PROMISe to DOCUMENT clinical interventions in Australian community pharmacies

Introduction
Drug-related problems (DRPs) are well known as a frequent cause of morbidity, hospital admission and mortality. A systematic review conducted in 2002 found that 7.1% of hospital admissions resulted from DRPs, while the Second National Report on Patient Safety reported in 2003 that 2–4% of all hospital admissions in Australia (and up to 30% of admissions for patients over 75 years of age) were medication-related. Seventy-five percent of these DRPs were considered preventable. DRPs that cause hospitalisation are likely to have originated during the course of the patient's community-based care; however, many occur in the community setting and do not result in presentation to a hospital.

Pharmacists are frequently involved in preventing, detecting and resolving DRPs during the course of their activities. This DRP detection and resolution process can be termed a clinical intervention. Although studies have been conducted in North America and Europe, there is far less information available concerning the nature and frequency of community pharmacists' clinical interventions in Australia.

Background
The PROMISe II (Pharmacy Recording of Medication Incidents and Services in an electronic fashion) study in 2005 designed an electronic system for the documentation of various aspects of DRPs and the secure transfer of de-identified details to a remote repository.

The documentation and communications module was integrated into a popular dispensing software system (FRED Dispense) and the system involved the pharmacist classifying the type of problem and the recommendations made to resolve the problem according to the DOCUMENT DRP classification system. The recording process took less than one minute. The de-identified data was securely transmitted to a central repository, collated and an economic analysis was undertaken. The trial of 52 pharmacies in Victoria in 2005 resulted in 2396 recorded interventions from 435 520 prescriptions over an eight-week period (approximately one clinical intervention every 200 prescriptions). Based on conservative estimates during economic analysis, this equated to approximately $350M in direct costs prevented, 250 000 hospital admission days prevented and 50M days of adverse health prevented per year nationwide.

PROMISe III study
Research has been commissioned that intends to confirm the results from PROMISe II and prepare a plan for the nationwide implementation of a documentation system for these important activities.

The PROMISe III project has commenced and the trial phase is projected to commence in May 2009. The study aims to recruit 210 pharmacies over three states (Tasmania, Victoria and New South Wales) to allow a large cross-section of data to be collected and interpreted. The project intends to refine, trial and evaluate the electronic clinical intervention documentation system developed during PROMISe II in approximately 5% of all Australian community pharmacies. The emphasis will be on issues regarding persistence with intervention documentation and assessment of different techniques to increase use of the system. Results of PROMISe III will be critical in justifying and improving the existing model of community pharmacy services in Australia; this project has the potential to radically change community pharmacy remuneration structures.

Methodology
The systems developed in the previous PROMISe project have been redesigned to allow improved accessibility to documentation and hopefully increase the rates of recording of pharmacists' interventions. The unique DOCUMENT DRP classification system developed in PROMISe II, that categorises clinical activities by type and allows pharmacists to record their actions, recommendations and significance of the intervention, has also been revised to improve data gathering capabilities and simplify recording (see Tables 1 and 2). The recording software will be redesigned and is to provide a structured record of the clinical intervention superior to those presently available in any current dispensing system. The software will be quick and easy to use, have an interface with the dispensing software, have a generic design to allow modifications for its incorporation into other software systems and enable de-identified information to be easily and securely transmitted.

The intervention system will be conceptually similar to the PBS Online system in that it will instantly transmit de-identified recorded clinical interventions via a secure communications module from pharmacies to a central repository. A PROMISe III web interface for the repository will be developed, which will allow comprehensive reports to be generated, such as the number of interventions compared to aggregated drug
Table 1. DOCUMENT DRP classification system to be used in the PROMISE III trial

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<tr>
<th>Type</th>
<th>Code</th>
<th>Description</th>
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<tr>
<td>D  Drug selection (Problems relating to the choice of drug prescribed or taken)</td>
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<td>O  Over or under-dose (Problems relating to the prescribed dose or schedule of a drug)</td>
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<td>C  Compliance (Problems relating to the way the patient takes the medication)</td>
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<td>U  Under-treated or Untreated indication (Problems relating to actual or potential conditions that require management)</td>
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<td>M  Monitoring (Problems relating to monitoring the efficacy or adverse effects of a drug)</td>
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<td>E  Education or information (Where a patient requests further information about a drug or disease state)</td>
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<tr>
<td>N  Not classifiable (Problems that cannot be classified under another category)</td>
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<tr>
<td>T  Toxicity or adverse reaction (Problems relating to the presence of signs or symptoms that can be attributed to a drug)</td>
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Two sub-studies will also be undertaken during the trial. A pharmacy sub-study will closely examine the resources used in undertaking clinical interventions (to assist in calculating cost-effectiveness) and provide observational reports of barriers and facilitators to documentation of interventions. A second sub-study will examine the attitudes of consumers to clinical interventions undertaken by pharmacists. This will involve follow-up of selected consumers who had interventions documented, as well as a survey of randomly selected consumers. Consumers with documented interventions will be followed up in order to determine their degree of health resource utilisation, satisfaction with the outcome of the intervention and rudimentary quality of life measures. A wider survey of general consumers will determine overall attitudes and expectations of community pharmacists' interventions to allow comparison between general consumers and consumers who are subject to an intervention.

groups, prescription counts, numbers of patients and patient demographics. This will allow pharmacies to compare their own data with combined state and national data. Expressions of interest will be sought from eligible pharmacies and the selection process for trial participation will be according to the pharmacy's prescription volume, internet access and dispensing system (Fred Health and Simple Retail's Aquarius will be part of the trial). Pharmacists will be asked to record any clinical interventions made during the trial period and a phone survey will also be conducted with participating pharmacists to establish issues with continuing use of the system and to ascertain pharmacists' demographics. The trial will stratify the participating pharmacies into streams that will also evaluate the effectiveness of a stimulus to increase the number of interventions made, such as an electronic feedback system, an intervention prompting mechanism and a simple reminder mechanism.
A detailed analysis of all the data collected from the study will be undertaken. The value of a sample of the interventions will be obtained by consulting a range of expert opinions on the clinical significance of the interventions and converting these to economic indicators. The value of the interventions will be expressed in terms of both direct costs avoided and quality adjusted life years (QALYs) gained. This value will be used to develop a business case and implementation plan for the rollout of the PROMISe documentation system to pharmacies Australia-wide.

Conclusion

Drug-related problems can often be identified in the community pharmacy before they reach a stage when medical intervention is necessary. The PROMISe III study aims to recognise the contribution that Australian community pharmacists make to the health system by providing them with a mechanism for recording clinical interventions that occur during their daily activities. Information gained from the economic and other analyses of the PROMISe III information will be used to develop a business case and implementation plan for the rollout of the PROMISe documentation system to pharmacies Australia-wide.

References