

# Improving antibiotic use: 25 years of antibiotic guidelines and related initiatives

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## Abstract

In the late 1970s concern in Melbourne teaching hospitals over the increasing incidence of antibiotic-resistant microorganisms and inappropriate antibiotic prescribing, led to the establishment of a working party to produce guidelines on appropriate antimicrobial therapy. *Therapeutic Guidelines: Antibiotic* is now produced, marketed and sold by Therapeutic Guidelines Limited, an independent, not-for-profit enterprise that distils best-practice prescribing guidelines for Australian health professionals. Therapeutic Guidelines now cover all major therapeutic areas. Mere distribution of the guidelines had little impact on prescribing habits. However, targeted education campaigns have helped to improve antibiotic prescribing. The Antibiotic title remains the flagship of Therapeutic Guidelines Limited with sales, surveys and endorsements over 11 editions attesting to its wide acceptance and use. *Therapeutic Guidelines: Antibiotic* is one of many initiatives that have contributed to improving antibiotic use and it serves as a valuable foundation on which to build other strategies. There is demand for a consumer friendly version of the guidelines. In addition, the increasing use of computerised prescribing programs has highlighted the need for electronic guidelines to be closely integrated with decision support software. *Commun Dis Intell* 2003;27 Suppl:S9–S11.

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## History

The Therapeutic Guidelines story started in Australia in the late 1970s. There was concern in Melbourne teaching hospitals that an increasing incidence of antibiotic-resistant microorganisms reflected inappropriate antibiotic prescribing.<sup>1</sup> A working party was set up to produce concise guidelines on appropriate antimicrobial therapy. The aim was to improve patient outcomes by distilling the world literature on best-practice management of common clinical conditions, tempered by the experience and wisdom of Australian experts.

The first edition of *Antibiotic Guidelines* was a slim booklet of 30 pages designed to fit into a hospital doctor's white coat pocket. A modest grant from the Hospitals and Charities Commission made the publication available free of charge to Victorian resident medical officers. Twenty-five years later, the 11th edition of *Therapeutic Guidelines: Antibiotic* has grown to 330 pages; addresses clinical problems in both hospital and general practice; and has national authorship together with the approval of many professional organisations.

*Therapeutic Guidelines: Antibiotic* is now produced, marketed and sold by Therapeutic Guidelines Limited, a self-sufficient, independent, not-for-profit enterprise that distils best-practice prescribing guidelines for Australian health professionals. Therapeutic Guidelines now covers all major therapeutic areas.<sup>2</sup> While print versions are still produced, there are now electronic versions for installation on personal computers, for use on health department Intranets, and for integrating with prescribing software. Preliminary versions have also been developed for use on hand-held computers (e.g., Palm Pilots and Pocket PCs).

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As many studies have noted, initial audits of antibiotic prescribing showed that the mere distribution of Therapeutic Guidelines had little impact on prescribing habits.<sup>3</sup> However, when specific education campaigns targeted the discrepancy between what was practised and what the guidelines recommended, antibiotic prescribing improved.<sup>4,5,6</sup> These concepts were ultimately incorporated into the Quality Use of Medicines pillar of Australian Medicines Policy and put into operation by the Pharmaceutical Health and Rational Use of Medicines committee and later the National Prescribing Service.<sup>7</sup> National indicators show that antibiotic use in Australia is now slowly improving.<sup>8</sup> *Therapeutic Guidelines: Antibiotic* though only one of many initiatives that has contributed to this result, is a foundation upon which other strategies have built.

While the Antibiotic title remains the flagship of Therapeutic Guidelines Limited the sales of other titles are now approaching that of *Therapeutic Guidelines: Antibiotic*. Clinicians, endorsements, and sales attest to the wide acceptance, use and perceived value of Therapeutic Guidelines.<sup>9</sup> This has been recognised by groups in Japan, China, Spain and Russia who have adapted the Australian Therapeutic Guidelines content in order to improve prescribing in their countries.

The business model for this international exchange is as follows. While the distillation of best-practice therapeutic guidelines has international applicability, disease patterns vary in different countries, as do the drugs available, their prices and local prescribing habits. In addition, if Therapeutic Guidelines is to have an impact, there is a need for local endorsement and ownership by respected opinion leaders. Furthermore, Therapeutic Guidelines need to be incorporated into broader programs including drug utilisation studies and targeted educational campaigns. Thus, there is a need for local groups to adapt overseas guidelines to their local situation. To assist this process, Therapeutic Guidelines Limited makes available Australian guideline content in electronic format for modification by organisations having similar aims in other countries. A modest licence fee is charged depending on the country's circumstances. This process avoids duplication of effort while maintaining local autonomy.

## *Current challenges*

### **Integration of Therapeutic Guidelines with computerised prescribing programs**

The increasing use of computerised prescribing programs in Australia has highlighted the need for electronic Therapeutic Guidelines (and other resources) to be closely integrated with decision support software and ultimately with the emerging electronic record.<sup>10</sup> The long-term goal is to provide succinct advice, tailored to a particular patient at the time of prescribing, together with automated monitoring of prescribing habits for self-audit and education. The literature shows that such systems can substantially improve patient safety, assist best-practice prescribing and be cost-effective. Despite these benefits, Australian hospitals have been slow to implement such systems and the software currently available in general practice lacks many desirable features.<sup>11</sup>

Therapeutic Guidelines Limited has won competitive research grants to pursue the integration of its electronic products into computerised prescribing and decision support systems. The Antibiotic title is currently partially integrated into Medical Director (HCN) prescribing software and it has previously been integrated with MIMS Script.

Some software groups have indicated a desire to integrate the complete electronic therapeutic guidelines suite into their products. However, a number of barriers exist including uncertainty over whether an integrated product will generate additional revenue and questions about who will pay for the development work required. Another problem is the different business models used. Some prescribing software vendors generate revenue by displaying advertisements for the drugs but this is a practice not undertaken by Therapeutic Guidelines Limited. Other barriers to integration include the lack of agreed coding systems (for clinical problems and drugs) and common decision support and data interchange standards.

## Improving versatility

Our initial title, *Antibiotic Guidelines*, was designed to fit into a doctor's white coat pocket thus information access by mobile clinicians was relatively assured. Today, most Australian doctors do not wear white coats, the Therapeutic Guidelines series (and other evidence-based information) have proliferated, and the numerous resources necessary for good clinical practice no longer fit into pockets. Therapeutic Guidelines is now available on state health department intranets such as the New South Wales Clinical Information Access Program and the Victorian Clinician's Health Channel, but access to these services is still not available in many busy clinical settings.

One modern equivalent of the health workers white coat pocket is the handheld computer Personal Digital Assistant.<sup>12</sup> These devices are getting cheaper, they still fit into pockets, they have substantial memory and computing power, they can be radio-linked to hospital networks and the Internet, and future versions are likely to become the computing platform of choice for mobile health care workers. Consequently, we have already converted several Guideline titles to Personal Digital Assistant format (for both Palm and MS Pocket PC operating systems).

There is also demand for a consumer friendly version of the guidelines to perhaps be made available over the Commonwealth Web Portal. These initiatives await further development.

## Conclusion

Therapeutic Guidelines Limited has a long track record of producing best-practice evidence-based therapeutic guidelines for both general and hospital practices. The organisation has also been proactive in developing a variety of electronic formats of the guidelines with the aim of integrating these into computerised prescribing and decision support programs. Currently, a number of barriers are impeding these developments. These could be overcome by cooperation and collaboration between the government and relevant organisations. There has been agreement for at least the last 10 years as to what constitutes a core set of knowledge resources for the therapeutic domain. It only remains to integrate this knowledge into the clinician's electronic desktop; such an investment would improve patient safety and facilitate best-practice drug therapy.

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