

Feature

Antibiotic Resistance in Australia

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The emergence of antibiotic resistance bacteria is now a national and global problem which has significant repercussions for public health. The Commonwealth Government brought together a diverse range of experts to address the problem at a National Summit held in Sydney in May 2001. This article was developed from a presentation given at the summit. It discusses the issues and problems surrounding antibiotic resistance and the role of community education and stakeholders, including consumers, in finding a solution.

The problem of antibiotic resistance in humans is a major one. While in Japan in 1993, concern was expressed in the English language media on the emerging problems Japanese hospitals were experiencing due to methicillin-resistant staphylococcus aureus (MRSA). Since that time, a more serious infection has emerged in the form of Vancomycin Resistant Enterococcus (VRE) with no readily available effective antibiotics to treat this infection (Anpalahan & Darzins, 2001). Health professionals in Australia had identified antibiotic resistance in acute hospitals in the late 1980's and by 1994 had an understanding of the implications but the issue was not on the public health agenda until recently.

It is ironic that the development of antibiotics was one of the most stunning innovations in science and medicines in the last century, and now the control of antibiotic resistance is one of the great public health challenges.

Background

In 1998 in response to the problem of antibiotic resistance, the Minister for Health and Aged Care and the Minister for Agriculture, Fisheries and Forestry established a Joint Expert Technical Advisory Committee on Antibiotic Resistance (JETACAR). This group of experts from human health, veterinary medicine and primary industry assess the scientific evidence for a link between the use of antibiotics in food producing animals, and the emergence of antibiotic resistant bacteria in humans. They also develop evidence-based recommendations for the appropriate future management of antibiotic use in food-producing animals (JETACAR, 1999).

In response to the use of antibiotics, resistance has emerged. The report states that:

for most antibiotics, and classes of antibiotics, antibiotic resistance genes have also entered the bacterial population in the domains where antibiotics are used such as hospitals and farms. Resistant bacteria and the resistant genes they carry are selectively amplified by antibiotic exposure. This increases the prevalence of resistant bacteria in the total

bacterial population and large pools of resistant bacteria and resistant genes are built up where formally they were rare (JETACAR, 1999).

The issue of antibiotic resistance concerns a wider group of stakeholders than those from the health sector. Therefore, the groups represented at the National Summit included veterinary practitioners, poultry producers and the medical profession as well as state and Commonwealth government representatives concerned with both agriculture and health. Also present were researchers, academics and some consumer representatives.

Priority Issues

The National Summit focused on five key areas for future action. These are: regulatory controls, monitoring and surveillance, infection prevention, education and research. These require that government, health professionals, consumers, veterinary professionals and agriculture producers work cooperatively towards a solution to the problem.

Priorities in the research area include having the NH&MRC and other peak research bodies recognise antibiotic resistance as a research priority. It was suggested that more research is needed to encourage appropriate prescribing to minimise the risks of hospital acquired infections. The need to provide comprehensive national data on antibiotic resistance and hospital-acquired infection was also emphasised.

Regulatory priorities identified included the development of a national surveillance system to underpin an evidence-based approach to antibiotic use, resistance and hospital acquired infections in Australia and to determine their impact on health. This could include implementing antibiotic regulatory policies in hospitals consistent with national infection control guidelines to help reduce rates of hospital acquired infections. Links between peak committees and program areas in both the health and agriculture portfolios at the Commonwealth and state government levels were also considered necessary.

Education of the public, as well as the medical and veterinary professions and farmers about the appropriate use of antibiotics was also seen as a priority. Other priorities identified included the greater involvement of consumer organisations in the development of community education initiatives, and establishing links with general practice and veterinary initiatives. Maintaining Australia's commitment to the WHO's strategy to reduce reliance on antibiotics was also seen as important.

The Problem of Acquired Infections in Australian Hospitals

It is estimated that 150,000 infections are acquired in Australian hospitals each year. Due to the over reliance on antibiotics, antibiotic strains of bacteria are not responding to the usual treatments. The costs of treating people with hospital acquired infections are high. It costs \$22,400 to treat someone with MRSA and the costs of treating people with VRA are much higher (Communique National Summit on Antibiotic Resistance, 2001).

Prevention of these infections will mean major savings to state hospital budgets and money redirected to other deserving areas. At the National Summit, the point was made that infection control is generally poorly resourced and inadequately monitored. It is also often subject to inconsistent approaches.

The problem of antibiotic resistance in the form of VRE has also been identified in geriatric hospitals and long-term care facilities. However, there is a lack of Australian data on the extent of the problem. The result is a lack of evidence on which to base guidelines for VRE prevention. The environment in long-term care facilities is particularly susceptible to VRE infection due to communal activities of the residents coupled with the often inappropriate use of antibiotics.

Anpalahan and Darzins (2001) contend that despite guidelines for VRE control and prevention in most hospitals there is still a need for training hospital staff to ensure consistent implementation of the guidelines and for a designated person to coordinate infection control activities).

Anpalahan and Darzins set out a series of recommendations for managing VRE in geriatric hospitals and long-term care facilities. The recommendations emphasise coordination, education of staff, residents and relatives about antibiotic resistance and simple prevention measures such as regular hand washing. Education regarding optimal use of broad spectrum antibiotics and dissemination of antibiotic guidelines, monitoring and audits are also critical.

Community Use of Antibiotics

Recent research shows that the use of antibiotics in the community is still relatively high but has peaked. Importantly the number of prescriptions written for these drugs declined from 26.5 million in 1993/94 to just under 24 million in 1998.

Prior to 1994, use of antibiotics in Australia was higher than most developed countries. One of the challenges is to change community attitudes and promote ongoing and regular consumer information and education about the appropriate use of antibiotics and their ineffectiveness in the face of viral infections such as colds.

The Pharmaceutical Health and Rational Use of Medicines (PHARM) Committee ran National Medicines Week campaigns in 1996 about the wise use of medicines including antibiotics, unfortunately these campaigns were not ongoing. The National Prescribing Service (NPS) is now broadening its work, focusing on the community with 'wise use of antibiotics' message "common cold needs common sense" widely publicised in local press and on billboards in all the capital cities.

In addition, a Melbourne Division ran a major project for consumers and prescribers with very positive outcomes. Antibiotic prescribing was reduced through more adherence to the recommendations of Antibiotic Guidelines produced by Therapeutic Guidelines Pty Ltd in Melbourne. Other Divisions throughout Australia are also involved in quality use of antibiotic activities through the NPS facilitators.

The major attention of the NPS is on the education of prescribers about evidence-based approaches to the prescription of antibiotics. The NPS uses multiple strategies including the dissemination of evidence-based information to prescribers. In Australia,

evidence-based information includes Antibiotic Guidelines, Australian Medicines Handbook and Australian Prescriber. Antibiotic Guidelines were first produced 20 years ago and are now in their eleventh edition. These evidence-based guidelines are well established and used by prescribers in the community but there is a need for greater availability of up-to-date antibiotic use guidelines. The guidelines also need to be linked into other comprehensive education strategies for prescribers. A suggestion that makes sense is to link antibiotic use guidelines to computerised decision support systems for prescribers.

The challenge is not limited to prescribers, it applies equally to building the knowledge and skills of consumers in relation to antibiotics and aligning the expectations of consumers and general practitioners in relation to the use of antibiotics. For example, studies in the USA and United Kingdom found that people with sore throats and respiratory infections as a result of a virus were just as likely to be satisfied if the doctor explained their illness and treatment with reassurance, information and pain relief rather than an antibiotic.

Initiatives Underway

The NPS currently has a number of ongoing initiatives to increase consumer and general practitioner knowledge and awareness about the appropriate use of antibiotics including:

1. Continuing general practitioner education through newsletters, prescription feedback, problem-based case studies and seminars.
2. Support for general practitioners and promotion of guidelines and best implementation mechanisms.
3. The introduction of a 'Symptomatic Management Pad' which describes alternative treatments for upper respiratory tract infections for general practitioners to give consumers instead of antibiotics.

In the 2001/02 federal budget, the government committed funding for consumer education over the next three years. There is an opportunity for consumer organisations to build on the work already undertaken by both the PHARM Committee through the National Medicines Week activities and the current consumer work being undertaken by the NPS. Consumer participation is needed in the Commonwealth government initiatives to address the public health issues raised by the problem of antibiotic resistance in Australia. Consumer engagement will help to build a broad community response and enable cooperative action with all the stakeholders on solutions to antibiotic resistance in Australia.

National consultations are being held in all states and territories to raise awareness among all the stakeholders of the issues and to develop and implement an Australian Antibiotic Resistance Management Program. Consumers and consumer organisations have a major role in supporting this initiative in order to curb the growth of antibiotic resistance in Australia.

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For further information concerning antibiotic resistance contact the website of the Joint Expert Technical Advisory Committee on Antibiotic Resistance (JETACAR) at www.health.gov.au/pubhlth/strateg/jetacar/index.htm

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