RESISTANCE IS USELESS

Rational use of antibiotics was promoted by a conference organised by the Standing Advisory Committee on Antimicrobial Resistance, in conjunction with the National Prescribing Centre and Royal Pharmaceutical Society on 7 July. Gareth Jones reports

Hospital pharmacists have information on antimicrobial use, access to prescribers, knowledge and skills about antibiotic prescribing and the ability to perform medicines management. This is why hospital pharmacy has been targeted with a £12m Department of Health initiative to tackle antimicrobial resistance, according to Jonathan Cooke, director of pharmacy, South Manchester University Hospitals NHS Trust and co-chair of the prescribing sub-group of the Standing Advisory Committee on Antimicrobial Resistance.

A letter from the Chief Medical Officer and Chief Pharmaceutical Officer in June 2003 announced the £12m investment for hospital pharmacy services in England over three years to promote prudent use of antibiotics in hospitals. The money will be used to fund services across nearly 200 acute hospitals. Dr Cooke suggested a number of areas where the initiative could be targeted: developing antimicrobial usage databases, promoting good practice guidelines, promoting use of narrow spectrum antibiotics, switching from intravenous to oral antibiotics and improving safety with centralised intravenous additive services. "This is all about teamwork — working with colleagues such as microbiologists and clinicians," he said.

There is good evidence that increased use of antimicrobials leads to increased resistance. "We have not used antimicrobials well for the last 40 years," said Dr Cooke. There is a significant cost with antibiotic resistant infections — it has been suggested to be $7.7bn (£4bn) in US hospitals. This problem was recognised by the House of Lords Scientific Committee report of 1998, and at a European level with the Copenhagen meeting of the same year. SACAR was set up in 2001 to advise the government on its strategy for dealing with antimicrobial resistance.

Antimicrobial use has been monitored in the past using expenditure data. This is easy, but only depicts trends for the most costly items. This means that use of low cost, high volume generics is not seen and patent expiries can incorrectly give the impression of a reduction in use. The World Health Organization standard for antimicrobial usage is the defined daily dose (DDD) (total grams of antibiotic use divided by assigned DDD value). This measure is widely used in the literature, and would allow comparisons between different institutions and countries (see **www.whocc.no/atcddd**). More valuable but more difficult to obtain usage data involves linking courses of antibacterials to diagnosis, cultures and sensitivities.

ROYAL PHARMACEUTICAL SOCIETY

Alison Ewing, clinical director of pharmacy, Royal Liverpool and Broadgreen Hospital NHS Trust and member of Council of the Royal Pharmaceutical Society, Jonathan Cooke (centre), chief pharmacist, South Manchester University Hospitals NHS Trust, Lord Soulsby of Swaffham Prior, chair of the 1998 House of Lords report on antimicrobial resistance during a reception held at the House of Lords before the "Resistance is useless" conference

Resistance is as old as antibiotics

Antimicrobial resistance is as old as antimicrobials themselves, said Alison Ewing, member of Council, Royal Pharmaceutical Society, opening the conference. When penicillin was first introduced in 1946, only 5 per cent of staphylococcal infections were resistant to it. By 1952, that figure had risen to 85 per cent. Ms Ewing commented that research over 30 years by the pharmaceutical industry had provided generations of antibiotics that are extremely effective, but that antimicrobial resistance was an inevitable natural phenomenon. Ms Ewing commended the Standing Advisory Committee on Antimicrobial Resistance for helping to achieve the £12m funding over three years for the pharmacy antimicrobial prescribing initiative. She expressed the hope that the success of the initiative would lead to permanent funding.

Mr Jones is editor of Hospital Pharmacist

Use intranet for information

The hospital intranet site at Nottingham City Hospital NHS Trust has been used to disseminate clinical guidelines on antibiotic use. The site was developed by consultant microbiologists and a microbiology pharmacist, and was launched in March 2004. It is accessible to all staff across the trust and can easily be updated in line with new guidelines or policies.

Data needed to support work priorities

Data on antibiotic use in a hospital is an essential tool for the work of an infectious diseases pharmacist, and a lack of such data led to the development of a point prevalence test at Hammersmith Hospitals NHS Trust. Ann Jacklin, the trust's chief pharmacist, explained that the test provided a snapshot of all inpatients over a one-week period and the results meant that the work of the infectious diseases pharmacist could be prioritised. "Infectious diseases pharmacists have too many different tasks to complete (developing formulary and guidelines, audit, education, attending ward rounds, maintaining the reserve system, etc.), so focusing work is important," said Ms Jacklin.

The point prevalence test has been performed every six months since 1999. Over the one week period, clinical pharmacists collect data on every inpatient across the trust who is receiving an antibiotic. Pharmacists record drug, route, dose and length of course for the around 34 per cent of patients in the trust who are receiving an antibiotic.

The goal of the test is to capture information on the prevalence of antibiotic use, the use of reserved antibiotics, the duration of courses, combinations in use and the pharmaceutical forms, ie, oral or intravenous. The results are available by ward and specialty, so the infectious diseases pharmacist can target these areas. Areas where guidelines would be appropriate are identified by this process.

Ann Jacklin: infectious diseases pharmacists have a lot of work, so focus is important

The results show that the range of patients receiving an antibiotic is 31 to 36 per cent, with no seasonal variation.

"One of the problems of point prevalence is that it is a snapshot, and therefore only provides data on two weeks throughout the year," said Ms Jacklin. The survey is not linked to microbiology results and there can be poor data available on diagnosis. Data entry had been time consuming, but forms can now be scanned which is a much quicker process.

The point prevalence test was extended to North West hospitals in London in May 2004, and it is hoped that it will be implemented across the whole of London in October.

Audit funding was obtained in 1995 to employ an infectious diseases pharmacist for 18 months, said Ms Jacklin. Explaining the background to the establishment of the post in the trust, she said that a 1997 report subsequently suggested a £77,000 annual saving when employing an infectious diseases pharmacist. The post had been funded since September 1997. The pharmacy initiative had provided the funding for a second part-time pharmacist, but Ms Jacklin thought this was still not enough to cover the 1,000 bed trust.

Speaking about the clinical pharmacy initiative, Ms Jacklin said that the money was not enough to do everything that could be done. She suggested that the three-year initiative could be used as a business case to obtain more funding in the future.

It is not practical for one pharmacist to tackle all antibiotic prescribing in the hospital, said Ms Jacklin. Therefore, their work is reinforced by an antibiotic steering group chaired by the chief pharmacist and including all the consultant microbiologists in the trust, along with the consultant in infection control, the infectious diseases pharmacist, some clinical pharmacists and specialist registrars.

Focus on antibiotic route, indication and duration

Getting RID (route, indication and duration) of unnecessary antibiotics was the title of a prescribing campaign run by Steve Williams, principal pharmacist for clinical services, South Manchester University Hospitals NHS Trust. Eye-catching posters were placed around the hospital encouraging staff to improve the quality of antibiotic prescribing by thinking about the route, indication and duration of antibiotics.

The national clinical pharmacy initiative was one of the reasons for running this campaign. Mr Williams also commented that antibiotic expenditure (£1.2m) was a significant part of the drugs budget, and the hospital was experiencing problems with *Clostridium difficile* on elderly patient wards.

Pharmacy and microbiology staff (director of pharmacy, three consultant microbiologists, a principal clinical pharmacist, a medicines information pharmacist and a special projects pharmacy technician) worked together to formulate a plan for restricting antibiotic use, providing education and training to clinical staff, and monitoring and auditing drug use. A new antibiotic formulary was implemented, with simplified empirical choices for junior doctors. The hospital did not have a surgical prophylaxis policy and this was identified as a priority. A patient group direction allowing pharmacists to switch patients from intravenous to oral antibiotics was also introduced. The microbiology department introduced selective reporting of sensitivities — broad spectrum antibiotics were not listed on the report.

Steve Williams: it is important to win over the support of the clinicians

"It was also important to get our own house in order," said Mr Williams. Stock lists were reviewed, and antibiotics such as tazocin, imipenem and linezolid were removed from wards where it was inappropriate for them to be stored. Prescriptions which did not state the duration of the antibiotic only had 48 hours supply dispensed.

Reflecting on the success of the scheme, Mr Williams said that a mixture of restrictive and educational measures was required. "It is the clinicians that you have got to win over. If you do not have their support, it is not going to work," said Mr Williams. "The initiative needed to be led by pharmacy and microbiology, but it needed to be owned by the clinicians," he added. He also thought that it was important to emphasise measures to ensure that prescribers make an appropriate empirical choice of antibiotic.