

PHARMACY PRACTICE RESEARCH

# BPC 2003 presentations reviewed

By Joanna Lumb, FRPharmS

*This article highlights a selection of the work that will be reported in the pharmacy practice research sessions at the British Pharmaceutical Conference next week. It is published in advance of the conference to guide pharmacists to particular sessions they might wish to attend or posters they might wish to visit*

The Conference practice research sessions continue to expand — a record 96 papers were accepted this year, for presentation either as posters or orally. This review makes no distinction between the two categories. The “R” numbers refer to pages in the practice research supplement to the *International Journal of Pharmacy Practice* (see Panel).

## HOSPITAL PHARMACY SERVICES

Although relatively few papers are presented from hospital practice, they include some interesting reports on the provision of new services.

**Discharge prescriptions** Pharmacist transcribing of discharge prescriptions was uncommon only a few years ago but it has now taken off. A study of three NHS regions in the north of England by **Parker et al**, from Sunderland University and South Tyneside District General hospital (R46), found that since 2000 the number of hospitals offering pharmacist-written discharge prescription services had risen markedly. The highest rate was in the Northern region, where 88 per cent of hospitals now provide this service.

The next step is to investigate whether the new service is associated with any reduction in medication error rates.

**Impact of one-stop dispensing** Two papers report on the benefits of “one-stop” dispensing, the practice of combining inpatient and discharge dispensing into a single supply, labelled for discharge. At Bristol Royal Infirmary, **Campbell et al** (R87) assessed the impact of one-stop dispensing on a general medical ward, comparing data in a four-week period before and after introduction of the new service. While acknowledging that small sample size could have biased results, the researchers report that the new system reduced dispensary workload at discharge (26 per cent of items needed dispensing compared with 83 per cent) and reduced discharge prescription turn-around time (from a mean of 277 minutes to 112 minutes).

Financial burden was based on the additional time spent by pharmacy and nursing staff on tasks specific to the one-stop process, while financial benefits were estimated by calculating the number of bed days saved by faster dis-



Researchers have assessed the benefits to hospitals of switching to “one-stop dispensing”

charge prescription processing and drug costs saved. The overall net annual cost saving to the ward was £8,000, although the calculation did not include start-up costs, such as for individual medicine lockers.

**Financial benefits of one-stop dispensing** In the second paper on one-stop dispensing, **Seabridge et al** (R38), from Aston University and Birmingham Children’s hospital, found significant financial benefits to switching to a one-stop dispensing service plus use of patients’ own drugs.

In a study in two wards at the hospital, they estimated average savings per patient per day of £4.35 on one ward and £5.19 on the other ward, leading to annual savings of £24,000 and £34,000. There will, they say, be additional savings by reduced wastage of inpatient drugs on discharge.

## Practice research supplement

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 will be made available to those attending the conference practice research sessions as well as to *IJPP* subscribers. In addition, a small number of spare copies will be made available on a first come, first served basis. Requests for copies should be sent to *IJPP*, Room 312, 1 Lambeth High Street, London SE1 7JN, and should be accompanied by a self-addressed C4-size envelope bearing stamps to the value of £1.10. The abstracts are also available in the form of PDF files, which can be downloaded via the BPC section of *PJ Online* ([www.pjonline.com/bpc](http://www.pjonline.com/bpc)).

Joanna Lumb is a freelance medical writer

**Dispensary workload** The Government is committed to reducing serious medication errors by 40 per cent by 2005. Workload is clearly relevant to this and as part of a benchmarking exercise to enable development of capacity measures for pharmacy services, **Hiom et al** investigated the current dispensing rate for Welsh hospital pharmacies (R85). Over a three-day period, hourly data were collected from 17 pharmacies on staff time and items dispensed. The average dispensing rate for non-specialist pharmacies was 9.9 items/person/hour, with no correlation between hospital size and dispensing rates. This figure is much lower than previously reported (17i/p/hr), but the researchers comment that previous figures appear to be anecdotal, do not have clear methodology, or are from community pharmacy.

**Pharmacist-led diabetes clinics** In one of several papers describing pharmacist input to hospital clinics, **Tadros et al** (R14) report clinical benefits from a pharmacist-led diabetes clinic. Forty-six patients with type 2 diabetes using insulin who had poor glycaemic control (eg, glycosylated haemoglobin [HbA1c] >12 per cent over the past year) were randomly assigned to a consultant-led clinic (control) or a pharmacist-led clinic (intervention). In the pharmacist clinic they received diabetes education, medication counselling, and adjustment of their medication.

After 12 months, mean HbA1c was better in the intervention group (8.5 per cent compared with 11.6 in the control group [ $P<0.001$ ]). Total cholesterol was also reduced in the intervention group and there were fewer hypoglycaemic episodes in this group. The researchers, from Darlington Memorial hospital, suggest that the improvement was associated not only with adjustment of insulin dose but also with better compliance and more effective self-management.

## Inpatient anticoagulation service

Pharmacist involvement in outpatient anticoagulant clinics is well established. As a further development, pharmacists in the former South Durham Health Care Trust now manage all inpatients needing oral anticoagulation (R60). This service was assessed by **Holden et al** in a three-month

prospective study comparing management by pharmacists and junior hospital doctors.

Pharmacist management showed no loss of therapeutic control, and there were no significant differences between the groups in terms of median achieved INRs and the proportion of tests and time "in range". However, pharmacists requested fewer INR tests than doctors, which has the advantage of requiring fewer venepunctures to be carried out.

**Pharmacists' role in MRSA eradication** The advantage of new systems for medicine supply is demonstrated with a report from **Mills et al** at George Eliot Hospital, Nuneaton, on the introduction of patient group directions (PGDs) for initiating methicillin-resistant *Staphylococcus aureus* (MRSA) eradication therapy (R19). The PGDs allow clinical pharmacists to initiate treatment with mupirocin nasal ointment, triclosan wash and povidone-iodine tulle. Empowering pharmacists to supply these treatments shortened the delay in starting treatment by more than one day, and shortened the time to nasal follow-up by over two days compared with previous standard care.

The researchers comment that work is now needed to quantify the impact of this more timely treatment and follow up on the incidence and spread of MRSA.

#### EXTEMPORANEOUS DISPENSING

Research reported this year confirms that extemporaneous dispensing plays little part in modern pharmacy.

**Frequency** Eighty-two community pharmacists responded to a questionnaire sent by **Candlish et al** from Sunderland University to ascertain the frequency of extemporaneous dispensing (R47).

Most pharmacists said that fewer than around five items a month were requested that were not commercially available. In such cases, pharmacists were more likely to get the product from a specials manufacturer than to dispense extemporaneously. Only 20 per cent of pharmacists — a surprisingly low number — would contact the GP to suggest an alternative. Around one-third of respondents were willing to dilute creams, ointments and oral liquids and to make creams, and some were also prepared to make other types of preparation. However, 22 pharmacists (27 per cent) said that they would not make anything themselves.

**Competence** Following a similar investigation, **Rennison and Portlock** from the University of Portsmouth (R68) suggest that insufficient extemporaneous dispensing is being undertaken to maintain the competence of pharmacists or their support staff.

In their study, 97 preregistration students collected data on extemporaneous dispensing in their pharmacies over a two-month period. Some 1,100 items were dispensed (two to 54 per pharmacy). Of these, 58 per cent were prepared in the pharmacy and the rest were ordered as specials.

**Efficacy** **Rennison and Portlock** also investigated the clinical efficacy of products extemporaneously dispensed (R69). Many of

the products with evidence of effectiveness were those provided by specials manufacturers; most of those prepared in the pharmacy had little or no evidence to support their use.

**Paediatric doses** In hospital, too, specials manufacturers are reported to have largely replaced the pharmacy for preparing extemporaneous products. **Tuleu et al** (R78) quantified the extent and type of extemporaneous dispensing in the pharmacy at Great Ormond Street Hospital for Sick Children, London. In children's hospitals, a large number of medicines have to be prepared extemporaneously because they are not marketed in paediatric dose forms. However, dispensary records showed that only 672 items had been produced in the pharmacy in 2002.

The researchers identify two reasons for this low figure: the large number of specials manufacturers and the fact that extemporaneous manipulations are often done by nurses on the ward.

#### COMPLIANCE AND CONCORDANCE

Compliance and concordance feature prominently in the practice research programme. Papers presented this year concentrate particularly on patients' views, using questionnaires, interviews and focus groups to look at patients' attitudes to becoming partners in medicine taking.

**Patients' attitudes** A questionnaire study of 150 adults was carried out in a general practice in Yorkshire by **Allen et al** (R30), who report that most patients (57 per cent) said that they would not tell their doctor if they decided not to take their medicines as prescribed. Despite that view, 76 per cent thought that the doctor listened to their opinions about medicines. Around half the patients said that they would like more choice about their medicines, suggesting that attitudes may be moving towards a more informed and proactive approach.

**Issues for older people** The median age of patients in Allen's study was 44. Concordance issues in older people were investigated by **Westbury et al**, from Keele University (R41). They interviewed 10 patients aged over 75 who were taking four or more medicines, five GPs and five pharmacists.

Most of the patients wanted more information about treatment options and to participate in therapeutic decisions. Many reported modifying their medication regimen — three-quarters of the reported non-compliance was intentional and had not been discussed with a GP or pharmacist.

In contrast, both GPs and pharmacists believed that older patients were more likely to miss medication because of confusion, disability and side effects. Many assumed that older patients did not want to participate in therapeutic decisions. The researchers conclude that there is limited concordance between health professionals and older people on drug treatment decisions.

**Attitudes of hypertensive patients** At Queen's University Belfast, **Bane et al** explored issues

of concordance in hypertensive patients through focus groups and interviews with 27 patients (R44). Most reported positive attitudes to concordance, and felt they would take part in discussion about treatment options; for many, this was already the case. However, barriers to developing concordant relationships were also identified, such as time constraints and patients' perceptions that some GPs are not open to discussion.

"The question remains as to how concordance will translate into practice, particularly under the pressure of time constraints," the researchers say.

**Conflict** In another research project involving hypertensive patients, **Morecroft et al** from Manchester University used qualitative research methods to explore the likely conflict between evidence-based medicine and patient-centred practice (R4). The work involved interviews with 23 patients in their homes to discuss their experiences of hypertension, interviews with the patients' GPs to discuss their treatment of the patients' hypertension and an examination of the patients' medical notes to assess whether treatment was based on British Hypertension Society guidelines.

The findings show that GPs wanted to keep to the guidelines but were cautious of frightening their patients by being "too meticulous". From the patient interviews, it was clear that patients had concerns that were not always explicitly stated, including anxiety over their medication, that were likely to influence the effectiveness of treatment. GPs' perceptions of their patients appeared to have a greater influence on their prescribing decisions than the patients' views.

The researchers conclude that some of the issues might be resolved if health care professionals are able to take time to elicit patients' views and concerns, but that in some cases a suboptimal level of hypertension management might be the only outcome.

**Rectal medicines** Another paper highlights how particular efforts are needed to promote partnership in medicine taking when rectal medicines are prescribed, because of the sensitive issues involved. **Towler et al**, from Leeds and Birmingham, reported a questionnaire survey completed by 84 patients attending an outpatient colitis clinic who were current or recent users of rectal medicines (R13).

Only 34 per cent of patients agreed that "my rectal medicine keeps me in good health" and a substantial minority felt it did them "more harm than good". A quarter were unhappy talking to family or health professionals about these medicines, and many said they would rather take tablets. Nearly half of the patients said that they missed doses of their rectal medicines, common reasons for this being inconvenience, forgetfulness and painful administration.

#### CHD PREVENTION

Two papers report positive results from community pharmacy screening services

designed to help tackle the UK's high incidence of coronary heart disease.

**Risk assessment by a pharmacist** Joubert and Choo, from Sheffield, describe coronary risk assessment by a pharmacist for patients that the GP considered to be at risk (R80). Patients were under 70 years, hypertensive and had had no cholesterol test for three years. Sixty patients (out of 177) accepted a pharmacy invitation to participate in the service. Cardiac risk was assessed in the pharmacy using the updated "Sheffield table".

Twenty-six patients were found to be at high risk of CHD and were referred to the GP, while the other 34 were given health promotion advice. The patients' medication records were reviewed and, as a result, a significant number of patients had their treatment altered, eg, addition of aspirin or statins, and change to antihypertensive medication.

**Healthy lifestyle clinic** David and Hiom report on a "healthy lifestyle clinic" in a community pharmacy in Pembrokeshire (R84). Forty customers underwent coronary risk profiling, using a computer program to assess CHD risk factors. The program calculates relative heart attack risk and a lifestyle risk score; it also provides a visual illustration of predicted risk reduction with specific lifestyle change. Health advice was given by the pharmacist, with GP referral as necessary, and lifestyle changes were agreed.

Significant health benefits were observed within the first three months, with reduction in lifestyle risk scores and improvement in lipid profiles and body mass index, though greater response variability was seen over six months. The researchers suggest that the model could be adopted in any pharmacy.

**Pharmacist-led clinic** Another example of how pharmacists can help with CHD prevention comes from Reid *et al* in Edinburgh, who report positive results after 10-months' experience of a pharmacist-led hypertension clinic in a general practice (R74). Attendance at the clinic led to significant improvements in achievement of British Hypertension Society "target" blood pressure levels and "audit standard" blood pressure levels in both existing hypertensive patients and newly diagnosed patients.

For 206 existing patients, achievement of audit standard blood pressure increased from 55 per cent to 95 per cent, and target level increased from 35 per cent to 84 per cent ( $P < 0.001$ ). Clinic attendance also resulted in improvement in prescription of aspirin and statins for primary and secondary prevention. Some 97 per cent of 110 patients who completed a questionnaire said that they wanted the clinic to continue.

**Anticoagulation review** One of the standards in the NSF for Older People is that PCTs identify patients who are at risk of stroke because of atrial fibrillation and ensure that these patients receive antithrombotic treatment. Tweddell *et al*, from the Bradford Pharmacy Development Group, believe that

community pharmacists can help with this (R76). They report on a project in which pharmacists reviewed the anticoagulation needs of all patients who presented with prescriptions for digoxin, the assumption being that most patients were likely to have atrial fibrillation. The CHAD2 scoring system was then used to identify patients in whom the benefit of warfarin should outweigh its risks.

Nineteen pharmacies collected data on 242 patients: 42 interventions were made to initiate warfarin and 10 to initiate aspirin (where warfarin was not suitable). The scheme was successful in that new treatment was started by the GP in 10 and five patients respectively; however, in other cases the GP took alternative action (eg, discussed with patient, prescribed aspirin rather than warfarin) or did not accept the intervention.

#### MEDICATION REVIEW AND MEDICINES MANAGEMENT

Aspects of medication review and medicines management have been examined by a number of researchers.

**Patient views** Patient views were explored in a preliminary study reported by MacRae *et al* from Greater Glasgow Primary Care NHS Trust (R6). They wanted to find out what patients thought of the pharmacist-led medication review service that has been provided in GP surgeries in Glasgow since 1999. The service involves 27 specifically trained pharmacists, mainly from community pharmacy backgrounds, and has been offered to over 20,000 patients.

Fourteen patients took part in focus groups. Overall, the service was well received, with benefits including increased information about medicines and reassurance, although some patients expressed concerns about changing medicines/taking additional medicines and potentially jeopardising GP-patient relationships.

Interestingly, although the service operates from the GP surgery, some patients wanted reassurance that pharmacists and GPs were working collaboratively.

**GP views** The Glasgow medication review service has also been well received by GPs. MacRae *et al* report (R63). A survey was sent to all 258 GPs exposed to the clinics, 84 per cent of whom responded. Overall, 95 per cent of GPs believed medication review to be useful and that benefits (eg, improved prescribing practice, raised standards of patient care) outweighed problems (eg, space, increased workload, occasional patient dissatisfaction). The current arrangement is that GPs authorise pharmacy recommendations before implementation. Pharmacist prescribing will be one way of reducing GP workload.

**Treating depression** Use of a medicines management approach to improve the treatment of depression in primary care is reported by Donoghue *et al* (Liverpool John Moores University). They assessed whether pharmacist support could improve adherence to antidepressant therapy (R23) — adherence in

such cases is often poor, and premature discontinuation leads to increased risk of relapse.

Community pharmacists were trained to give specific advice as patients progressed through treatment. For example, at the start, they advised that onset of response was often slow; later on, patients were given advice on side effects and their management; then, when patients started to respond, advice was given on the importance of completing the course. A system of instalment dispensing was used, with patients seen by the pharmacist at regular intervals for up to six months.

Data are reported from six pharmacists on 49 patients (who were entered into the study by their GP) and 30 controls. Premature discontinuation of therapy was reduced in study patients: eight of the 30 control patients completed one to three months' treatment compared with 32 of the 49 study patients. Only five control patients continued treatment for three to six months, compared with 22 study patients.

**Financial aspects** A second paper by Donoghue *et al* (R31) discusses the financial aspects of the study. The increased time spent by pharmacists in patient care — between five and 10 minutes/patient in the first visit, with subsequent visits generally lasting less than five minutes — is reported to have been offset by statistically significant reductions in the number of GP visits and hospital visits by study patients compared with controls.

**Pharmacist concerns** Community pharmacists do have concerns about the practical issues involved in provision of medicines management services. This is clear from focus group discussions reported by Dinnie *et al*, from the University of Aberdeen (R28). Pharmacists were unclear about the exact activities covered by the term "medicines management" and expressed concerns about practical difficulties of providing patient-centred services from the pharmacy, eg, in terms of locum cover and provision of consultation areas. Successful provision of medicines management services was seen to depend on relations between community pharmacists and practice staff, especially GPs. The findings have been used to develop a questionnaire to evaluate the community pharmacy medicines management project.

**Pharmacy access to medical records** Access to medical records will be necessary for many of the proposed new community pharmacy clinical services. What do patients think about this? Noting that the NHS Information Authority's consultation on patient privacy did not cover the community pharmacy setting, Keane *et al* from Aston University (R65) explored public views in a questionnaire completed by 105 individuals (undergraduates, postgraduates and train travellers).

There was clear support for community pharmacy access to medical records in relation to dispensing (77 per cent of respondents were prepared to share all [7 per cent] or relevant aspects of [70 per cent] their record). However, 43 per cent of respondents required consent if a pharmacist was going to

look at their GP information for reasons other than dispensing their prescription.

The researchers say that the minority support for general access to records suggests that the public remain unaware of the widening health roles of pharmacists.

#### EMERGENCY HORMONAL CONTRACEPTION

**PGD or OTC** Pharmacies supplying emergency hormonal contraception under a patient group direction deal with more requests than those who supply it as an over-the-counter product, research from Manchester University has shown (R20). **Seston et al** collected data from 10 pharmacies in the northwest, six of which were in the high street and four in supermarkets.

Five pharmacies supplied EHC under a PGD and five as a pharmacy medicine. Over six months, 334 requests for EHC were made (range of 5 to 138 per pharmacy). The mean consultation rate varied according to whether supply was made under a PGD (46 per month) or OTC (2.3 per month). Another finding was that women aged between 25 and 35 were more likely to visit a supermarket pharmacy for EHC.

Given the small sample size, the researchers describe their findings as a "snapshot" of the current situation. They note that 60 pharmacies were approached to take part but only 10 agreed — a possible sign of "research fatigue" in this area.

#### RISK ASSESSMENT

**Risk score tool** To prioritise pharmaceutical input for elderly patients after discharge from hospital, there needs to be a way of identifying patients who are at greatest risk of medicine-related problems. A medicines risk assessment tool (RAT) used in Essex Rivers NHS Trust collaborative care service could be effective for this, according to a study reported by **Ranson et al** from Colchester General Hospital and Keele University (R22). An RAT score of over 49 is classed as "high risk" and generally indicates the need for a pharmacist home visit.

For the study, a domiciliary pharmacist followed up all patients after discharge. This pharmacist, who was not aware of the patient's risk score, identified any medicine-related problems. Over four months, 99 patients were recruited; 51 had a "high risk" RAT score. Of the 294 medicine-related problems identified by the domiciliary pharmacist, 79 per cent were in this group. There was also a significant correlation between the patient's risk score and the number of medicine-related problems. Validation of the RAT is continuing.

**Closure and label problems** Another risk assessment study re-emphasises the need to be aware of elderly patients' difficulties with opening medicine bottles and reading labels. **Donaghy and Wright** from Calderdale NHS Hospitals Trust and Bradford University (R51) suggest that all patients over 80 should be assessed for their ability to open closures and read labels

before hospital discharge.

#### DOMICILIARY VISITS

**Extent of domiciliary service** Pharmacist domiciliary visiting services are still uncommon, according to a survey carried out by **Bhattacharya et al** from the University of Bradford (R8). A questionnaire was sent to the pharmaceutical adviser in all primary care organisations in England and, with two reminders, there was a good response (247/303; 81.5 per cent). Seventy per cent of PCOs said that they had never provided a pharmacist domiciliary visiting service, while 61 services had been set up. Forty-two of these services were still in operation (21 had been running for over 12 months) and 19 had stopped, mostly after less than 12 months, with lack of referrals contributing to termination in five cases.

On this point, the researchers note that services operating for over one year tended to use more referral sources (a median of five, compared with two for terminated services), and GPs were more likely to be included. The most common payment per visit was £50, but this ranged from £10 to £100.

**Assessment of interventions** **Harris and Anderson** at the University of Nottingham (R56) report an assessment of interventions made by pharmacists on domiciliary visits to 54 older people with mental health problems. After training, 24 community pharmacists made one or more visits, with the patient's key worker, to review medicines and offer medicine counselling. A psychiatrist and two specialist hospital pharmacists assessed the appropriateness of the 183 interventions that were made.

All three reviewers agreed that the interventions had been appropriate, with 54 to 60 per cent being graded as having medium or major clinical significance. The pharmacist reviewers considered that 9 or 10 of the interventions had prevented likely hospital admission.

#### CPD, EDUCATION AND CAREERS

The findings from two studies relating to continuing professional development (CPD) do not augur too well for the Society's new scheme.

**Student views on reflective practice** Reflective practice — a key component of the Society's CPD scheme — is now part of a final year professional module at Manchester University, the idea being that acquiring reflective skills will benefit newly qualified pharmacists undertaking CPD. **Rees et al** assessed attitudes to reflective practice and CPD in a questionnaire study completed by 67 students (R34).

The students' view was that the concept of both reflective practice and CPD was good, but that the process was tedious. Acknowledging that the opinions of fourth year students cannot be extrapolated to practitioners, the researchers nonetheless say that commitment will be affected if the CPD process is seen to be tedious.

**Attitudes to Society's CPD scheme** The second paper, from **Hull et al** at Portsmouth University (R50), involved a questionnaire survey of all 573 community pharmacists in Hampshire and the Isle of Wight to measure attitudes and approaches to the Society's CPD initiatives. There was a 48 per cent response rate.

Women undertook more continuing education and CPD than men, regardless of their length of registration and nature of employment. Sixty-three per cent of respondents said they had undertaken CPD in the past 12 months but few of them showed a clear understanding of CPD and the researchers conclude that the concept needs to be explained more fully. That said, the study was undertaken 17 months ago and recent publicity about CPD in *The Journal* and elsewhere could have led to a better idea of what is required.

**PCPs' career concerns** Primary care pharmacists (PCPs) want to continue to work in primary care but have concerns about career progression, reports **Mullen**, from the University of Manchester (R26). Semi-structured telephone interviews were carried out with a geographically dispersed sample of 12 PCPs, working in PCTs and in general practice in England.

Despite organisational turbulence (the interviews were in spring 2002), in the short term the pharmacists planned to continue to work in primary care, citing positive aspects of the job as undertaking medicines management and working in a multidisciplinary team. However, they had mixed views on opportunities for career progression.

Mullen suggests that the development of career structures will help PCPs and policy makers to develop plans for the longer term.

**Relevance of postgraduate courses** Another issue for PCPs is that postgraduate training does not as yet match their needs. **Langley et al** at Aston and Keele universities (R75) assessed pharmacy postgraduate courses offered by schools of pharmacy in Britain.

They report that the past five years have seen a striking increase in the number of courses on offer but that the orientation of the courses is unchanged. Most are still clinically related programmes, with few catering for other pharmaceutical career paths.

#### PRESCRIBING

**Outcomes guarantee** A novel approach to improving drug use in primary care is being explored at Keele University (R71). **Chapman and Reeve** report results from a pilot study of "outcomes guarantee", a system whereby a pharmaceutical company and primary care organisation share the financial risk of drug prescribing: if the drug fails to meet an agreed target, the company refunds drug costs.

The pilot involved collaboration between Pfizer and North Staffordshire HA for use of statins. The agreed outcome was that atorvastatin would reduce LDL cholesterol to <3mmol/L (the target in the coronary heart

disease NSF) in a specified percentage of patients, this percentage depending on baseline cholesterol level. GPs from 26 practices took part in the study and were free to prescribe any statin. With sponsorship from the company, nurses carried out an audit of patients at risk of CHD; those with LDL cholesterol >3mmol/L were referred to the GP for possible statin prescribing.

The audit identified 1,408 patients, 877 of whom were then prescribed a statin. The NSF target LDL level was achieved in 69 per cent of patients. In terms of the guarantee, no refund was needed from Pfizer because atorvastatin met the agreed performance outcome.

The researchers comment that this approach benefited both company and health care provider by targeting drugs to patients most likely to benefit; it improved management of CHD by helping practices to implement the NSF and enabled company resources to be used in an open and transparent manner.

**Support for nurse prescribers** Community nurse prescribers seek advice from community pharmacists on how to prescribe but not on what to prescribe. That is the conclusion reached by **Hall et al**, from Manchester University, who interviewed 22 nurse prescribers as part of a project to identify influences on their prescribing (R64). Three areas of pharmacist support were identified: writing prescriptions (eg, is it correctly written?), availability at NHS expense, and over-the-counter products.

There was little evidence that advice was sought on the selection of prescribed products. The researchers say this could be because of a perceived or actual lack of pharmacist expertise in areas where community nurses commonly prescribe, such as wound management and catheter care. They suggest that increasing awareness of the range of support available, perhaps during prescriber training, could help pharmacists to develop a supportive role.

**Chemical restraints** In the United States, it has been reported that psychoactive drugs may be used in nursing homes as "chemical restraints" to reduce the need for staff. A similar situation may pertain in the UK, according to a study reported by **Schweizer et al** from Queen's University Belfast (R42). They collected data on drugs prescribed and diagnoses for 428 residents in 19 care homes in Northern Ireland. The mean age of the residents was 84 years.

Seventy-three per cent of residents were being prescribed psychoactive medication but only one in five of these had a suitable diagnosis recorded in their medical notes. A correlation was found between the number of weekly nursing hours provided per bed and the percentage of psychoactive prescriptions used in the home, with increased nurse staffing levels associated with fewer psychoactive prescriptions.

**Appropriateness of ACE inhibitor prescribing** Among the reported drug audits, **Oborne and McCormick**, from King's

College hospital, London, examined the appropriateness of angiotensin converting enzyme (ACE) inhibitor prescribing (R72).

Inpatients' notes were checked for specific indications (excluding hypertension) for these drugs. Almost half the medical inpatients investigated (52 out of 117) had at least one documented ACE inhibitor indication. Seventy-seven per cent of these patients were receiving the drug, or had a recorded contraindication. However, one-quarter of patients received suboptimal (not evidence-based) drug dosage for no valid reason. Considering both non-prescription and use of suboptimal doses, 20 out of the 52 patients (38 per cent) were not receiving appropriate ACE inhibitor therapy.

**Aspirin and statins in diabetes** Aspirin and lipid lowering therapy in inpatients over 30 with type 2 diabetes has been investigated by **Oborne and Philbin** (R73). Criteria for appropriate prescribing were devised, with data from the Heart Protection Study being used to support statin use in all patients with diabetes, irrespective of baseline lipid level. Nearly all of the 96 patients identified had cardiovascular risk factors other than diabetes.

The researchers found that 48 per cent of patients were "inappropriately not prescribed statins" and 34 per cent "inappropriately not prescribed aspirin". They suggest that their simple-to-use criteria can be applied to help improve prescribing quality.

#### DRUG SAFETY

**CAM interactions** The risk of interactions between complementary medicines and prescription medicines is highlighted in a study from **Patel** (King's College London) and **Savage** (School of Pharmacy, London) (R67). Staff in 16 west London pharmacies asked adults collecting prescription medicines whether they were also taking complementary and alternative medicines (CAMs).

Over one week, data were collected on 929 customers, 62 per cent of whom were using CAMs. Forty potentially significant interactions were reported: the two CAMs most often involved were St John's wort and *Ginkgo biloba*.

The researchers say that reporting bias is likely to have led to an over-estimate of the rate of combined use, but that many people clearly do mix their medicines and health care professionals need to question patients about the treatments they take.

**Celecoxib adverse events** Having reported prescription event monitoring (PEM) data on the COX-2 selective inhibitor rofecoxib last year, researchers from the Drug Safety Research Unit at Southampton University, and Portsmouth University, have turned their attention this year to celecoxib. **Layton et al** (R16) report data from a PEM study carried out straight after the launch of celecoxib in 2000. Dyspepsia and nausea/vomiting were the most frequently reported adverse events; some serious GI events (bleeds/ulceration) and thromboembolic events also occurred, and the

researchers conclude that doctors should continue to prescribe NSAIDs, including COX-2 selective compounds, with caution.

**Celecoxib and meloxicam compared** In a further study, **Layton et al** also compare gastrointestinal (GI) and thromboembolic safety data on celecoxib and meloxicam, another COX-2 selective drug (R57). The meloxicam PEM data were collected in the immediate post-marketing period in 1996-97, ie, this was a comparison of data from two separate studies with identical format.

There was a relatively lower rate of symptomatic gastrointestinal events (acid/peptic symptoms) and complicated upper GI conditions (bleeds/perforations) with celecoxib. This drug also appeared to be used more in patients at higher risk of GI problems, in that 55 per cent of the celecoxib patients had a history of upper GI conditions compared with 30 per cent of the meloxicam patients.

Incidence of thromboembolic events was low with both drugs, but the researchers do note that there was a relatively higher rate of cerebrovascular thromboembolic events with celecoxib.