How to promote rational antibiotic use

Rational use of antimicrobials is the subject of a conference to be held in London next week. **Gareth Jones** examines what pharmacists can do to help

Antibiotic resistance is everybody's problem and will need a concerted and long-term strategy if there is not to be a return to the pre-antibiotic era. These words were spoken by Richard Wise, chairman of the government's Standing Advisory Committee on Antimicrobial Resistance (SACAR), at the launch of the group in 2001. Three years later matters do not seem to have improved.

Resistance to vancomycin used for treatment of methicillin resistant *Staphylococcus aureus* (MRSA) infections is now emerging, as has been reported in a paper recently published in *Emerging Infectious Diseases*. Widespread and often inappropriate use of existing drugs are thought to have contributed to the current problem of antimicrobial drug resistance. So what can be done to halt further increases in resistance, if not actually reverse the trends?

The Government has recognised that antimicrobial drug resistance is a significant public health issue, and is looking to clinical pharmacists to help provide a solution. "Getting ahead of the curve", a report by the Chief Medical Officer in 2002, proposed a strategy for combating infectious diseases, and drew attention to the role pharmacists should play. In June 2003, a letter from the Chief Medical Officer and Chief Pharmaceutical Officer alerted chief pharmacists in England that the Department of Health was investing £12m over three years in a hospital pharmacy initiative for promoting prudent use of antibiotics in hospitals. The initiative will be overseen by the prescribing sub-group of SACAR, co-chaired by Jonathan Cooke, director of pharmacy, South Manchester University Hospitals.

Chief pharmacists have been asked to plan developments in clinical pharmacy services to improve the prudent use and monitoring of antibiotics in their hospital. Strategic health authorities will monitor the results for performance management.

According to Dr Cooke, the first goal of this initiative is to see clinical pharmacy input at all acute trusts in England, and to establish close working with microbiologists and specialists. Networks are being formed in different regions in the country to support this work.

Pharmacists from around the country are attending a conference in London next week, organised by SACAR, in conjunction with the National Prescribing Centre and the Royal Pharmaceutical Society, to discuss promoting the rational use of antimicrobials in acute hospitals. There is clearly a great deal that clinical pharmacists can do to promote effective use of antimicrobials and contribute to tackling the global problem of antimicrobial resistance, and the hope is that examples of good practice already in existence will be spread more widely.

Clinical pharmacy activities

The key to successful clinical pharmacy intervention to promote effective antibiotic prescribing is a close working relationship with senior clinicians and microbiologists, according to Steve Williams, principal pharmacist clinical services, South Manchester University Hospitals NHS Trust. "A restricted antibiotic policy is important to the overall strategy of appropriate antibiotic use and, as pharmacists, we monitor adherence to this as gatekeeper of the drugs. Prudent antibiotic use can be best supported by a combination of educating the junior doctors about empirical treatment and maintaining a restricted list," he said. Mr Williams attends clinical meetings for directorates in his trust, with consultant microbiologists, to provide guidance on antimicrobial prescribing issues in those areas.

A patient group direction (PGD) at South Manchester University Hospitals to allow pharmacists to prescribe oral antibiotics has also been developed. The PGD permits pharmacists to switch patients with respiratory infections from intravenous to oral therapy, when the strict clinical inclusion criteria of the PGD have been met. All consultants in the trust were informed about the proposed PGD and with no opposition it was introduced. This practice reduces drug costs, allows earlier discharge from hospital and improves patient comfort by stopping unnecessary antibiotic therapy earlier.

The importance of multidisciplinary working is also recognised by Wendy Lawson, senior pharmacist, infectious diseases, Hammersmith Hospitals NHS Trust. "It is imperative that you are able to work in a multidisciplinary group. It is important to have support from microbiology/infectious diseases, and work closely with infection control and prescribers," she said. She also commented on the increasing call for pharmacists with responsibility for prudent antimicrobial use — she helped establish the United Kingdom Clinical Pharmacy Association infection management pharmacists group and membership has increased from 25 a few years ago to over 110. And Dr Cooke suggested that those responsible for the undergraduate education of pharmacists should increase the content devoted to antimicrobials, so that pharmacists are prepared to fill these roles.

Another initiative at Hammersmith Hospitals NHS Trust is the introduction of mandatory order forms for newer anti-infective agents such as linezolid. There are few new anti-infective agents reaching the market and Ms Lawson explained that it is therefore important to control the use of these drugs to minimise potential for development of resistance. Pharmacists at the trust do not dispense linezolid until the prescribing doctor has confirmed the indication of the drug and approval has been obtained from a microbiologist for its use.

Ultimately, the Government's pharmacy initiative was setup to stem the increase in antimicrobial drug resistance, and tests of resistance (eg, levels of MRSA and *Clostridium difficile*) will indicate if it is effective. According to Dr Cooke, hospitals may decide to use other measures locally, such as antimicrobial usage, intravenous to oral switch rates and infection rates. With the SACAR meeting next week, pharmacists have an opportunity to demonstrate what clinical pharmacy can achieve.

Data collection is first step to rational use of antibiotics

Wendy Lawson, Hammersmith Hospitals NHS Trust, emphasised that it is important to have knowledge of antibiotic prescribing practice in a trust to identify areas that need targeting. She described an initiative by pharmacy, infection control and a hospital epidemiology consultant at the Hammersmith Hospitals NHS Trust which involves serial point-prevalence studies on anti-infective use. Clinical pharmacists have collected, every six months since 1999, details of anti-infectives that all inpatients are receiving on the specific day determined for data collection. Information collected includes whether antibiotics are being administered orally or intravenously, whether they are for surgical prophylaxis, duration of treatment, drug combinations and, if the drug was on the reserved list, whether its had been approved by a microbiologist. This data is also used as a proxy marker for hospital acquired infection. This initiative has proved to be one practical method of monitoring anti-infective use, and provides data for benchmarking which can be compared with previous studies or other trusts. This initiative has recently been extended to other trusts in west London.

Although figures on the use of antimicrobials in primary care are available through prescribing analysis and cost (PACT) data, this sort of information is not generated in secondary care. "The UK is behind most of the rest of Europe with regards to producing antimicrobial usage data, and this is an area where pharmacists can work to provide improvements," said Jonathan Cooke, South Manchester University Hospitals. One of the most useful ways to collect this information is to present it as defined daily doses (the total quantity of the drug used divided by the average daily dose). When this figure is divided by a population demoninator, such as 100 bed days, the resulting figure can be compared across different institutions and countries where the drug price may differ.