6 Education and competency of prescribers

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6.1 Key points

- Education in safe and judicious antimicrobial prescribing is an important element of any antimicrobial stewardship program.

- Education of all health professionals involved in antimicrobial prescribing should begin at undergraduate level and be consolidated with further training throughout the postgraduate years.

- Active education techniques, such as academic detailing, consensus-building sessions and educational workshops, have been shown to be more effective in changing prescribing behaviour than passive dissemination of information.

- Pharmaceutical industry-sponsored activities have been shown to negatively influence prescribing behaviour.
6.2 Recommendations

6.2.1 Prescribers are taught to prescribe according to the Therapeutic Guidelines: Antibiotic\textsuperscript{19} in undergraduate, postgraduate and professional development programs.

6.2.2 Hospitals are responsible for educating clinical staff about their local antimicrobial stewardship programs.

6.2.3 Hospitals enact policies on the interaction between prescribers and the pharmaceutical industry, based on national guidance. Prescribers are educated about the influence of pharmaceutical industry activities on prescribing behaviour.

6.2.4 Education on antimicrobial stewardship is part of postgraduate training of infectious diseases physicians, microbiologists, pharmacologists, nurses and pharmacists.

6.3 Education of prescribers

Major reasons for inappropriate antimicrobial prescribing include a lack of knowledge about infectious diseases (ID) and antimicrobial therapy, and a fear of not prescribing antimicrobials.\textsuperscript{98} In the United Kingdom, poor prescribing has been linked to the lack of an integrated scientific and clinical knowledge base, and the absence of practical prescribing instructions for undergraduates.\textsuperscript{99} With limited time to teach antimicrobial pharmacology and IDs in medical school curriculums, prescribers are said to acquire their antimicrobial prescribing habits from observing the practice of colleagues, recommendations in antimicrobial handbooks and information from representatives from the pharmaceutical industry.\textsuperscript{12}

However, a clinician’s decision to prescribe is not solely based on subjective beliefs or knowledge of evidence-based practice. Clinicians are influenced by a variety of factors relating to the healthcare system, and by the patient’s beliefs and expectations.\textsuperscript{100} Although most clinicians are aware of the problem of antimicrobial resistance, most underestimate the degree of resistance in their own hospital.\textsuperscript{12} As their primary concern is with the effects of antimicrobials in individual patients, the risk of contributing to resistance ranks low among factors that influence the selection of an antimicrobial agent.\textsuperscript{12}

Education is a cornerstone of antimicrobial stewardship (AMS) programs and integral to their success.\textsuperscript{1, 12, 15-17, 22, 101}
In this chapter, the evidence for the role of education in influencing the appropriate prescribing of antimicrobials is covered. Strategies shown to improve safe and judicious prescribing are discussed. Some examples of educational materials are provided in Appendix 2, Sections A2.1 and A2.3.

### 6.4 Educational strategies

Education is the most frequently employed intervention in programs designed to influence prescribing behaviour. Activities can include formal lectures or tutorials, one-on-one education, discussions among ID physicians and treating clinicians at the bedside, or providing information over the telephone or via writing in medical notes. However, education alone has been shown to be only marginally effective in changing prescribing practices and has not been shown to have a sustained effect. Education is considered as a starting point for AMS programs, with more active interventions required to reinforce appropriate prescribing of antimicrobials. The Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America list education as a supplementary activity to the core active AMS strategies of formulary restriction and prospective review with intervention and feedback.

Figure 6.1, adapted from the diagram developed by MacDougall and Polk, depicts the antimicrobial prescribing process and the aspects towards which the different AMS strategies are directed. They describe education as influencing prescribing during the ‘patient evaluation’ and ‘choice of antimicrobial’ stages of the process.

**Source:** Adapted with permission from MacDougall and Polk (2005)

**Figure 6.1** Antimicrobial prescribing process (solid boxes) and antimicrobial stewardship strategies (dotted boxes)

Education is considered a ‘persuasive intervention’, as distinct from a ‘restrictive intervention’ such as formulary restrictions or requirement for prior approval by ID physicians.

The education of prescribers is divided into passive and active strategies. Table 6.1 shows examples of passive and active education in the hospital setting. Active
personalised interventions have been shown to be more effective in changing prescribing behaviour than the passive dissemination of information.1, 12, 34, 103

Table 6.1 Examples of passive and active education strategies

<table>
<thead>
<tr>
<th>Passive education strategies</th>
<th>Active education strategies</th>
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<tbody>
<tr>
<td>Printed prescribing guidelines</td>
<td>Consensus-building sessions</td>
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<tr>
<td>Posting national guidelines on the hospital website</td>
<td>Workshops</td>
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<tr>
<td>Posters, printed handouts</td>
<td>Academic detailing</td>
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<tr>
<td>Attendances at conferences</td>
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<tr>
<td>Minimally interactive sessions such as:</td>
<td></td>
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<tr>
<td>• student or staff teaching sessions</td>
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<tr>
<td>• medical teaching rounds</td>
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</table>

Active education requires clinicians to interact and actively participate in their education in small groups (e.g. consensus-building sessions and workshops) or one-on-one sessions (e.g. academic detailing and educational outreach).12, 103 Academic detailing is described as ‘one-on-one educational sessions between an academic clinician educator (usually a physician or pharmacist) and the clinician targeted for education’.12 These face-to-face educational visits have been shown to have far greater and more lasting effects on changing prescribing behaviour than printed material or group interactions alone.104 The technique has been cited as probably the most effective single method for changing prescribing behaviour.105 Indeed, the technique uses strategies that are employed by pharmaceutical industry representatives to influence prescribing behaviour.

Prescriber feedback — where prescribers are provided with data on their prescribing habits compared with hospital guidelines, or with other prescribers in the same field of practice — can be included as an active component of an education strategy. Prescriber feedback combined with academic detailing can be used on a general level or at a patient-specific level. An example of general use would be an ID physician supplying information on antimicrobial use on the haematology/oncology ward when discussing new guidelines for febrile neutropenia with an oncologist.12 At an individual patient level, education can be provided as part of an intervention (e.g. during the approval process or feedback following review of antimicrobial prescribing). The use of prescriber feedback in influencing prescribing behaviour is discussed further in Chapter 3.

Active education strategies may include multifaceted interventions combining the formulation of consensus local guidelines with academic detailing and prescriber feedback.

6.5 The evidence that education influences prescribing

There have been numerous studies on persuasive and educative interventions to improve antimicrobial prescribing practices. The interventions have been made by pharmacists (see Chapter 9) or ID physicians (see Chapter 8), or both.
Active personalised interventions have been shown to be more effective than the passive dissemination of information.\textsuperscript{1, 12, 34, 103} MacDougall and Polk describe three studies comparing the provision of printed educational material with more active methods, such as academic detailing. Improved adherence to guidelines were found in the active intervention groups.\textsuperscript{12}

The Cochrane review of interventions to improve antimicrobial prescribing practices for hospital inpatients looked at 66 studies.\textsuperscript{22} Sixty studies used persuasive and restrictive methods to reduce unnecessary antimicrobial use. Six studies tested methods to increase the use of antimicrobials to prevent infection (i.e. surgical prophylaxis around time of surgery). Persuasive methods included:

• active and passive education activities, such as
  » distribution of educational material
  » educational meetings
  » local consensus processes
  » academic detailing
  » use of local opinion leaders
• reminders (verbal, on paper or electronic)
• audit and feedback.

The primary outcome measure of the reported studies included one or more of the following: decision to prescribe, prescribing of recommended choice, and dosage or duration of therapy. In addition, 64\% of persuasive single interventions and 75\% of persuasive multifaceted interventions were considered successful. The information available from the studies does not allow any analysis of the sustained effect of the interventions.

In a publication on antimicrobial prescribing behaviour in the outpatient setting, the Agency for Healthcare Research and Quality evaluated 54 studies examining the effectiveness of quality improvement strategies targeting antimicrobial prescribing.\textsuperscript{103} Educational approaches were subdivided into active strategies, where clinicians interacted and participated actively in their education in small groups or one-on-one sessions, and passive strategies where there was no active engagement in the learning process (e.g. lectures, distribution of educational materials). The authors concluded that active educational strategies appeared to be more effective than passive education, although this was not statistically significant. However, in the five studies comparing active and passive educational strategies, active strategies were shown to be superior in terms of reducing inappropriate prescribing and improving the selection of antimicrobials. Although this review was of studies in outpatient settings, conclusions about active education as an effective strategy in influencing prescribing behaviour are also relevant to the acute setting.

Programs combining surveillance, education, feedback and prescription controls have been shown to reduce the number of antimicrobial prescriptions, the level of antimicrobial use and costs.\textsuperscript{81, 98} Bantar et al.\textsuperscript{81} describe the implementation of
a four-step program to optimise antimicrobial usage in an intensive care unit. The introduction of an order form (phase 1) and feedback on data, including bacterial resistance, nosocomial infection, antimicrobial use and prescribing practice (phase 2) was followed by the education component (phase 3). Education included bedside discussion among ID physicians, a clinical microbiologist and attending physicians. This was aimed at documenting an infection microbiologically before commencing therapy, avoiding antimicrobials known to be associated with the emergence of resistant organisms and increasing the use of antimicrobials thought to reduce the frequency of emerging multiresistant organisms. Phase 4 was active control, with the AMS team modifying antimicrobial prescribing practice. After the education phase, there was a dramatic decrease in the intention to prescribe carbapenem (6.39% after phase 3 versus 13.54% at baseline) and ceftriaxone (26.63% versus 62.85%). Similarly, a program in a tertiary care hospital in Thailand that combined education and an antimicrobial control program demonstrated sustained reduction in antimicrobial use, significant reductions in the incidence of infections due to resistant organisms and cost savings. These studies demonstrate the importance of including education in any AMS program.

6.6 Educational resources

This section describes educational resources (guidelines and web sites) that can be used as teaching tools and for practitioners to use to improve prescribing practice.

6.6.1 Guidelines

Evidence-based clinical guidelines are a popular educational tool for practitioners and have become a major feature of health care. In a number of countries, including Australia, clinical guidelines have been produced and developed by a range of organisations. The aim of clinical guidelines is to improve treatment outcomes through changing practitioner knowledge, attitudes and behaviour, such that their practice accords with guideline recommendations.

The introduction of evidence-based guidelines for antimicrobial treatment and prophylaxis is considered to be a key element of any AMS program. This is supported by high-level evidence that multidisciplinary development of evidence-based practice guidelines incorporating local microbiology and resistance patterns can improve antimicrobial use. Guidelines form the basis for educating prescribers on accepted practice for antimicrobial prescribing in the institution. The Therapeutic Guidelines: Antibiotic are recognised as a national standard for antimicrobial prescribing in Australia, and institutional clinical guidelines developed for local use should reflect the nationally agreed practice contained in these guidelines. Prescribers should be taught to follow these guidelines and to seek expert guidance from ID specialists and pharmacists in situations not covered by the guidelines. Guideline development and implementation are further discussed in Chapter 8.

Increased adherence to best practice guidelines should be a major objective of AMS programs. Key activities should include auditing the level of compliance of antimicrobial treatment with guidelines and formulary recommendations, and providing feedback to
prescribers and clinical departments. See Chapters 3 and 5 for further discussion on the use of audit to monitor and provide feedback on antimicrobial use.

6.6.2 Guideline implementation

Numerous studies have shown poor uptake of guideline recommendations. To be effective, guidelines need well-developed implementation plans that are well executed, sustained and embedded in comprehensive programs for change.

There is evidence that guideline implementation can be facilitated through education and feedback on antimicrobial use and patient outcomes. In teaching hospitals, where senior medical clinicians influence trainees’ prescribing, ensuring that senior staff ‘buy in’ to the process through involvement in local guideline development is considered particularly important. Aiming education at authoritative senior department staff has been shown to have a significant impact in changing surgical antimicrobial prophylaxis practices.

The lack of awareness among senior clinicians and registrars of local and national resources available to support decision making has been identified as a barrier to appropriate prescribing. The AMS team can play an important role in promoting the existence of antimicrobial prescribing guidelines and making them readily available. See Chapter 8 for further details on guideline implementation.

6.6.3 Web sites

Establishing an up-to-date web site on the institution’s intranet (or on the internet) has been proposed as an excellent way for an institution to provide easy access to information on their AMS program and current strategies. Ideally, such web sites would be publicly available; facilitating the sharing of ideas, and possibly helping other hospitals to implement similar programs. Pagani et al. have published a review of web sites containing resources on antimicrobial stewardship. Examples of antimicrobial stewardship web sites they cite as providing useful starting points for designing and implementing antimicrobial stewardship programs are:

- national organisation web sites
  - Healthcare Infection Control Special Interest Group
    [www.asid.net.au/hicsigwiki](http://www.asid.net.au/hicsigwiki) — an Australian and New Zealand site that provides a good example of multidisciplinary AMS and contains helpful information, teaching materials and a large number of related links
  - Centers for Disease Control and Prevention
    [www.cdc.gov/drugresistance](http://www.cdc.gov/drugresistance) — contains teaching material and valuable tools to download, including ‘12 steps to prevent antimicrobial resistance amongst hospitalized adults’
• institutional web sites
  » Nebraska Medical Center
    www.nebraskamed.com/asp — provides information about different aspects of an institutional AMS program
  » the ‘Antibiotic Management Program’ of the University of Pennsylvania Health System
    www.uphs.upenn.edu/bugdrug — covers many aspects of AMS, including guidelines for antimicrobial therapy, issues relating to formulary restrictions and pharmacologic considerations for dose adjustments.

Additional information on AMS web sites is available in Appendix 2, Section A2.

6.7 Education programs

A firm educational grounding for undergraduates, consolidated with further training throughout the postgraduate years, has been recommended to achieve appropriate and prudent prescribing of antimicrobial agents.\(^\text{17}\)

Educational programs should emphasise the principles of judicious, safe and effective antimicrobial prescribing and the concept of resistance.\(^\text{17, 102}\) Factors influencing prescribing, including the effect of promotional activities conducted by the pharmaceutical industry, should be addressed (see Section 6.8). Because active education is more effective in changing prescribing behaviour, the educational component of AMS programs should include interactive group sessions and one-on-one educational strategies, such as academic detailing and the use of audit and prescriber feedback.\(^\text{1, 12, 34, 100}\)

The Scottish Medicines Consortium Short Life Working Group and the Scottish Executive Health Department Healthcare Associated Infection Task Force have developed a set of good practice recommendations for antimicrobial prescribing in hospitals.\(^\text{17}\) Key area 2 of the paper by Nathwani\(^\text{17}\) covers the structures and responsibilities for multidisciplinary and generic undergraduate and postgraduate training relating to antimicrobial prescribing. The author lists four recommendations that cover:

• competencies and skills for prudent prescribing defined by the institution’s AMS team, based on national models (where appropriate)
• a structured, competency-based, multidisciplinary postgraduate teaching program for professionals involved in prescribing and the

Each country and region should have an educational programme for patients, health care professionals and students to reduce patient pressure on doctors to prescribe antibiotics and educate medical students and all health care professionals on good quality antibiotic prescribing and responsible use of antibiotics.\(^\text{16}\)
administration of antimicrobials, with regular repetition to cover the frequency of job changes in this group of prescribers

- assessment of competency to prescribe and documentation of education in a continuing education portfolio (in the United Kingdom, National Health Service [NHS] healthcare workers are required to attend specific healthcare associated infection-related continuing professional development activities)

- consideration by deans of curriculums to consider outcomes of undergraduate education on prudent antimicrobial prescribing.

6.7.1 Undergraduate education

There is evidence that many medical students are not trained adequately in pharmacotherapy and training programs do not adequately equip the future prescriber with the fundamentals required for optimal antimicrobial prescribing. In the United Kingdom, poor antimicrobial prescribing has been linked with a lack of an integrated scientific and clinical knowledge base, and an absence of practical prescribing instructions for undergraduates. The limited time available to teach antimicrobial pharmacology and IDs in medical school curriculums is given as the reason that prescribers often acquire their antimicrobial prescribing habits from the practice of colleagues, recommendations in antimicrobial handbooks and information from representatives from the pharmaceutical industry.

A sound undergraduate education in IDs and antimicrobial therapy is a requirement for achieving safe and appropriate prescribing of antimicrobial agents. Marwick and Nathwani describe an outcomes-based internet program (Appropriate Antimicrobial Prescribing for Tomorrow’s Doctors; APT) for teaching and reflective learning of antimicrobial prescribing. The program was developed by the Scottish medical schools and the British Society for Antimicrobial Chemotherapy. It has been adopted by medical schools throughout the United Kingdom and is available from the Prudent Antibiotic User (PAUSE) web site. The web site provides shared, standardised teaching materials on prudent antimicrobial prescribing for use by educators teaching undergraduate medical curriculums.

6.7.2 Postgraduate education

Equally important is the need for postgraduate medical and nonmedical prescribers (nurses, pharmacists, dentists, etc) to develop the skills and attitudes that will allow them to prescribe antimicrobials safely and effectively. The availability of appropriate training programs for all prescribers has been recommended in the United Kingdom in the NHS’s Saving Lives: Reducing Infection, Delivering Clean and Safe Care (an antimicrobial prescribing summary of best practice).

At the level of the hospital, education should be provided early in prescribers’ employment, such as during initial orientation. Staff education and development

a www.pause-online.org.uk
should include the institution’s antimicrobial guidelines and policies for antimicrobial prescribing. Programs should be structured and competency based, and sessions repeated regularly to take into account changes in junior medical staff rosters.

Education about the purpose of AMS and details about the functions of a program, including the availability of institutional guidelines, should not be overlooked. Understanding the context in which recommendations are made will reduce delays in therapy caused by ordering a restricted drug without approval. The fears of those clinicians who are concerned about the risks of not treating or undertreating infected patients, and possible adverse consequences of stewardship interventions, can be allayed by highlighting published reports that illustrate the safety of risk stratification, streamlining broad-spectrum therapy, intravenous-to-oral conversions and reducing the duration of therapy.

### 6.7.3 e-learning programs

The APT program has been adapted to provide online training and assessment for junior medical officers working in Scottish hospitals. The program reinforces the principles and practices taught at the undergraduate level and encompasses a range of competencies and learning outcomes. Enrolment in the program is mandatory for new prescribers in Scottish hospitals. The authors report that at any given time more than 1600 junior medical staff undertake the mandatory exercise and demonstrate evidence of satisfactory completion.

The Central Manchester University Hospitals Trust is developing an e-learning package on antimicrobial prescribing. The package comprises three modules: principles of antimicrobial management, hospital acquired infection and antimicrobial medication safety (Table 6.2). The package will include a bank of multiple-choice questions and an assessment facility. The package is aimed at all grades of prescriber for adult and children’s specialties.

<table>
<thead>
<tr>
<th>Module</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Principles of antimicrobial management</td>
<td>Rationale for prudent use</td>
</tr>
<tr>
<td></td>
<td>Antimicrobial formulary</td>
</tr>
<tr>
<td></td>
<td>Intravenous-to-oral switch</td>
</tr>
<tr>
<td></td>
<td>De-escalation and antimicrobial spectrum</td>
</tr>
<tr>
<td></td>
<td>Surgical prophylaxis</td>
</tr>
<tr>
<td>2 Hospital acquired infection</td>
<td>Methicillin-resistant <em>Staphylococcus aureus</em></td>
</tr>
<tr>
<td></td>
<td><em>Clostridium difficile</em></td>
</tr>
<tr>
<td>3 Antimicrobial medication safety</td>
<td>Antimicrobial allergy</td>
</tr>
<tr>
<td></td>
<td>Vancomycin monitoring</td>
</tr>
<tr>
<td></td>
<td>Aminoglycoside monitoring</td>
</tr>
</tbody>
</table>

As all doctors prescribe antibiotics, good quality antibiotic prescribing should be part of all doctors’ continuous professional development, accreditation and clinical governance programmes.
6.8 The influence of the pharmaceutical industry

This section reviews the effects of the pharmaceutical industry on the prescribing of medicines. It highlights the importance of including education about the influence of pharmaceutical industry relationships and sponsorship on prescribing behaviour in training programs for new prescribers.

Published literature reviews\textsuperscript{110-112} studying the effects of interactions between medical professionals and the pharmaceutical industry confirm that these interactions can:

- increase formulary addition requests, even when there is no therapeutic advantage over existing formulary drugs
- affect prescribing practices, including prescribing costs, nonrational prescribing, a preference for new drugs and the decreased prescribing of generic drugs.

Prescribers often deny that gifts may influence their behaviour and are equivocal about the ethics of such a practice.\textsuperscript{110-112} However, receiving a gift, and the number of gifts, correlated with the belief that interactions with pharmaceutical representatives have no impact on prescribing behaviour. In addition, most prescribers admitted that without gifts their interactions with pharmaceutical representatives would be reduced. Samples, continuing medical education and conference travel funding, exerted more influence than promotional material. Payments for travel generated the most ethical concerns.\textsuperscript{110-111} Table 6.3 lists the influence of gifts on prescribing behaviour derived from the Wazana literature review.\textsuperscript{111}

The Zipkin review of interactions between pharmaceutical representatives and trainee doctors reported frequent involvement of pharmaceutical representatives in training programs.\textsuperscript{112} Activities described included:

- ‘detailing’ products
- sponsoring conference attendance, presentations and food
- providing cash support for social activities.

Zipkin reported residents’ attitudes to the pharmaceutical industry as largely positive. They believed themselves to be more immune to industry influence than their colleagues. Most felt that the receipt of gifts did not influence their behaviour. Those residents in programs with regulatory policies had a more sceptical approach. There was a significant association between company sales visits and the prescription of company product.\textsuperscript{112}

These reviews all confirm a temporal association between:

- an increase in industry-sponsored continuing medical education and the physician prescribing rate of the sponsor’s drug
- an increase in travel sponsorship and hospital prescribing of the travel sponsor’s drug
- an increase in nonrational prescribing of a sponsored drug after teaching delivered by pharmaceutical representatives.
Table 6.3  Influence of gifts from pharmaceutical industry on prescribing behaviour

<table>
<thead>
<tr>
<th>Description of gift</th>
<th>Influence on prescribing behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samples</td>
<td>Accepting samples is associated with awareness, preference and rapid prescription of a new drug</td>
</tr>
<tr>
<td>Industry-paid meal</td>
<td>There is an association between accepting sponsored meals and formulary addition requests</td>
</tr>
<tr>
<td>Funding for travel</td>
<td>Accepting funding is independently associated with increased formulary addition requests for the sponsor’s drug</td>
</tr>
<tr>
<td>Pharmaceutical representative</td>
<td>Speakers are associated with inaccurate information about sponsors’ and competitors’ drugs, and inappropriate treatment decisions</td>
</tr>
<tr>
<td>Honoraria, research funding</td>
<td>Honoraria and research funding are associated with formulary addition requests for the sponsor’s drug</td>
</tr>
</tbody>
</table>

Involvement in the conduct of clinical trials sponsored by pharmaceutical companies has also been shown to influence prescribing.\textsuperscript{110,113} Andersen et al. found that conducting a trial sponsored by a pharmaceutical company had no significant impact on a physician’s adherence to international treatment recommendations, but increased the use of the trial sponsor’s drugs.\textsuperscript{113} Wazana et al. identified a significant association between the outcome of the study and the source of funding (i.e. pharmaceutical-funded studies were much more likely to favour new therapies) and a suggested association between source of funding and trial design (e.g. a new non-steroidal anti-inflammatory drug [NSAID] was more likely to be compared with other NSAIDs than with a pure analgesic drug).\textsuperscript{111}

These studies illustrate some apparent incongruities between doctors’ attitudes and beliefs, and their behaviour. Doctors do not believe that their behaviour will be influenced by interaction with the pharmaceutical industry (although they believed that their colleagues may be), yet studies have repeatedly shown an association between interaction and prescribing behaviours. Doctors also have a negative attitude towards physician–industry interaction (e.g. poor-quality information or ethical issues), yet most continue to participate.

The dynamics of the relationships between physicians and pharmaceutical company representatives was explored by Chimonas et al.\textsuperscript{114} They analysed the contradiction of physicians’ awareness of the negative effects of detailing and their approval of the relationships, and explored the policy implications. They applied the concept of ‘cognitive dissonance’\textsuperscript{115} to the relationship between physicians and pharmaceutical company representatives. Cognitive dissonance is described as a preference for one’s beliefs to be consistent with each other. When cognitions are dissonant, people experience discomfort and attempt to reduce the dissonance. Cognitive dissonance can be managed by:

- elimination of the dissonance, by altering one or more of the conflicting attitudes or behaviours
• rationalisation, by using additional information to reduce dissonance between conflicting cognitions
• denial, by forgetting or rejecting the significance of one or more of the conflicting elements.

In Chimonas et al., the 32 academic and community physicians participating in focus groups held in three cities in the United States acknowledged and recognised the conflict of interest, but expressed irritation at regulatory efforts to address the conflict, especially limitations on entertainment and personal-use gifts. The authors concluded: ‘Given physicians’ techniques for managing dissonance, it appears that only the prohibition of physician–detailer interactions will be effective’.

6.8.1 Solutions for reducing the influence of the pharmaceutical industry

A variety of solutions have been proposed for reducing the influence of the pharmaceutical industry on the prescribing of antimicrobials, including:

• education and training beginning at medical student level
• ‘academic detailing’ delivered by pharmacists, as described in Section 6.4 and Chapter 9
• industry-independent drug information (e.g. pharmacy bulletins, mail-outs)
• the introduction of hospital policies to restrict pharmaceutical representatives’ access to staff
• the development of guidelines on duality of interest (conflict of interest) by professional societies and colleges, and their incorporation into hospital policy and training programs.

Such guidelines have been developed by some state and territory health departments, often including a register of gifts and payments to healthcare providers and departments, or alternatively banning all gifts. Medicines Australia, the pharmaceutical industry’s national association, has a voluntary self-regulatory code and publishes an educational event report annually on its web site. (See Appendix 2, Section A2.2 for examples of guidelines, codes of conduct and position statements.)