation of parenteral products on wards is known to carry risks and is a topic examined by **Langley** (Aston University) *et al*. They suggest that risks could be reduced by making compatibility data available on wards, using screens to segregate sinks from

preparation benches and producing a set of practice standards.

Meanwhile, in primary care, **Desborough** *et al* (University of East Anglia) investigated whether the Norfolk Medicines Support Service for older people has an effect on emergency hospital admissions. The service involves a pharmacist-conducted medication review and provision of simple devices, compliance aids or assisted administration of medicines. Of 135 patients assessed between May and September 2005, 56 per cent received a compliance aid and 7 per cent needed assisted administration. Emergency hospital admissions in the three months before and after the assessment were reduced from 59 to 24. The authors note that, although the service appears to reduce admissions significantly, the study had a number of limitations, including the effect of the time of year.

### Other hospital issues

Audits of prescribing in both hospital and primary care were carried out by a number of research groups. Two of these are of particular interest because they demonstrate direct implications for pharmacists.

In Sunderland, **Mohammed** *et al* examined cefuroxime and metronidazole prophylaxis in general surgery during a three-month period on two surgical wards. They found that 55 per cent of patients received more than the recommended prophylactic dose. The researchers note that stop dates for antibiotic therapy were not indicated in patients' notes and suggest that pharmacists could take a more proactive role in offering guidance on the appropriate length of therapy.

**Langley** (Aston University) *et al* looked at clopidogrel prescribing in hospital. They found that a considerable number of patients prescribed the drug do not fit the prescribing criteria. They suggest that the reason for clopidogrel use, including the duration of treatment required, should be communicated from secondary to primary care. Pharmacists could then use medicines use reviews as one way of monitoring clopidogrel use.

**Honnet** (Wishaw General Hospital) *et al* quantified the pharmaceutical care issues that pharmacists identify in emergency admission patients. The most common problem was the need for additional medication, often a result of omissions in the initial medication history taking. Other problems corrected related to the dose (too high or too low), compliance, unnecessary medicines, the wrong drug prescribed and adverse drug reactions.

A method for determining potassium levels in total parenteral nutrition (TPN) is described by **Shinh** *et al* from Birmingham. They used ion selective electrode determination (with a Radiometer ION570 high performance ion selective electrode meter) to measure the potassium content of various TPN solutions. The meter gave reproducible results regardless of the other components of the TPN.

Hospital pharmacists' role in emergency supply was assessed by **Collignon and Osborne** (Guy's and St Thomas' NHS

Foundation Trust, London). The emergency department pharmacists saw 66 patients over a 14-month period, most commonly because patients had run out of medicines. Of these, over a third did not meet legislative requirements for emergency supply. The authors suggest that new prescribing rights for pharmacists or amending the emergency supply legislation may improve patients' access to medicines.

Workforce issues in mental health trusts are raised by **Taylor and Sutton** (University of Bath). They sent questionnaires to all chief pharmacists in mental health trusts in England. Roughly half responded and the results show that many pharmacists provide little more than a basic supply service. For example, only 65 per cent of hospitals always provide basic ward visits. The researchers say that clinical pharmacy services are being provided on an ad hoc basis and staffing levels are insufficient.

### Community pharmacy and OTCs

Most people who buy paracetamol suspension for children from pharmacies are given little or no advice, according to **Gray** *et al* (University of Nottingham). Although most purchasers had used the medicine before, they would still like advice on topics such as safe dosage, how it acts, length of use, allergies, side effects and interacting medicines. In another study by the same group (lead author **Boardman**), purchasers of children's medicines said they preferred receiving spoken advice from pharmacists or staff to relying on written advice in a leaflet.

Community pharmacists' role in treating minor childhood ailments was investigated by **Nakrani** *et al* (King's College London). Interviews with parents found that most do not use the community pharmacy as the first port of call for diagnosing minor childhood illness but, once a diagnosis has been made, parents view pharmacists as a reliable source of information about medicines.

One of the most widely used mnemonics for consultations in community pharmacy is WWHAM (Who is it for? What are the symptoms? How long has it been going on? Action taken? Medicines taken?). **Watson** (University of Aberdeen) *et al* used actors to visit pharmacies using a variety of scenarios and found that the WWHAM questions work. An appropriate outcome was more likely when symptoms were presented (as opposed to condition or product presentations), when more information was exchanged and when specific WWHAM questions were used.

Over-the-counter simvastatin interested two research groups. A survey by **Howell and Brown** (University of Portsmouth) found that, although most pharmacists had undertaken training, sales were modest. The product had not been universally accepted and pharmacists expressing concerns over the lack of a clinical evidence base, safety issues and motivation for its introduction.

**Cunningham** (Robert Gordon University) *et al* investigated GPs' opinions on the

simvastatin switch. Most believed that it was inappropriate to sell simvastatin without a risk assessment including blood cholesterol and blood pressure measurement.

In a related study, **Candlish *et al*** (University of Sunderland) found that only 16 per cent of pharmacies in the North of England provide a cholesterol testing and management service. Of those, 23 per cent would not supply OTC simvastatin to people identified with moderate cardiovascular risk.

A study by **McKee and Seville** (Aston University) suggests that veterinary surgeons are not convinced that community pharmacists can contribute to animal health care. Only 12 per cent of veterinarians thought that animal owners could benefit from the veterinary advice community pharmacists could offer. The overwhelming majority of veterinarians and pharmacists thought pharmacists needed additional training before becoming involved in supply of veterinary medicines.

**Cooper *et al*** (University of Nottingham) came up with the best titled research paper in this year's practice research: "Dispensing with drama? The ethical problems of community pharmacists." They asked pharmacists to identify ethical problems from their work and found most pharmacists quoted legal or procedural issues. Problems frequently involved a principle versus a legal, procedural or economic factor. The authors suggest that this confusion between ethical and legal issues may prevent pharmacists from paying attention to what is ethically relevant in their work.

Patients' views on NHS prescription charges were investigated by **Schafheutle** (University of Manchester). Many thought that the current list of medical exemptions was unfair, that the level of charge was too high and that pre-payment certificates should not require an advance lump-sum payment.

### Education and training

As always, the BPC practice research attracts many papers on pharmacists' education and training.

The most interesting paper came from **Mackellar** (South Manchester University Hospitals NHS Trust) *et al*, who used a literature review, focus group and survey to identify a list of criteria for assessing pharmacy students' communication skills. The criteria were: Did the student introduce himself or herself? Did you understand the purpose of the consultation? Did the student speak clearly? Did the student use words that you could understand? Did the student check whether you understood what you had been told? Did the student give you the opportunity to talk? Did the student treat you with courtesy and respect?

Pharmacy students have been surveyed for their views on all sorts of topics — assisted dying, continuing professional development, interprofessional learning, hospital-based teaching and calculations. Numeracy in pharmacy is a hot topic. So it is interesting that **Barry *et al*** (Queen's University Belfast) found

## Servier prescribing and medicines management award winners

The inaugural Servier prescribing and medicines management awards were presented at the British Pharmaceutical Conference. The awards support the implementation of educational and clinical initiatives and fund project development in the areas of osteoporosis, coronary heart disease and diabetes.

The awards are funded by Servier Laboratories Ltd and administered by the College of Pharmacy Practice on behalf of several pharmacy and nursing organisations, including the Royal Pharmaceutical Society, the National Pharmacy Association, the Faculty of Prescribing and Medicines Management and the Association for Nurse Prescribing. Award entries were assessed by a judging panel made up from representatives of these organisations, which evaluated the potential benefits to patients and staff.

The practice research award of £10,000 was won by a project entitled "Prescription and outcomes of medicines use reviews for coronary heart disease, diabetes and osteoporosis", by pharmacist Mike Wilcock, of Central Cornwall Primary Care Trust, with Geoff Harding, senior research fellow at Peninsula Medical School, and Anthony Woolf, consultant rheumatologist at Royal Cornwall Hospital, Truro.

Their aim is to measure the impact of disease specific MURs on prescribing practice and explore pharmacists' perception of the impact of medicines use review.

The best practice award of £1,500 was won by a project entitled "Thinking falls, thinking fractures, taking action" by a team from Rushcliffe Primary Care Trust — public health pharmacist Joanne Attewell, practice pharmacist Fiona Pryer and clinical falls specialist Kate Robertson. The patient-focused project identified potential actions for prevention of osteoporotic fractures.

CPP chairman Charles Butler, who chaired the presentation session, said: "Promoting good practice is vitally important in health care and all our work must be informed by high quality practice research. These projects show just what can be done and I hope that they will encourage others to apply next year. I should like to congratulate Servier Laboratories on their initiative and thank them for supporting the awards programme."

Alasdair MacCulloch, clinical liaison projects manager, Servier Laboratories Ltd, said that the judging panel had been impressed with the high standard of entries for the awards.



Mike Wilcock giving his practice research award presentation



Charles Butler, left, and Alasdair MacCulloch, right, with best practice award winners Joanne Attewell and Fiona Pryer

that pharmacy students feel less confident in their mathematical ability as they progress through the pharmacy course, something that universities are trying to address by increasing the teaching of basic mathematics. In contrast, most practising pharmacists think basic mathematics should not be taught within the pharmacy course.

Three studies assessed the use of computerised tools in teaching. **Khan *et al*** from Aston University investigated the effect of an interactive learning tool for pharmaceutical polymers. Students who use the tool in addition to usual teaching scored higher in a test than students who had usual teaching only.

**Fullarton *et al*** (University of Strathclyde) designed a web-based tool for teaching pharmacy practice. Students found the tool user-friendly and helpful.

**Laru *et al*** from Aston University came up with a computer-based learning package for teaching the pH-partition hypothesis. Those

students who used the package performed better in a questionnaire test.

However, **Langley *et al***, also from Aston, report that schools of pharmacy still use lectures more than any other form of teaching. In a survey of 16 schools of pharmacy, they found that although novel teaching techniques such as e-learning have expanded over the past decade, schools still consider lectures to be the most cost effective way to deliver the core syllabus.

But learning does not end at undergraduate level. **Gidman** (University of Manchester) *et al* looked at continuing professional development (CPD) among female community pharmacists aged over 30 years. Respondents found CPD challenging and the process of entering CPD records online time consuming and bewildering. The researchers suggest that some pharmacists would benefit from IT coaching, internet access in the workplace and time in work to enter CPD records.