RETURNED UNWANTED MEDICINES SURVEY

VICTORIAN REPORT

(MELBOURNE METROPOLITAN AREA)

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CONTENTS

LIST OF FIGURES

Chapter I

Chapter II

LIST OF ABBREVIATIONS

AMH	Australian Medicines Handbook
AMRO	[the Association of Market Research Organisations
ASM	Australian Statistics on Medicines
Board	Board of the Return Unwanted Medicines Project
DUSC	Drug Utilisation Sub-Committee
Guild	Pharmacy Guild of Australia
HIC	Health Insurance Commission
LOTE	language/s other than English
Manual	Survey Completion Instruction Manual
NES	non-English speaking
NHS	the National Health Survey
OTC	over-the-counter medicines
PBPA	the Pharmaceutical Benefits Pricing Authority
PBS	Pharmaceutical Benefits Schedule
QCPP	Quality Care Pharmacy Program
QUM	Quality Use of Medicines
RPBS	Repatriation Pharmaceutical Benefit Scheme
RUM Project	the Return Unwanted Medicines Project
RUMS	Returned Unwanted Medicines Survey
SPSS	Statistical Package for Social Sciences
SUSDP	Standard for the Uniform Scheduling of Drugs and Poisons
the survey	Returned Medicines Survey: a structured research instrument utilised in RUMS for data collection
TC	therapeutic class
TGA	Therapeutic Goods Administration
TI	Therapeutic Index

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Bella Brushin

ABOUT THE AUTHOR

Dr Bella Brushin's background combines research, public health, medicine and health promotion In Australia, she has conducted research concerning a range of health issues with a particular focus on socio-cultural influences on health related beliefs, practices, health services access and utilisation and consumer health information needs. She has worked for and/or in partnerships with a range of academic, government, non-government and private agencies, served as a member of various advisory groups, and provided consultancies in her areas of expertise.

Dr Brushin has a longstanding interest in and commitment to Quality Use of Medicines (QUM). She has participated in a range of QUM-related activities and initiatives, including community consultations and other forums, and presented at national and international conferences. Her research interest in the area of QUM comprises various aspects of medicinal use. Her PhD research, undertaken under the Quality Use of Medicines Evaluation Program of the Commonwealth Department of Health and Aged Care, concerned cultural constructions of medicines and socio-cultural influences on medicinal use among lay consumers in the context of QUM.

BACKGROUND: NATIONAL PROGRAM FOR THE COLLECTION AND DESTRUCTION OF UNWANTED AND OUT-OF-DATE MEDICINES

In July 1998, the Commonwealth Department of Health and Ageing provided funds to facilitate the collection and disposal of unwanted and out-of-date medicines from the Australian community. A total of $3 million was provided, $1 million per year for three years.

The National Return & Disposal of Unwanted Medicines Limited (ABN 79 082 871 663), a national not-for-profit company, was originally registered in South Australia, specifically for this purpose.

Now known as the *Return Unwanted Medicines (RUM) Project*, the national scheme provides for unwanted and out-of-date medicines to be received by community pharmacies from consumers. The medicines are then disposed of by high temperature incineration, which is the EPA approved method of disposal.

This Commonwealth funded program addresses one of the fundamental impediments to the Quality Use of Medicines in Australia, namely safe disposal. While it is understood that retention of old and unwanted medicines can lead to the medicines becoming toxic, harming children, and leading to both misuse and abuse, there has been no consistent means of disposal which meets State environment and hazardous waste guidelines.

For the financial year to 30 June 2004, over 350 tonnes of medicines was collected across Australia. The possible collection quantities can only be guessed at this stage.

The Commonwealth Department of Health and Ageing, the Pharmacy Guild of Australia, the Pharmaceutical Society of Australia and the Australian Institute of Environmental Health, all of whom are represented on the Board of the Company, support this national initiative.

Commonwealth funds currently cover the costs of collection and disposal, together with support from the pharmaceutical industry. Community pharmacies collect these medicines at no cost, and pharmaceutical wholesalers have agreed to a generous discount in charges for delivery and collection of *RUM Project* containers to pharmacies.

The Federal Budget for July 2001 allocated a further $5 million over four years to the project, with a funding review due in June 2005.

The current Commonwealth agreement does not provide for funding of 'consumer awareness campaigns'. While the pharmaceutical industry supports the *RUM Project*, consumers are relatively unaware of the facility. A 'consumer awareness campaign' was conducted in New South Wales for two years, 1991–1993. This campaign was funded by the New South Wales Department for the Environment, which contributed $670,000 over two years. This campaign was successful, with increases in collections greater than 20 percent over this period. Such 'consumer awareness campaigns' should be a serious consideration in future funding.

The *RUM Project* has consistently attempted State and Territory participation in the funding of consumer awareness campaigns, with success limited to New South Wales.

The *RUM Project* is an important ingredient of the Quality Use of Medicines protocols. The Quality Care Pharmacy Program (QCPP) will incorporate the protocols of the *RUM Project* into professional standards in 2005, and Pharmacy Boards across Australia endorse the project.

The current agreement with the Commonwealth obliges the *RUM Project* to conduct a survey of returned medicines from consumers.

The Returned Unwanted Medicines Survey**,** conducted by Dr Bella Brushin, provides for the collection of returned medicines details by pharmacists, in the community pharmacy environment in metropolitan Melbourne. Commencing in Victoria, the Survey will be extended to all states and territories over future years.

Simon Appel
Project Manager
Return Unwanted Medicines (RUM) Project

ABSTRACT

The Returned Unwanted Medicines Survey (RUMS) has been commissioned and funded by the National Return & Disposal of Unwanted Medicines Limited and the *RUM Project*. RUMS aims at an accurate description of the unwanted and out-of-date medicines returned by consumers to community pharmacies and an understanding of the behaviour of both consumers and pharmacists under the scheme. The study in this Report thus provides insights into the success of the *RUM Project* and suggests areas where a change in approach may be desirable. In the context of QUM principles, findings from this study may enhance understanding of consumer practices relating to disposal of medicines and inform the development of programs and activities that promote safe practices in the disposal of unwanted medicines among Australian consumers.

Conducted by Dr Bella Brushin in Melbourne, Australia, RUMS was designed as a survey of those occasions when consumers returned unwanted and out-of-date medicines to pharmacies for safe disposal, with research carried out in two overlapping stages. RUMS has been a complex project requiring intricate data collection instruments, a multi-stage sampling scheme, multiple data collection methods, extensive fieldwork arrangements and a hierarchical data set. Given the complexity of the study, considerable effort was taken to test and refine the RUMS approach prior to implementing the survey. Several quality assurance processes were introduced to ensure the accuracy and consistency of data.

The material in this Report is divided into several chapters. Chapter I sets out the study's aim, the specific objectives and the key research questions, the overall design of this study and the data sources; and describes specific research methods and techniques used for sampling, data collection management and analysis and research procedures, including those to ensure ethical conduct of research. Chapter II and Chapter III describe a range of research findings. Chapter II focuses on socio-demographic characteristics of consumers and various aspects of consumer practices relating to the return of unwanted and out-of-date medicines to community pharmacies, while Chapter III describes RUMS findings relating to the kinds of medicines returned and the reasons for their return.

Chapter IV summarises RUMS key research findings and provides recommendations within the context of QUM. Based on findings in this report, several recommendations are made for future research in this area and for the development of activities promoting the *RUM Project* and safe disposal of unwanted medicines among diverse population groups.

CHAPTER I: RESEARCH DESIGN AND METHODS

Introduction

The Returned Unwanted Medicines Survey (RUMS) has been a complex project requiring intricate data collection instruments, a multi-stage sampling scheme, extensive fieldwork arrangements and a hierarchical data set. Given the complexity of the study, considerable effort was taken to test and refine the RUMS approach prior to implementing the survey. Chapter I details the research design, methods and procedures utilised in RUMS.

The material in this chapter is divided into two parts. Part A sets out the study's aim, the specific objectives and the key research questions; the overall design of this study and the data sources. Part B describes specific research methods and techniques used for sampling, data collection management and analysis; and research procedures, including those to ensure ethical conduct of research. The material in this chapter is divided into several sections and the material is structured under the following subheadings:

Part A: Background

1.1 The aim, key research questions and specific objectives

1.1.1 Overall aim

The *RUM Project*, a national scheme, provides for unwanted and out-of-date medicines to be received by community pharmacies from consumers. The *RUM Project* encourages the return and safe disposal of unwanted medicines which could otherwise poison consumers, lead to misuse of medicines and run the risk of environmental toxicity through poor disposal practices.

The focus of the study is on prescription medicines. The study aims at an accurate description of actual returns and an understanding of the behaviour of both consumers and pharmacists under the scheme. In this way, the study will give insights into the success of the *RUM Project* and suggest areas where a change in approach may be desirable.

1.1.2 The key research questions are:

- What are consumer practices related to return of unwanted and out-of date medicines to community pharmacies?
- What are the social and demographic influences underpinning consumer practices related to return of unwanted and out-of date medicines to community pharmacies?
- What medicines are being returned by consumers to community pharmacies and why are these medicines not wanted or not needed by consumers?

More specifically, this study aims to examine consumer practices related to the disposal of unwanted and out-of date medicines among consumers in metropolitan Melbourne, Australia. Investigation is directed towards identifying and describing:

- demographic, social and cultural influences on consumer practices related to return of medicines to community pharmacies;
- sources of consumer information about the disposal of unwanted medicines;
- consumer practices related to return of medicines that may jeopardise the principles of QUM; and
- community pharmacies' activities relating to disposal of unwanted medicines.

It is anticipated that findings from this study will enhance understanding of consumer practices related to the disposal of medicines and inform the development of programs and activities that promote safe practices in the disposal of unwanted medicines in the context of the QUM principles. Ultimately the outcomes of the study will augment QUM among Australian consumers.

1.2. The overall methodological approach and design

The overall methodological approach to RUMS is quantitative. In general, quantitative approaches are most appropriate where an accurate description of the scope and extent of community behaviour is required. This approach allows us to produce important information on consumer practices relating to the return of unwanted and out-of-date medicines to community pharmacies, the kinds of medicines that are being returned and the reasons for return.

RUMS has been designed as a survey of those occasions when consumers in Melbourne, Australia returned unwanted and out-of-date medicines to pharmacies for safe disposal. It collected data both on the consumers themselves and on the actual medicines returned to community pharmacies. The study was carried out in the Melbourne metropolitan area, with collection of data over approximately five months ending in July 2004.

1.2.1 Research stages

RUMS was conducted in two overlapping stages. The objectives of Stage I were threefold. Firstly, it aimed to develop and refine appropriate research design, methods and instruments. Secondly, it aimed to develop research procedures and various research materials. Thirdly, it aimed to recruit and train community pharmacists for data collection. The objective of Stage II was to collect and analyse data in order to meet the overall aim and the specific objectives of RUMS and to address the key research questions.

Stage I major activities aimed to:

- establish project processes, procedures and protocols;
- implement procedures to ensure ethical conduct of research and the privacy of participating consumers;
- publicise the study to aid the recruitment of data collectors (pharmacists and/or pharmacy students);
- select a sampling frame and apply sampling techniques;
- recruit data collectors and provide appropriate training;
- validate and refine research instruments;
- develop and refine various study materials, including training materials; and

- arrange for printing and postage of various study materials.

Stage II major activities aimed to:

- collect, store and manage data;
- provide support to participating pharmacies;
- develop relevant databases for data entry;
- develop and implement quality assurance processes for data verification and cleaning;
- identify existing sources suitable for data verification; and
- analyse data and report findings.

1.2.2 Project materials

The materials[1] specifically designed for this study incorporated:

- Plain language statement for data collectors (Appendix 1);
- Plain language statement for participating consumers (Appendix 2);
- Consent form for data collectors (Appendix 3);
- Survey Completion Instruction Manual (the Manual) (Appendix 4); and
- Covering letter to data collectors (Appendix 5).

The materials mentioned above were used in various ways. First, the materials were used to provide general information about the study's aims, methodology, procedures and anticipated use of data. Then, they were utilised for training of data collectors. Some materials were also useful to publicise RUMS. The materials also addressed issues of privacy to enhance ethical conduct of research. Thus, plain language statements provided participants with explicit assurances of privacy and safety.

Part B: Overview of research methods and procedures

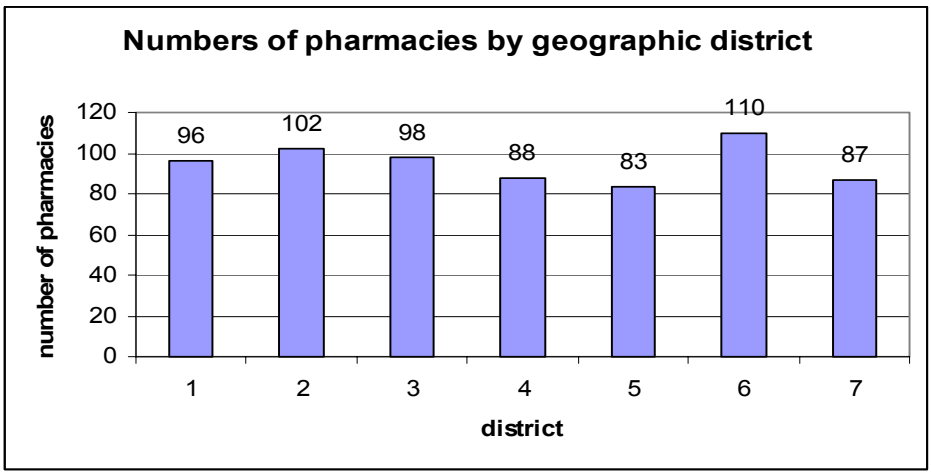
1.3. Sampling and the sample

The primary population of interest to this project consisted of the all the medicines returned to community pharmacies in Melbourne. Secondary populations of interest were the people who returned these medicines and the pharmacies which accepted them. A three-stage sampling approach was used.

[1] All project materials included the RUM Project logo.

In the first stage, Melbourne was divided into seven strata (see Appendix 6), based on the seven districts used by the Pharmacy Guild of Australia Victorian Branch) (the Guild), totalling 664 pharmacies (see Figure 1.1).

Figure 1.1: Numbers of Pharmacies by Geographic District



The number of participating pharmacies was determined by the Board of the *RUM Project* (the Board). The Board recommended the sample size of 100 pharmacies overall, representing a sampling ratio of approximately 15 percent.

In order to ensure consistency in the selection process, 137 pharmacies (a sampling ratio of approximately 20 percent) were sampled for the initial contact (see 4.1 Recruitment rounds later in this chapter) using probability proportionate to size for each stratum. Following the initial contact (see 4.1 Recruitment rounds later in this chapter), representatives from 128 pharmacies expressed their interest in participating. Following the second contact, representatives from 121 pharmacies agreed to participate, yielding a response rate of 88 percent. The strategy of over sampling was used to ensure consistency in recruitment and training of participating pharmacies in case some withdrew from the study prior to the completion of data collection. Twenty one pharmacies withdrew from RUMS prior to the completion of data collection. Hence the sample size of 100 pharmacies was achieved. Within each stratum, pharmacies were selected at random from those known to be participating in the *RUM Project* and disposing of unwanted and out-of-date medicines for their consumers. A summary of the Stage 1 sampling approach is shown in Figure 1.2.

Figure 1.2: Stage One Sample Details

Sample	Type	A multistage probability sample
Sampling	Population	All community pharmacies located in metropolitan Melbourne, Australia
	Element	A pharmacy
	Frame	The Guild's database of pharmacies
	Strata	Seven geographic districts, totalling 664 pharmacies
	Techniques	Stratified Simple random within strata Probability proportionate to size

Participating pharmacies ranged in number of staff, hours of work per week and pharmacy location. The two kinds of pharmacies in RUMS categorised by location were: 'shopping strip pharmacy' and 'regional centre pharmacy'. By definition, 'shopping strip' is a pharmacy located in a localised shopping area where traffic flows though the area and 'regional centre' is a pharmacy located in a shopping centre which includes at least 25 stores, including a major supermarket, and off-street car parking. Among participating pharmacies 72 percent were regional centre and 28 percent were shopping strip pharmacies.

In the second stage, the project attempted a census of all occasions on which consumers returned medicines during the survey period, to the selected pharmacies. While it is theoretically possible that some consumers returned medicines on more than one occasion, this appeared rare. In this sense, data collected on those individuals who returned medicines can be considered reasonably representative of all consumers who returned medicines in the Melbourne area. Contact was maintained with pharmacies throughout the survey period in order to encourage a complete recording of occasions where medicines were returned.

In the third stage, data was collected on each medicine returned, for each occasion where a consumer returned any medicine. On average more than four medicines were returned per occasion. In total, 55 pharmacies reported returns on a total of 605 occasions. In total 2250 returned medicines were reported. These 2250 medicines can thus be considered a representative sample of all medicines returned in Melbourne during the data collection survey period.

1.4. Recruitment and training

Recruitment of pharmacists to participate in RUMS was undertaken in seven overlapping rounds (in accord with the number of strata). Overall, several strategies were applied to aid the recruitment process and to increase response rates. By the end of recruitment, approximately 88 percent of selected located and contacted pharmacists agreed to participate. By and large the challenges associated with the recruitment process reflected pharmacists' broad attitudes towards the *RUM Project*; diversity of existing pharmacy practices and availability of resources, as well

as pharmacists' attitudes towards and experiences with conducting research in a pharmacy setting.

Preceding recruitment, several strategies were applied to enhance response rates. These consisted of various activities aimed at publicising and promoting RUMS among pharmacists eligible for participation. First, an article about RUMS was published in the Pharmacy Guild's monthly newsletter, which is distributed to all Victorian pharmacies. Then, information about the study was distributed via a pharmacists' email discussion group – *Auspharmlist*. Also, a joint letter from the Guild and the *RUM Project* (see Appendix 7) was sent to all pharmacies in metropolitan Melbourne. This letter emphasised the importance of this study to QUM and aimed to encourage pharmacists' interest in participating in RUMS. The letters were distributed in seven mail outs with each mail out being approximately a week ahead of the respective recruitment round.

1.4.1 Recruitment rounds

Each recruitment round (N=7), started with distribution of promotional letters to all pharmacies in the given strata, and then was followed by the first contact of randomly selected pharmacies within strata. The first contact was made by a representative of the research team over the telephone. The aim of the first contact was threefold. First of all, it aimed to identify the proprietor or a person nominated by the proprietor to discuss possible participation. Secondly, it aimed to provide information about RUMS and gain a general expression of interest in participating. Thirdly, it aimed to establish rapport with a person nominated and create a feeling of trust as a means to future cooperation.

Due to the vast diversity of business and staffing arrangements within individual practices, as well as various commitments of pharmacists, making the first contact presented the research team with a considerable challenge. At this stage, it took more than 600 telephone calls to achieve the first contact with all pharmacists concerned.

During the first contact, a representative of the research team:

- referred to the letter mentioned above and the article published in the Guild's newsletter;
- provided information about what RUMS was about and who was able to participate as a data collector;
- discussed the voluntary nature of participation and issues of privacy for both pharmacists and their clients;
- explained what participation entailed and remuneration for pharmacists;
- gained pharmacists' interest in participation and offered to send an information pack with the RUMS materials; and

- established pharmacists' preferred times for callbacks.

Approximately 128 pharmacies expressed their interest, in principle, and requested the RUMS materials, with several requesting more than one information pack. Altogether, 142 information packs were distributed following the first contact.

The second contact was made within a couple of weeks and over the telephone. The aim of the second contact was to recruit pharmacists and to arrange for training. During the second contact, a representative of the research team:

- responded to a range of queries regarding the study;
- established preferred ways of communicating with pharmacists concerned;
- explained relevant processes and procedures in a greater detail; and
- arranged for a training session.

All recruited pharmacies were assigned a Pharmacy Identification number. This number was quoted in all relevant communication and correspondence and was also used for data collection, management and analysis purposes.

During the second contact, the representative of the research team also collected information about participating pharmacies, facilitated signing of the consent form and arranged for training at a time convenient for the participating pharmacists. Following the second contact, approximately 32 additional information packs were sent to replace those lost or discarded.

1.4.2 Challenges associated with recruitment

Strategies used in RUMS to achieve high response rates were also imperative to meeting numerous challenges associated with recruitment. Those reflected the diversity of existing pharmacy practices; various constraints associated with the everyday pharmacy operation; pharmacists' general attitudes towards the *RUM Project*; pharmacists' attitudes towards research conducted in a pharmacy setting; and their experience with conducting research.

The majority of pharmacists endorsed RUMS as an important initiative of the *RUM Project* and the Guild and expressed their interest in the important issue under investigation as well as the research outcomes. These pharmacists made many encouraging comments with regard to RUMS design, processes and procedures and, more specifically, the RUMS materials. Notwithstanding their interest and support, some pharmacists were not able to participate in RUMS due to existing barriers. Thus, pharmacists who reported *'being short on…'* or *'having recent change of...'* staff thought that participation in RUMS may impact on their business and provision of services to

their clients. Among pharmacists who expressed positive attitudes towards the *RUM Project* and RUMS, some also declined participation due to the very limited number of medicines returned by their consumers.

There was, however, a small group of pharmacists who declined participation because they either doubted the value of the *RUM Project* or RUMS; objected to any research in a pharmacy setting; felt that pharmacies were *'over researched'*; reported having limited skills or no interest in conducting research; or felt that the level of remuneration for RUMS data collection was insufficient.

1.4.3 Training

The objectives of training incorporated provision of step-by-step instructions with regard to data collection, recording and short term storage. Issues of privacy and confidentiality were emphasised, in particular anonymity of participants and access to data. Finally, pragmatic matters such as means to return completed *surveys*, remuneration for data collection and reimbursement of pharmacists for associated expenses were clarified.

The vast majority of pharmacists requested that training be provided over the telephone. There were also some pharmacists (N=14) who requested a face-to-face training session. Those often reported having limited experience with research.

Various RUMS materials were utilised in training. Thus the plain language statement for data collectors (Appendix 1) was used to provide pharmacists with background information about the study's aims, methodology and procedures; the anticipated use of data; eligibility for participation; and issues of privacy and possible risks for either pharmacists and/or consumers. Whilst the plain language statement provided more general information about the study, the Manual (Appendix 4) provided pharmacists with step-by-step instructions about how to collect, record and store the data.

In order to facilitate training over the telephone, relevant project materials were colour coded:

- Plain language statement for data collectors (cream);
- Plain language statement for participating consumers (lilac); and
- Manual (yellow).

Also, text of particular importance in the Manual was highlighted and printed in red.

1.5. Data collection

1.5.1 Methods of data collection

The methods of data collection for this study comprised a combination of interviews and observation. Both data collection methods utilised in RUMS collected quantitative information and utilised 'structured' research instruments for data collection and recording (see Figure 1.3).

Figure 1.3: Data Sources and Methods of Data Collection and Recording

Data sources	Data collection methods	Characteristics of data collection methods	Instruments	Data recording
consumers	interview	▪ structured ▪ individual ▪ conducted face-to-face	*the survey*	note taking/ pen & paper
pharmacists	interview	▪ semi-structured ▪ individual ▪ conducted over the telephone	pharmacy data logbook	note taking/ pen & paper
returned medicines	observation*	▪ structured	the audit of medicines returned in *the survey*	note taking/ pen & paper

* recording of returned medicines and their characteristics.

There were two types of interviews employed: interviews with consumers and interviews with participating pharmacists. Interviews with consumers collected information about consumers and their practices associated with return of unwanted and out-of-date medicines to community pharmacies. These *structured* interviews were conducted by pharmacists face-to-face with individual consumers returning medicines for ultimate disposal. Interviews with participating pharmacists were *semi-structured.* These interviews were conducted by a representative of the research team over the telephone and collected data pertinent to the participating pharmacy.

RUMS recorded the medicines which were returned and their characteristics (e.g. name and therapeutic class of medicine, quantity returned, amount of medicine unused, poison category). The value of this method is that it can highlight the issues missed by interviews and provide additional, factual information about consumer behaviour. The use of observation was particularly valuable for its ability to collect data in a non-interventionist way.

The conduct of the interview and the audit of returned medicines were facilitated by the use of a structured research instrument – Returned Medicines Survey (*the survey*). *The survey* consisted of two sections: a questionnaire and an audit of medicines returned. The first section, the questionnaire, comprised sets of close-ended questions, provided previously designed fixed responses and also permitted recording of free responses. The second section contained the audit

of returned medicines which allowed recording of either free responses (i.e. medicines' names) or pre-coded information (i.e. medicines' form, presentation etc). The use of a structured instrument was particularly useful in enhancing comparability of responses and reducing the overall time of data collection. Interviews with pharmacists consisted of a small set of close-ended and open-ended questions, and permitted free responses. Information collected in the course of interviews with pharmacists was recorded in the Pharmacy Data Logbook (see Appendix 8).

The development and validation of the research instrument (*the survey*) utilised in RUMS was undertaken by Dr Bella Brushin in a pilot study, 'Returned Medicines Survey: Development of Instruments for Data Collection and Recording', conducted in Melbourne, Australia in 2002. The pilot study[2] was commissioned and funded by the National Medicines Policy Section, Pharmaceutical Access & Quality Branch of the Commonwealth Department of Health and Ageing. The conduct of the pilot was approved by the Human Research Ethics Committee of Deakin University.[3]

The survey intended data-gathering to investigate consumer practices associated with return of unwanted and out-of-date medicines to community pharmacies for ultimate disposal, and the actual medicines returned. Along with translating a research problem into a questionnaire or a survey, there were also specific recommendations concerning possible field constraints, for example, the overall time of data collection and applicability of *the survey* in the context of pharmacy practice. In addition, some recommendations were intended to address ethical and privacy issues.

The survey developed in the pilot study was slightly modified for the study in RUMS. Following recommendations from the Board, several questions concerning medication management were removed from *the survey*. While the exact order and wording of the majority of the questions remained the same, the changes introduced to *the survey* format and layout necessitated piloting and testing of subsequent versions of *the survey* for their validation. These were completed at the initial stage of RUMS (see a copy of the final version of *the survey* in Appendix 9).

1.5.2 Strategies to improve data collection

In line with RUMS' original design, contacts with participating pharmacists subsequent to recruitment had to be limited to:

a) piloting and validating of the revised research instrument and the RUMS materials;

[2] Dr Brushin has been engaged as a chief investigator in her capacity as a member of the Pharmaceutical Health and Rational Use of Medicines Consumer Subcommittee. Associate Professor Paul Komesaroff (Monash University) acted as co-investigator and assisted with ethics application.

[3] Ethics approval reference EC 68-2002.

b) one formal follow-up aimed to encourage and support data collection;
c) final follow-up undertaken to arrange for collecting the completed *surveys* and remunerating pharmacists for data collection.

The first formal follow-up conducted in January and February 2004 revealed various problems with data collection and additional field constraints. Overall, there were very low numbers of completed *surveys* at the time. Some pharmacies had been sold and the previous owner had not notified the research team about the changes, nor given details about RUMS to the new pharmacy owner. In some instances, pharmacy staff nominated and trained for data collection had ceased their employment or retired from the pharmacy concerned. Hence another person from the same pharmacy had to be nominated and trained in data collection. In many instances the RUMS materials and the *survey* forms were reported lost or discarded.

Outcomes of the first formal follow-up demonstrated that participating pharmacies needed much more support and encouragement during data collection than was anticipated originally. Therefore three additional formal follow-ups were conducted in the course of data collection. In order to reiterate the importance of RUMS to QUM, a short article urging participating pharmacists to persist with data collection was published in the Guild's newsletter and a similar message was circulated via the pharmacists' email discussion group.
Additional contacts with participating pharmacists were made over the telephone (more than 1200 phone calls were made). The final follow-up was undertaken over the telephone (300 telephone calls), by letter (25 letters) and by facsimile (40 facsimiles) and via the pharmacists' email discussion group.

1.6. Data management and analysis

1.6.1 Data coding

RUMS data coding procedures were essential to data management and analysis as well as the accuracy and consistency of data.

RUMS data collection generated vast amounts of raw data. Data coding enabled systematic reorganisation of raw data into a format that was suitable for data entry, data manipulation and subsequent analysis. The use of a coding procedure was particularly valuable to allow data capture of free responses and data on the medicines returned. A coding manual – the RUMS Data Coding Manual (see Appendix 10) – was developed to facilitate coding procedures. This document described the coding procedure, a range of codes assigned to variables and the location of data for variables.

1.6.2 Quality assurance

Coding procedures also enhanced the accuracy and consistency of data by addressing human error introduced at the data collection stage. There were raw data concerning medicine names and therapeutic classes that were incomplete, not consistent or misspelled. Some records were difficult to read due to problems with handwriting of the data collector concerned. Here, creating look up tables with a range of codes for medicines and therapeutic classes derived from reliable sources was essential to the accuracy and consistency of coding.

Sources for information utilised in coding of medicines and therapeutic classes incorporated the Pharmaceutical Benefits Schedule (PBS)[4] of the Australian Government's Pharmaceutical Benefits Scheme and the Australian Medicines Handbook[5] (AMH). The names of the medicines returned and their therapeutic class were first identified and verified by using PBS data. Each medicine/therapeutic class was assigned a numeric code.

As coding procedure is open to human error, several quality assurance processes were introduced to ensure the accuracy and consistency of data:

a) the assigned numeric codes were **verified** by the second operator;
b) computerised statistical procedure was utilised for **identification** of missing data and inconsistencies in coding; and
c) inconsistencies in coding were addressed by recoding of relevant data.

As described above, the names of the medicines returned and their therapeutic class were first identified and verified by using PBS data. However, approximately 300 medicines were not identified initially because they were not listed on PBS. These medicines were identified and verified in a follow-up process by using AMH as a source of information. These medicines were also assigned a numeric code which was then added to the look up tables.

In addition, data cleaning procedures were carried out concurrently with preliminary analysis of data. Data cleaning consisted of identification of missing or inconsistent data and checking those by referring to raw data.

1.6.3 Data analysis

The RUMS data set was hierarchical. For each occasion where a consumer returned medicines, a single questionnaire was completed. However, the number of medicines varied from one occasion

[4] Commonwealth of Australia, 2004, *Schedule of Pharmaceutical Benefits for Approved Pharmacists and Medical Practitioners* <http://www.health.gov.au/pbs/scripts/search.cfm> (August – October 2004).
[5] Australian Medicines Handbook 2004, Australian Medicines Handbook Proprietary Limited.

to the next. This meant that varying sets of returned medicines had to be linked to each questionnaire – technically known as a hierarchical (or relational) data set.

Separate analyses were conducted of the questionnaire data and of the returned medicines data. These analyses aimed at describing the characteristics of consumers and the returned medicines. In addition, the two data files were restructured into a single data file, allowing an analysis to be made relating consumer characteristics to returned medicine characteristics.

Where relationships in the data were discovered, they were tested for statistical significance, using the usual 5 percent criterion. All results quoted were significant at this level, unless otherwise stated. Appropriate parametric and non-parametric tests were used.

1.7. Ethical and privacy issues

The ethical dilemmas of fieldwork in research that involves human subjects are largely associated with issues of privacy or confidentiality; and possible exposure of subjects to harm.[6] Several procedures ensured the ethical conduct of RUMS. The aims of these procedures were twofold. First, the aim was to ensure that the research processes and procedures did not jeopardise participants' privacy in any way and that participants were not exposed to any physical or emotional harm. The second aim was to provide participants with explicit assurances about their privacy and safety.

Ethical and privacy issues in research conduct were to the requirements of the Code of Professional Behaviour of the Australian Market & Social Research Society and the Market & Social Research Privacy Principles.[7] RUMS design and procedures were to the requirements of the Statistical Clearing House of the Australian Bureau of Statistics.[8]The development and validation of *the survey* were approved and overseen by the Human Research Ethics Committee of Deakin University.[9]

In RUMS, the privacy of participants was ensured by protecting the identity of participants and the confidentiality of data. For example, no identifiable information was collected from participating consumers and all empirical materials were coded. Access to identifiable data (pharmacist's consent to participation forms) was limited to the members of the research team. Provisions were made to preserve confidentiality of records.

[6] National Health and Medical Research Council 1995, Canberra.
[7] This code was approved by the Privacy Commissioner on 27 August 2003. This code is administered by the AMRO Secretariat, and is subject to independent review by the Independent Code Review Panel.
[8] An agency of the Australian Government.
[9] Ethics approval reference EC 68-2002.

All participants were provided with detailed explanations of the study's aims, research methods and procedures, the possible use of data, and the processes concerning protection of participants' identity and confidentiality of data. This information was provided in various forms: verbally and by provision of written information. All information emphasised the voluntary nature of participation and the responsibilities of the researchers.

CHAPTER II: RESEARCH FINDINGS – CONSUMER CHARACTERISTICS & PRACTICES ASSOCIATED WITH RETURN OF UNWANTED MEDICINES

Introduction

Chapter II describes RUMS findings with regards to the key research questions (see Chapter I). This chapter focuses on socio-demographic characteristics of consumers and various aspects of consumer practices relating to the return of unwanted and out-of-date medicines to community pharmacies.

Findings in this chapter are derived from the analysis of data collected in interviews for each occasion where a consumer returned a medicine to a participating pharmacy, and from observations of the medicines returned. Data related to community pharmacies was collected from interviews with participating pharmacists.

The material in this chapter is divided into several sections. Part A describes socio-demographic characteristics of consumers. Part B focuses on various aspects of consumer practices relating to the return of unwanted medicines. The material is structured under the following subheadings:

Part A: Socio-demographic characteristics of consumers

2.1 Age, gender and levels of education reached

2.2 Country of birth and language spoken at home

2.3 Place of residence and living arrangements

Part B: Consumer practices associated with the return of unwanted medicines

2.4 Locations, prior experience and occurrences of returns

- 2.4.1 Locations
- 2.4.2 Prior experiences and occurrences

2.5 Return of own medicines and those prescribed to or used by others

2.6 Sources of consumer information

It is important to stress that, in the context of RUMS and this report, the definition of 'consumer(s)' is operational and refers to the people who returned medicines to participating pharmacies and responded to *the survey* questions. The terms 'consumer(s)' and 'respondent(s)' are used interchangeably here.

Part A: Socio-demographic characteristics of consumers

In total, 605 consumers participated in the study. In terms of socio-demographic characteristics, consumers varied in age; gender; levels of formal education reached; country of birth; language spoken at home; place of residence and living arrangements.

2.1 Age, gender and levels of education reached

As expected, the proportion of older consumers in RUMS was higher than among the whole adult population. Thus, in the 2001 Census, the proportion of the population in Australia aged 50 years and over was 29 percent,[10] whereas in RUMS, the proportion of consumers aged 50 years and over was approximately 75 percent (see Figure 2.1). In Melbourne persons aged 65 years and over accounted for 12.5 percent of the population,[11] whereas in RUMS consumers aged between 65 to 79 years returned medicines much more frequently than people in any other age group (36.5 percent). This is partly accounted for by a higher usage of medications by older Australians compared with the whole adult population.[12]

Figure 2.1: Age Group

	Age group	Frequency	Percent	Valid percent	Cumulative percent
Valid	**18–34**	46	7.6	7.8	7.8
	35–49	101	16.7	17.1	25.0
	50–64	151	25.0	25.6	50.6
	65–79	221	36.5	37.5	88.1
	80+	70	11.6	11.9	100.0
	Total	589	97.4	100.0	
	Missing System	16	2.6		
Total	605	100.0			

Findings from RUMS suggest that there are considerable gender differences relating to the consumer behaviours associated with the return of unwanted medicines to community pharmacies. Males are much less likely to return medicines to pharmacies than females. The proportion of female respondents in RUMS was approximately two times greater (61.3%) than the proportion of males (32.6%) whereas the number of males per one hundred females, or the sex ratio,[13] among the whole population in Melbourne is 97.2.[14] There are several explanations of a higher proportion of females in RUMS. Firstly, it reflects the higher proportion of older people

[10] Australian Bureau of Statistics 2004, *Year Book Australia*, *1301.0 – 2004: Population. Population projections*, <http://www.abs.gov.au/Ausstats/abs@census.nsf> (20 October 2004).
[11] Australian Bureau of Statistics 2004, *2001 Census Basic Community Profile and Snapshot ,205 Melbourne (Statistical Division), 3235.2.55.001 Population by Age and Sex, Victoria* <http://www.abs.gov.au/Ausstats/abs@census.nsf> (20 October 2004).
[12] Australian Bureau of Statistics 2002, *4364.0 National Health Survey – Summary of Results, Australia,* <http://www.abs.gov.au/Ausstats/abs@.nsf> (19 October 2004).
[13] The sex ratio is the number of males per one hundred females. A sex ratio less than 100 indicates that there are fewer males than females.
[14] Australian Bureau of Statistics 2004, *2001 Census Basic Community Profile and Snapshot ,205 Melbourne (Statistical Division), 3235.2.55.001 Population by Age and Sex, Victoria*, <http://www.abs.gov.au/Ausstats/abs@census.nsf> (20 October 2004).

returning medicines to community pharmacies. The sex ratio in people aged 60 years and over is lower than among the whole population due to the longer life expectancy of females. Secondly, as revealed by the Australian National Health Surveys, a higher proportion of females than males use medications for all medication types and across most age groups.[15,16] The higher proportion of females in RUMS may also be associated with women's social and gender roles relating to the use of medicines, in particular the roles they play as carers for children and the elderly.

In terms of the levels of formal education reached, RUMS respondents (see Figure 2.2) had similar characteristics compared to the whole population in Melbourne. The highest proportion of RUMS respondents completed secondary or high school (46.1%). The proportions of respondents who held a bachelor degree or higher (18%) was comparable with 2001 Census data for Melbourne where 12.1 percent held a bachelor degree and 4.1 percent held a higher degree. Similarly, proportions of people with a diploma, trade certificate or similar were comparable with 2001 Census data for Melbourne. A further 0.7 percent of respondents stated a qualification outside of the scope of the standard classification.

Figure 2.2: Highest Level of Education Reached

	Educational level	Frequency	Percent	Valid percent	Cumulative percent
Valid	Primary school	36	6.0	6.2	6.2
	Secondary/High school	279	46.1	48.2	54.4
	Trade certificate or similar	69	11.4	11.9	66.3
	Diploma or similar	77	12.7	13.3	79.6
	Bachelor degree or higher	114	18.8	19.7	99.3
	Other	4	0.7	0.7	100.0
	Total	579	95.7	100.0	
	Missing System	26	4.3		
Total		605	100.0		

2.2 Country of birth and language spoken at home

Findings from RUMS suggest that overseas-born Australians, particularly those born in non English speaking (NES) countries, are less likely to return unwanted and out-of-date medicines to pharmacies than their Australian-born counterparts. In RUMS, 73.9 percent of respondents stated that they were Australian-born (see Table 2.3). This is a higher proportion compared with the 2001 Census data, where only 65.7 percent of people in Melbourne stated that they were

[15] Australian Bureau of Statistics 2002, *4364.0 National Health Survey – Summary of Results, Australia*, <http://www.abs.gov.au/Ausstats/abs@.nsf> (19 October 2004).
[16] Australian Bureau of Statistics 1999, *4377.0 National Health Survey, Use of Medications, Australia*, <http://www.abs.gov.au/Ausstats/abs@.nsf> (21 October 2004).

Australian-born. Among overseas-born respondents there were 10.4 percent born in an English speaking country including Ireland, New Zealand, Scotland, Singapore, South Africa, UK and USA. Only 12.7 percent of respondents stated that they were born in a non English speaking (NES) country. The NES countries of birth represented in RUMS were Brazil, Ceylon, China, Egypt, Fiji, Germany, Greece, Holland, Hong Kong, India, Israel, Italy, Malaysia, Malta, Mauritius, Morocco, Poland, Thailand and Vietnam.

Figure 2.3: Country of Birth

	Country of birth	Frequency	Percent	Valid percent	Cumulative percent
Valid	Australia	447	73.9	76.1	76.1
	English speaking country	63	10.4	10.7	86.9
	NES country	77	12.7	13.1	100.0
	Total	587	97.0	100.0	
	Missing System	18	3.0		
Total		605	100.0		

Findings from RUMS suggest that Australians who speak a language other than English (LOTE) at home are less likely to return unwanted medicines to pharmacies than their counterparts for whom English is the only language spoken at home. In RUMS, English was stated as the only language spoken at home by 85 percent of respondents (see Figure 2.4). This represented a higher proportion comparing with the whole population in Melbourne where 69.4 percent of people stated that English was the only language spoken at home.[17] In RUMS, 5.5 percent of consumers reported speaking English and a LOTE at home and only 4.8 percent stated a LOTE as the only language spoken at home. This indicated a considerably lower proportion of people who speak a LOTE at home than national data (approximately 16 percent of the whole population speaking LOTE at home).[18] On occasions where consumers reported speaking English and another language, these languages included Cantonese, Dutch, French, Greek, German, Italian, Maltese, Russian and Thai. On occasions where a LOTE was the only language spoken at home, these languages included German, Greek, Hebrew, Italian, Portuguese, Chinese/Cantonese, Macedonian and Vietnamese.

[17] Australian Bureau of Statistics 2004, *2001 Census Basic Community Profile and Snapshot ,205 Melbourne (Statistical Division), 3235.2.55.001 Population by Age and Sex, Victoria* <http://www.abs.gov.au/Ausstats/abs@census.nsf> (20 October 2004).
[18] Australian Bureau of Statistics 2002, *Australian Social Trends 2002Population-Population Composition: Older overseas-born Australians*, <http://www.abs.gov.au/austats/abs@.nsf> (11 August 2004).

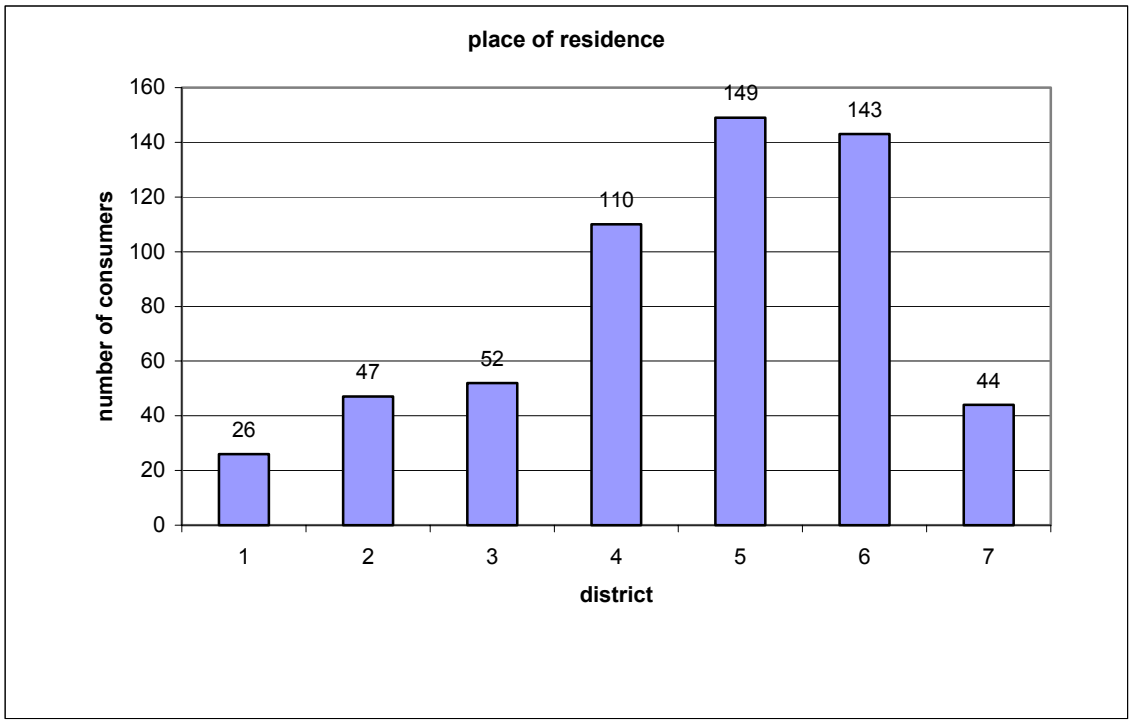
Figure 2.4: Languages Spoken at Home

	Languages spoken at home	Frequency	Percent	Valid percent	Cumulative percent
Valid	English	514	85.0	89.2	89.2
	English and other	33	5.5	5.7	95.0
	LOTE (languages other than English)	29	4.8	5.0	100.0
	Total	576	95.2	100.0	
	Missing System	29	4.8		
Total		605	100.0		

2.3 Place of residence and living arrangements

The majority of respondents stated a postcode of their residence that was within the scope of the Guild's classification in metropolitan Melbourne (see list of relevant suburbs in Appendix 6). Data relating to the consumer places of residence (by postcode) within the scope of the Guild's classification is shown in Figure 2.5.

Figure 2.5: Places of Residence



The highest proportion of respondents resided in areas 5, 6 and 4 (24.6%, 23.6% and 18.2% respectively). A lesser proportion of respondents resided in areas 3, 2, 7 and 1 (8.6%, 7.8%, 7.3% and 4.3% respectively). A further 5.7 percent of respondents stated a postcode of residence that was outside of the scope of the Guild's classification for metropolitan Melbourne.

Findings from RUMS suggest that Australians who reside in districts 5, 6 and 4 are more likely to return unwanted medicines to pharmacies than their counterparts who live in other areas (see Figure 2.5).

This may highlight different levels of awareness about the *RUM Project* among relevant populations and/or disparities in the socio-demographic make-up and social trends of relevant areas. For example, within district 4 (one of the districts with a higher proportion of returns) there was the highest proportion of consumers having reached a bachelor degree or higher (see Figure 2.6) and the highest proportion of people born in Australia (see Figure 2.7).

Figure 2.6: Highest Level of Education Reached by Pharmacy District

			Consumer area – according to pharmacy district									Total
			0**	1	2	3	4	5	6	7	8**	
Highest level of education reached	Primary school	Count	2	3	3	7	5	8	7	0	1	36
		%*	14.3	12.5	6.4	13.5	4.5	5.6	5.0	0.0	25.0	6.2
	Secondary/ High school	Count	5	9	27	32	48	67	62	29	0	279
		%*	35.7	37.5	57.4	61.5	43.6	46.9	44.0	65.9	0.0	48.2
	Trade certificate or similar	Count	2	2	3	4	10	13	30	5	0	69
		%*	14.3	8.3	6.4	7.7	9.1	9.1	21.3	11.4	0.0	11.9
	Diploma or similar	Count	2	4	10	1	16	21	20	2	1	77
		%*	14.3	16.7	21.3	1.9	14.5	14.7	14.2	4.5	25.0	13.3
	Bachelor degree or higher	Count	3	5	3	8	31	33	21	8	2	114
		%*	21.4	20.8	6.4	15.4	28.2	23.1	14.9	18.2	50.0	19.7
	Other	Count	0	1	1	0	0	1	1	0	0	4
		%*	0.0	4.2	2.1	0.0	0.0	0.7	0.7	0.0	0.0	0.7
Total		Count	14	24	47	52	110	143	141	44	4	579
		%*	100	100	100	100	100	100	100	100	100	100

* % within consumer area – according to pharmacy district ** postcodes outside Guild's classification

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson chi-square	69.027(a)	40	0.003
Likelihood ratio	72.298	40	0.001
Linear-by-linear association	0.461	1	0.497
N of valid cases	579		
(a) 25 cells (46.3%) have expected count less than 5. The minimum expected count is 0.03.			

Figure 2.7: Country Code by Pharmacy District

			Consumer area – according to pharmacy district									Total
			0	1	2	3	4	5	6	7	8	
Country Code	**Australia**	Count	12	19	36	34	89	111	109	33	4	447
		%*	85.7	73.1	76.6	65.4	82.4	74.5	76.2	75.0	100.0	76.1
	English speaking country	Count	2	0	1	7	5	15	28	5	0	63
		% *	14.3	0.0	2.1	13.5	4.6	10.1	19.6	11.4	0.0	10.7
	NESB country	Count	0	7	10	11	14	23	6	6	0	77
		%*	0.0	26.9	21.3	21.2	13.0	15.4	4.2	13.6	0.0	13.1
Total		Count	14	26	47	52	108	149	143	44	4	587
		%*	100	100	100	100	100	100	100	100	100	100

* % within consumer area - according to pharmacy district ** postcodes outside Guild's classification

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson chi-square	43.536(a)	16	0.000
Likelihood ratio	51.089	16	0.000
Linear-by-linear association	1.968	1	0.161
N of valid cases	587		
(a) 8 cells (29.6%) have expected count less than 5. The minimum expected count is 0.43.			

Thirty four percent of consumers reported living in group households with one other person and a further 22.0 percent reported living with two other people. A lower proportion of RUMS respondents were living in group households with 4, 5 or 6 other people (7.3%, 0.8% and 0.7% respectively). A total 102 consumers (16.9%) reported living in the same households with children younger than 18 years. The number of children within these households ranged from one to four. There was a significant difference between the whole population in Melbourne and RUMS respondents with regard to the proportion of people living in lone person households. There were 8.7 percent of people in lone person households in the 2001 Census,[19] whereas only 0.4 percent of RUMS respondents stated that they were living alone.

Part B: Consumer practices associated with the return of unwanted medicines

2.4. Locations, prior experience and occurrences of returns

2.4.1. Locations

Findings from RUMS demonstrate that consumers in the Melbourne area are more likely to return medicines to the same pharmacy than to different pharmacies. Here, 85 percent of those individuals who provided responses about whether they 'usually return unwanted medicines' to the same pharmacy or different pharmacies, reported returning medicines to the same pharmacy, whilst only 15 percent reported 'usually' returning medicines to different pharmacies.

[19] Applicable to families and persons in occupied private dwellings.

Figure 2.8 'Do you usually return unwanted medicines to ... ?' by Pharmacy District

			Consumer area – according to pharmacy district									Total
			0**	1	2	3	4	5	6	7	8**	
Do you usually return unwanted medicines to ...?	Same pharmacy	Count	17	12	31	28	71	84	69	27	1	340
		% *	94.4	66.7	77.5	84.8	86.6	88.4	87.3	79.4	100	85.0
	Different pharmacies	Count	1	6	9	5	11	11	10	7	0	60
		%*	5.6	33.3	22.5	15.2	13.4	11.6	12.7	20.6	0.0	15.0
Total		Count	18	18	40	33	82	95	79	34	1	400
		%	100	100	100	100	100	100	100	100	100	100

* within consumer area – according to pharmacy district ** postcodes outside Guild's classification

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson chi-square	10.152(a)	8	0.254
Likelihood ratio	9.462	8	0.305
Linear-by-linear association	0.706	1	0.401
N of valid cases	400		
(a) 5 cells (27.8%) have expected count less than 5. The minimum expected count is 0.15.			

As data in Figure 2.8 illustrate, consumers residing in districts 5, 6, 4 and 3 are more likely to return medicines to the same pharmacy than consumers residing in areas 1, 2 and 7.

Analysis of RUMS data also revealed some statistical association between the age and practices of returning medicines to either the same or different pharmacies. Thus older consumers were more likely to return medicines to the same pharmacy (see figure 2.9) than their younger counterparts.

Figure 2.9 'Do you usually return unwanted medicines to ... ?' by Age Group

			Age Group					Total
			18–34	35–49	50–64	65–79	80+	
Do you usually return unwanted medicines to ...?	Same pharmacy	Count	14	47	77	148	46	332
		%*	66.7	75.8	81.9	89.7	93.9	84.9
	Different pharmacies	Count	7	15	17	17	3	59
		%*	33.3	24.2	18.1	10.3	6.1	15.1
Total		Count	21	62	94	165	49	391
		%*	100	100	100	100	100	100

* % within age group

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson chi-square	16.150(a)	4	0.003
Likelihood ratio	15.534	4	0.004
Linear-by-linear association	15.831	1	0.000
N of valid cases	391		
(a) 1 cells (10.0%) have expected count less than 5. The minimum expected count is 3.17.			

* statistical test valid when 65–79 and 80+ age groups combined into one group

Several characteristics of participating pharmacies, for example number of staff, hours of work per week and pharmacy location, were analysed with respect to consumer practices of medicinal return. Findings reveal that number of staff and hours of work per week have no significant influence on consumer practices while pharmacy location has. The two kinds of pharmacies in RUMS categorised by location were: 'shopping strip pharmacy' and 'regional centre pharmacy'.

By definition, 'shopping strip' is a pharmacy located in a localised shopping area where traffic flows though the area, and 'regional centre' is a pharmacy located in a shopping centre which includes at least 25 stores, including a major supermarket, and off-street car parking. Analysis of RUMS data revealed that consumers are more likely to return medicines to a regional centre pharmacy. Thus, among pharmacies that reported returns 81.8 percent were regional centre and 18.2 percent were shopping strip pharmacies, while among pharmacies that reported no returns 60 percent were regional centre and 40 percent shopping strip pharmacies.

RUMS findings identify that overall, pharmacy characteristics appear to have limited influence on consumer behaviour associated with medicinal return. This indicates that pharmacists' own attitudes towards the *RUM Project* and their practices largely influence relevant consumer behaviours.

2.4.2. Prior experiences and occurrences

In RUMS, the proportion of consumers who returned medicines to a pharmacy in the Melbourne area for the first time was considered high. Thus 33.8 percent of consumers returned medicines for the first time and 66.2 percent of consumers reported that they had returned medicines to a community pharmacy prior to RUMS. Comparison of socio-demographic characteristics of consumers who returned medicines for the first time with those who had returned medicines before revealed that there is a statistical association between age and practices of medicinal return. Cross-tabulation of responses to the question 'Have you returned unwanted medicines before?' by age group in figure 2.10 demonstrates that the older the consumer the more likely they have prior experience of returning medicines to a community pharmacy.

Figure 2.10: 'Have You Returned Unwanted Medicines Before?' by Age Group

			Age Group					Total
			18–34	**35–49**	**50–64**	**65–79**	**80+**	
Have you returned unwanted meds before?	**Yes**	Count	20	60	91	159	50	380
		%*	43.5	60.0	62.3	75.0	71.4	66.2
	No	Count	26	40	55	53	20	194
		%*	56.5	40.0	37.7	25.0	28.6	33.8
Total		Count	46	100	146	212	70	574
		%*	100	100	100	100	100	100

* % within age group

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson chi-square	21.503(a)	4	0.000
Likelihood ratio	21.155	4	0.000
Linear-by-linear association	17.184	1	0.000
N of valid cases	574		
(a) 0 cells (0.0%) have expected count less than 5. The minimum expected count is 15.55.			

Reported time intervals between the current and the previous return varied (see Figure 2.11). However, the majority of people (61.2 cumulative percent) reported that they had returned medicines within one calendar year prior to RUMS. The relationships of consumer age and time intervals between the current and the previous returns are illustrated in Figure 2.12.

Figure 2.11: Time Interval between Current and Prior Return of Unwanted Medicines

		Frequency	Percent	Valid percent	Cumulative percent
Valid	**Six months**	136	22.5	33.4	33.4
	1 year	113	18.7	27.8	61.2
	2 years	47	7.8	11.5	72.7
	5 years	20	3.3	4.9	77.6
	Can't remember	85	14.0	20.9	98.5
	Other*	6	1.0	1.5	100.0
	Total	407	67.3	100.0	
	Missing System	198	32.7		
Total		605	100.0		

* other included 3 month (0.2%)

Figure 2.12: 'When Was Last Time You Returned Medicines?' by Age Group

Crosstab								
			Age Group					**Total**
			18–34	**35–49**	**50–64**	**65–79**	**80+**	
When was last time you returned medicines?	Six months	Count	11	15	38	50	20	134
		%*	50.0	23.8	40.4	31.3	40.8	34.5
	1 year	Count	6	15	24	43	15	103
		%*	27.3	23.8	25.5	26.9	30.6	26.5
	2 years	Count	1	8	13	21	3	46
		%*	4.5	12.7	13.8	13.1	6.1	11.9
	5 years	Count	1	7	3	6	2	19
		%*	4.5	11.1	3.2	3.8	4.1	4.9
	Can't remember	Count	3	15	14	39	9	80
		%*	13.6	23.8	14.9	24.4	18.4	20.6
	Other	Count	0	3	2	1	0	6
		%*	0.0	4.8	2.1	0.6	0.0	1.5
Total		Count	22	63	94	160	49	388
		%*	100	100	100	100	100	100

* % within age group

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson chi-square	25.034(a)	20	0.200
Likelihood ratio	24.387	20	0.226
Linear-by-linear association	0.270	1	0.603
N of valid cases	388		
(a) 11 cells (36.7%) have expected count less than 5. The minimum expected count is 0.34.			

2.5 Return of own medicines and those prescribed to or used by others

RUMS respondents returned medicines prescribed to and used by themselves (54.8%), themselves and others (15.4%) or others only (29.8%). Where returned medicines were prescribed to and/or used by 'others', the 'others' included family members such as spouses and partners (20.8%), children (10.9%), parents or other family (14.2%), flatmates and friends (3.3%). In addition, the 'others' included clients of health care institutions and residential care facilities (3.5%). Where consumers returned medicines that were prescribed to/used by 'others', these medicines used to belong to the 'other' consumer who had either passed away (14.9%), moved out of home and left their medicines behind (4.5%) or departed from a health institution (1.3%). In addition, some consumers stated that they return medicines for 'others' in order to be 'helpful' to other people (5.8%) or in the course of cleaning homes and/or cleaning out medicinal storage places at home (1.8%).

As Figure 2.13 shows, older consumers (aged over 65 years) and younger consumers (aged 18–34 years) are more likely to return own medicines, while consumers aged 35–49 years and 50–64 years are more likely to return medicines prescribed to and/or used by 'others only' or a combination of those and their own medicines.

Figure 2.13: 'Whose Medicines Did You Dispose of Today?' by Age Group

			Age Group					Total
			18–34	35–49	50–64	65–79	80+	
Whose medicines dispose of today?	**Yourself only**	**Count**	28	36	73	138	46	321
		%*	60.9	36.0	48.3	63.0	65.7	54.8
	Yourself and others	**Count**	5	31	22	28	5	91
		%*	10.9	31.0	14.6	12.8	7.1	15.5
	Others only	**Count**	13	33	56	53	19	174
		%*	28.3	33.0	37.1	24.2	27.1	29.7
Total		**Count**	46	100	151	219	70	586
		%*	100	100	100	100	100	100

* % within age group

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson chi-square	38.065(a)	8	0.000
Likelihood ratio	36.171	8	0.000

Linear-by-linear association	7.136	1	0.008
N of valid cases	586		
(a) 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.14.			

Figures 2.14 and 2.15 show influences of consumer age on practices of returning medicines for others in instances where the person that medicines have been prescribed to or used by has either passed away or moved out of their place of residence and left their medicines behind. When consumers return medicines for others, middle-aged groups (35–49 and 50–64) are more likely to return medicines because someone has passed away (see Figure 2.14). Younger consumers (see Figure 2.15) were more likely to return medicines for someone who had moved out of home and left their medicines behind. Female consumers (see Figure 2.16) were more likely to return medicines for someone who had moved out of home and left their medicines behind.

Figure 2.14: Returning Medicines for Others ('others' passed away) by Age Group

			Age Group					Total
			18-34	**35-49**	**50-64**	**65-79**	**80+**	
Returning medicines prescribed for others - passed away	**Yes**	**Count**	3	16	33	22	5	79
		%*	25.0	53.3	67.3	40.7	33.3	49.4
	No	**Count**	9	14	16	32	10	81
		%*	75.0	46.7	32.7	59.3	66.7	50.6
Total		**Count**	12	30	49	54	15	160
		%*	100	100	100	100	100	100

* % within age group

Chi-Square Tests

	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson chi-square	12.527(a)	4	0.014
Likelihood ratio	12.832	4	0.012
Linear-by-linear association	0.494	1	0.482
N of valid cases	160		
(a) 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.93.			

Figure 2.15: Returning Medicines for Others ('others' moved out) by Age Group

			Age Group					Total
			18-34	**35-49**	**50-64**	**65-79**	**80+**	
Returning medicines prescribed for others – moved out, left medicines	**Yes**	**Count**	4	6	7	6	3	26
		%*	36.4	33.3	28.0	13.6	17.6	22.6
	No	**Count**	7	12	18	38	14	89
		%*	63.6	66.7	72.0	86.4	82.4	77.4
Total		**Count**	11	18	25	44	17	115
		%*	100	100	100	100	100	100

* % within age group

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson chi-square	5.052(a)	4	0.282
Likelihood ratio	5.058	4	0.281
Linear-by-linear association	3.937	1	0.047
N of valid cases	115		
(a) 3 cells (30.0%) have expected count less than 5. The minimum expected count is 2.49.			

Figure 2.16: Returning Medicines for Others ('others' moved out) by Gender

			Gender		Total
			Male	Female	
Returning medicines prescribed for others – moved out, left medicines	**Yes**	**Count**	6	20	26
		%*	15.4	27.0	23.0
	No	**Count**	33	54	87
		%*	84.6	73.0	77.0
Total		**Count**	39	74	113
		%*	100	100	100

* % within gender

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson chi-square	1.954(b)	1	0.162		
Continuity correction(a)	1.352	1	0.245		
Likelihood ratio	2.051	1	0.152		
Fisher's exact test				0.240	0.121
Linear-by-linear association	1.937	1	0.164		
N of valid cases	113				
(a) Computed only for a 2x2 table					
(b) 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.97.					

2.6 Sources of consumer information

In the context of the *RUM Project* and its aim to encourage safe disposal of medicines among consumers, identification of relevant sources of consumer information was of critical interest to this study. Findings from RUMS reveal that consumers in Melbourne utilised a range of such sources. These included health professionals, lay sources and, to a lesser extent, consumer medicine information and advertising. Often consumers were unable to identify any specific sources of information they had been exposed to.

Among health professionals, pharmacists played the most significant role in promoting the *RUM Project* and safe practices of disposal of unwanted medicines among lay consumers. Thus 64 percent of respondents reported having learned about relevant services from a pharmacist. Doctors were identified as providers of relevant information by 10.9 percent of respondents and

other health professionals (including various hospital staff, district nurses, psychiatric nurses and diabetes educators) by further 2.1 percent.

Findings from RUMS also suggest that information about safe disposal of medicines in Melbourne is also disseminated by word of mouth. Thus approximately 18 percent of consumers reported having learned about the program from family members, other relatives, friends, work colleagues and neighbours. Hence promotion of RUMS may be achieved through community development programs and relevant activities in the community.

Generally respondents identified two equally significant means of advertising they had been exposed to: advertising in media (12.2%) and advertising by pharmacies (9.8%). Advertising by pharmacies included posters and written advertisements displayed in the pharmacy and pharmacy advertisements in print media (local newspapers, 'neighbourhood watch' newsletters, pharmacy newsletters). Among participating pharmacies, the proportion of pharmacies currently utilising any kind of advertising was small (see figures 2.17 and 2.18). Thus 5 percent of participating pharmacies reported having a poster/an advertisement displayed and 5 percent reported recent advertising by another medium. Although there were higher rates of returns among pharmacies that either displayed a poster or used other types of advertising, the overall small numbers of those advertisements do not allow further generalisation.

Figure 2.17: Poster Display at Participating Pharmacies

					Total
			returns	No returns	
poster display	**No**	**Count**	51	44	95
		%*	92.7%	97.8%	95.0%
	Yes	**Count**	4	1	5
		%*	7.3%	2.2%	5.0%
Total		**Count**	55	45	100
		%*	100.0%	100.0%	100.0%

* % within returns

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson chi-square	1.329(b)	1	0.249		
Continuity correction(a)	0.478	1	0.489		
Likelihood ratio	1.442	1	0.230		
Fisher's exact test				0.375	0.250
Linear-by-linear association	1.316	1	0.251		
N of valid cases	100				
(a) Computed only for a 2x2 table					
(b) 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.25.					

Figure 2.18: Other Advertising by Participating Pharmacies

			returns 1=yes; 2=no		Total
			returns	No returns	
Other advertising	**No**	**Count**	51	44	95
		%*	92.7%	97.8%	95.0%
	Yes	**Count**	4	1	5
		%*	7.3%	2.2%	5.0%
Total		**Count**	55	45	100
		%*	100.0%	100.0%	100.0%

* % within returns

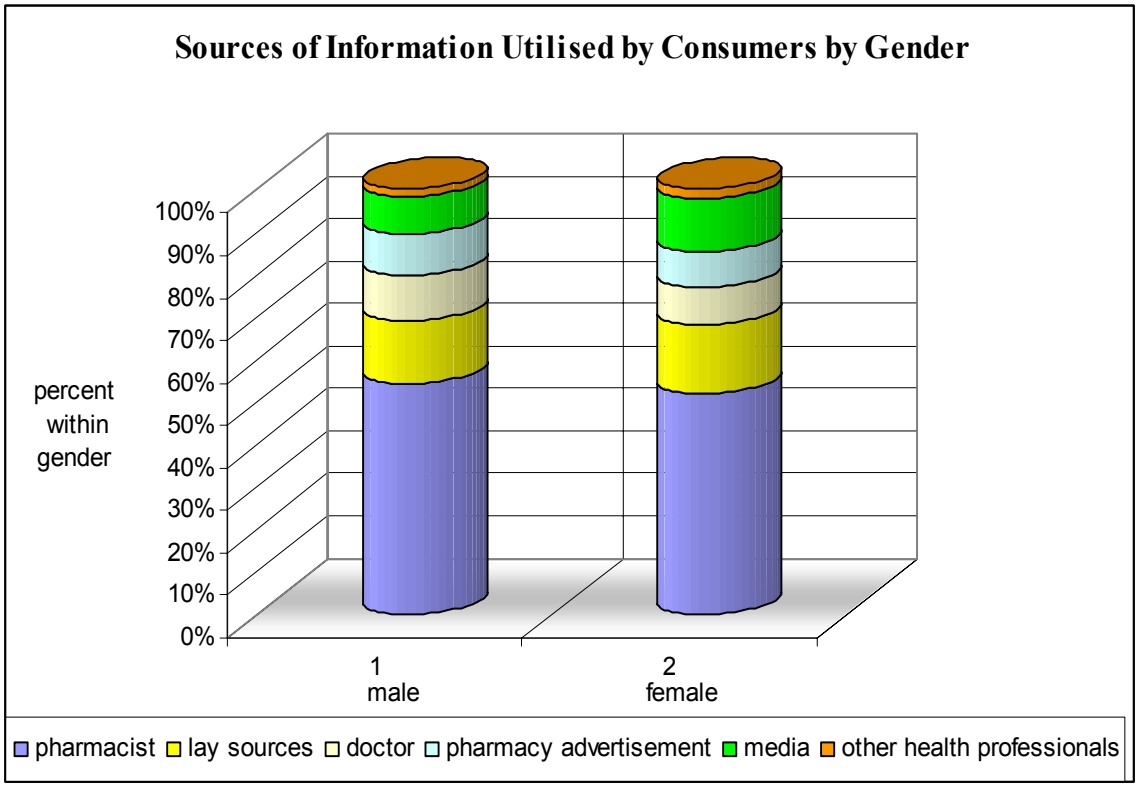
Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson chi-square	1.329(b)	1	0.249		
Continuity correction(a)	0.478	1	0.489		
Likelihood ratio	1.442	1	0.230		
Fisher's exact test				0.375	0.250
Linear-by-linear association	1.316	1	0.251		
N of valid cases	100				
(a) Computed only for a 2x2 table					
(b) 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.25.					

The role of various sources of consumer medicine information in promoting safe disposal of medicines, and of the *RUM Project* in particular, was negligible. Thus only 0.2 percent of respondents identified Consumer Medicine Information (CMI) booklets and a further 0.2 percent identified printed product information leaflets provided by the pharmaceutical industry.

Findings from RUMS suggest some association between consumer socio-demographic characteristics and their utilisation of sources of information relevant to the *RUM Project* and safe disposal of unwanted medicines. Socio-demographic characteristics such as gender, age and languages spoken at home are particularly important to the development of relevant community awareness activates. As Figure 2.19 illustrates, utilisation of consumer information sources by males and females were largely similar, however males were more likely than females to utilise doctors and females were more likely to use media advertisement as sources of such information.

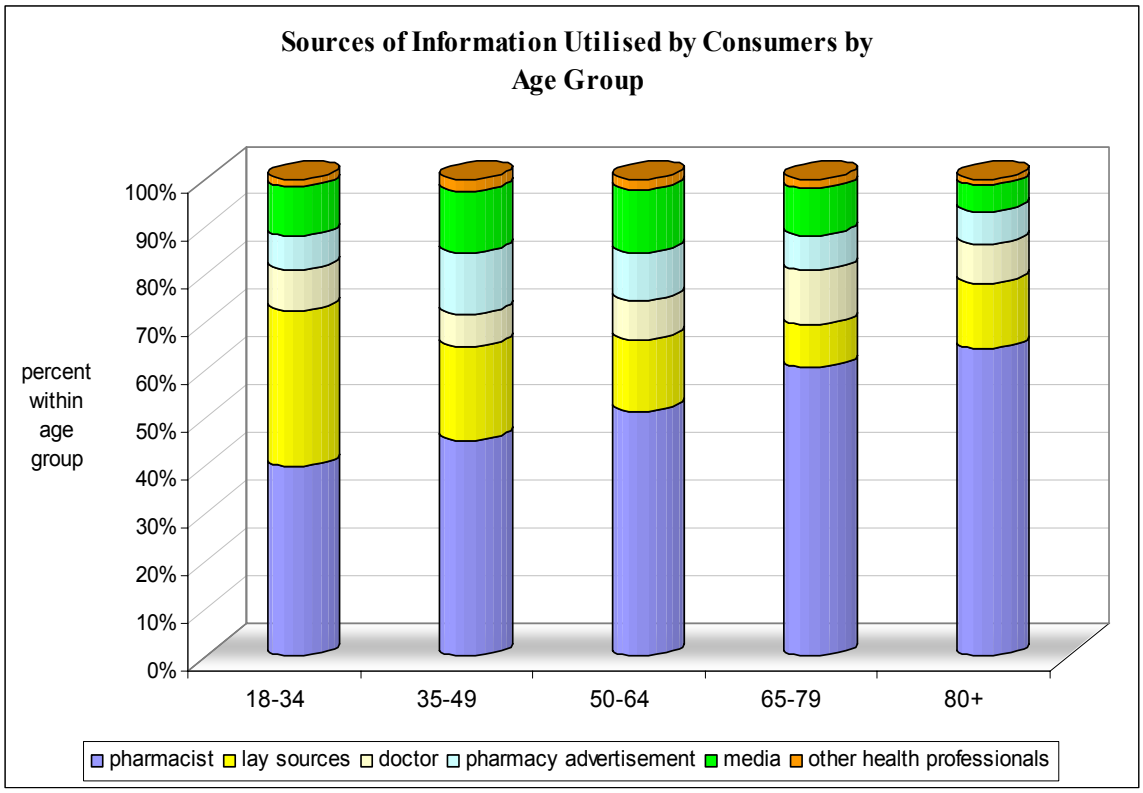
Figure 2.19: Sources of Information Utilised by Consumers by Gender



Both findings should be taken into account when tailoring promotional activities, in particular media campaigns and advertising, to population groups of different gender.

Findings from RUMS reveal association between utilisation of information sources pertinent to the *RUM Project* and consumer age. Pharmacists are the most significant sources of information pertinent to the *RUM Project* for consumers of all ages, however the proportion of people who utilise pharmacists increases with consumer age (see Figure 2.20). The older the consumer the more significant the role of pharmacists. By contrast, the proportion of utilisation of lay sources decreases with age (apart from age group 80+, where lay sources are slightly more significant in comparison with other older age groups). Younger consumers tend to utilise lay sources more than their older counterparts. Advertising – both media and pharmacy – is more significant among the middle-age groups (35–49 and 50–64). Consumers aged 65–70 are likely to utilise doctors as sources of information more than those in any other age group, while the use of all other health professionals is not influenced by consumer age.

Figure 2.20: Sources of Information Utilised by Consumers by Age Group



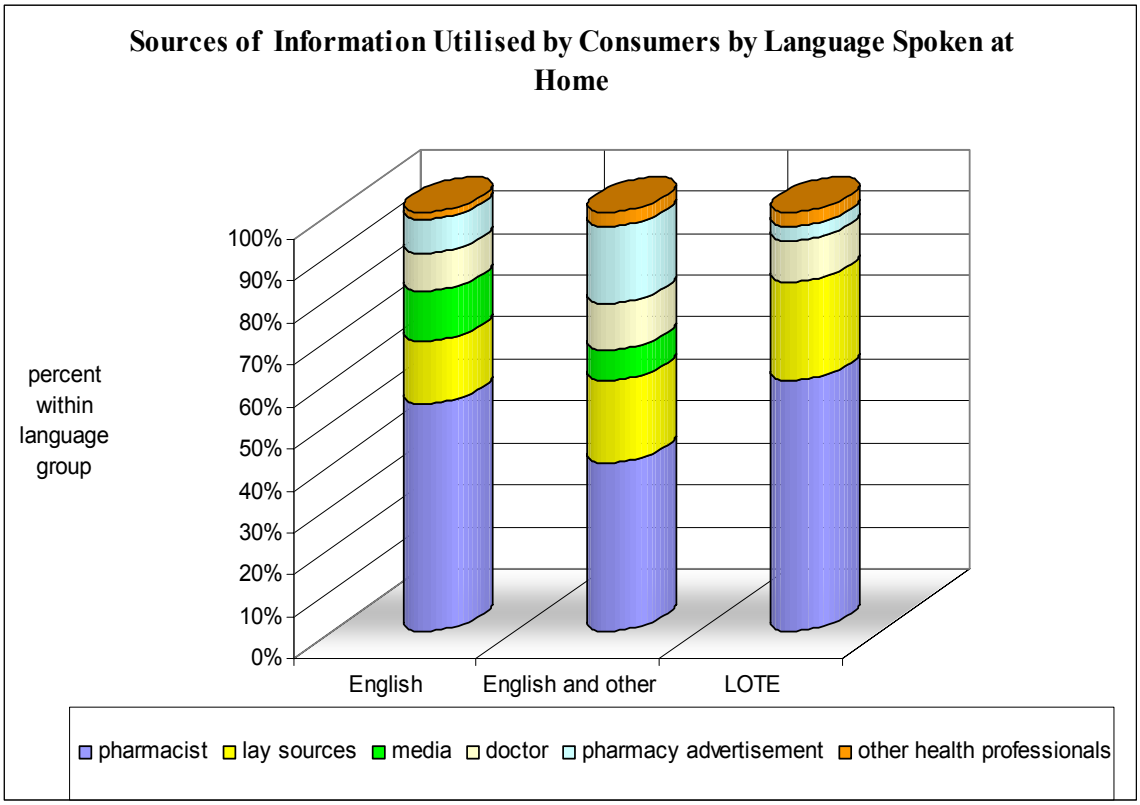
Findings from RUMS reveal an association between consumer utilisation of information sources pertinent to the *RUM Project* and languages spoken at home (see Figure 2.21). The sources of information were similar among consumers who reported English as the only language spoken at home, speaking English and other language or speaking LOTE. However, utilisation of those services differed.

Pharmacists are the most significant sources for all language groups, however they are most significant to people speaking LOTE at home (see Figure 2.21). Thus 61 percent of people speaking LOTE at home reported having learned about the disposal of unwanted medicines in the pharmacy and/or from the pharmacists; this is more significant than data for those speaking English only (54%) and speaking English and other language (40%).

While utilisation of doctors and other health professionals as sources of information was similar among the three groups, there were significant differences in utilisation of lay sources, pharmacy and media advertising. Consumers who stated English as the only language spoken at home reported the highest proportion of utilisation of media (12%) and pharmacy advertising (8%) and the lowest proportion of utilisation of lay sources (15%).

Consumers speaking English and other languages reported lower utilisation of media (7%) but higher proportion of pharmacy advertising (18%) and utilisation of lay sources (20%). Consumers speaking LOTE reported zero utilisation of media and a very low proportion of utilisation of pharmacy advertising (3%) while the proportion of utilisation of lay sources (23%) within this group was the highest compared to other language groups.

Figure 2.21: Sources of Information Utilised by Consumers by Language Spoken at Home



These findings suggest that consumers speaking languages other than English utilise lay sources more than their counterparts who speak only English at home. This may reflect different socio-cultural influences on overall medicinal use. However, it may also indicate non-availability of or low access to information promoting culturally and linguistically appropriate and effective practices of safe disposal of medicines. This is important to take into account in the development of relevant promotional activities and developing information for Australians from a range of cultural and linguistic backgrounds.

CHAPTER III: RESEARCH FINDINGS – THE KINDS OF MEDICINES RETURNED AND THE REASONS FOR RETURN

Introduction

Chapter III describes RUMS findings with regard to the key research questions (see Chapter I) relating to the kinds of unwanted, and out-of-date, medicines that are being returned to community pharmacies, and the reasons for their return. Findings in this chapter are derived from the statistical analysis of data collected in interviews for each occasion where a consumer returned any medicine to participating pharmacy, and from observations of the actual medicines returned. Research findings in this chapter are often presented in figures and tables. Statistics for each table are based on all the cases with valid data in the specified range (s) for all variables in each table.

The material in this chapter is divided into several sections. Part A describes the kinds of medicines that are being returned. Part B focuses on the reasons for return. The material is structured under the following subheadings:

Part A: The kinds of medicines returned

In RUMS, consumers returned a total of 2,250 medicines on 605 occasions with the number of items returned on each occasion ranging from 1 to 22. Returned items represented 787 different kinds of medicines with a range of different characteristics.

3.1 Definitions

3.1.1 Medicines

Definition of 'medicines' used in RUMS and this Report is consistent with the definition of 'pharmaceuticals and other medical non-durables' used by the Australian Statistics on Medicines (ASM), which includes prescription and non-prescription medical preparations (both generic and proprietary); serums and vaccines; oral contraceptives; vitamins, minerals and other complementary medicines; and medical non-durables (i.e. bandages).[20] In RUMS the names of medicines were recorded using those appearing on a label. This may have included either 'proprietary name' (the registered trademark of the therapeutic goods or unique name assigned to the goods by the sponsor) or, if there was no proprietary name, the non-proprietary name. For the purposes of research and data analysis the name appearing on the label was defined as 'medicine name'. For each medicine name, the generic name was then identified/verified using the PBS.[21] Both 'medicine name' and 'generic name' were used as variables for data analysis; however, generic name was used as one of the major categories for data analysis and presentation.

3.1.2 Generic and proprietary name medicines

Generic and proprietary (brand) name medicines here are defined in accordance with the PBS Generic Name Index and Proprietary Name Index.[22] Generic name here is defined as a substance or 'a product marketed under the drug's non-proprietary approved name',[23] or chemical name,

[20] Commonwealth Department of Health and Ageing 2003, *Australian Statistics on Medicines. 1999–2000*, www.health.gov.au/pbs/healthpro/pubs/pdf/asm00.pdf (12 August 2004).
[21] Commonwealth of Australia, 2004, *Schedule of Pharmaceutical Benefits for Approved Pharmacists and Medical Practitioners,* <www.health.gov.au/pbs> (August – October 2004).
[22] Commonwealth of Australia2004, *Schedule of Pharmaceutical Benefits for Approved Pharmacists and Medical Practitioners,* <www.health.gov.au/pbs> (August – October 2004).
[23] Birkett D.J. 2003, 'Generics – equal or not?', *Aust Prescr*, 26:85-7.

while proprietary name is the registered trademark of therapeutic goods or the unique name assigned by sponsor. Currently, there are 2838 items listed on the PBS. Out of those 794 are listed as generic medicines and 2044 as proprietary medicines. This Report uses upper case in medicinal names to distinguish generic medicines and sentence case for proprietary (brand) name medicines.[24]

3.1.3 Prescription and non-prescription medicines

Definitions of prescription and non-prescription medicines here are those recommended by the Therapeutic Goods Administration (TGA), which are based on the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).[25] By TGA classification medicines are defined as 'registered', 'listed' and 'complementary'. *Registered* medicines include both prescription medicines and non-prescription medicines. TGA defines 'prescription medicines' as those 'incorporating ingredients which are described in Schedule 4 or Schedule 8 of the Standard for the SUSDP and some specified products such as sterile injectable'. Non-prescription medicines, also known as 'over-the-counter' or OTC, are defined as those 'usually containing ingredients which are described in Schedule 2, Schedule 3, and sometimes Schedule 5 or 6 of the SUSDP'. *Listed* medicines are all unscheduled medicines (i.e. not described in the SUSDP). *Complementary* medicines (also known as 'traditional' or 'alternative' medicines) were either registered or listed.[26] In addition, RUMS defines prescription medicines as those dispensed for consumers exclusively with a prescription from a medical practitioner.[27]

3.1.4 Subsidy category

In RUMS, 'subsidy category' of returned medicines is defined in accordance with the 'patient category' as utilised by the Health Insurance Commission (HIC),[28] the PBS[29] and the Pharmaceutical Benefits Pricing Authority (PBPA)[30]. The patient category refers to the patient's eligibility status at the time of supply of the benefit under the PBS and Repatriation Pharmaceutical Benefit Scheme (RPBS, i.e. items supplied to war veterans). The major patient categories are: 'general' (all Medicare card holders) and 'concessional' (concession card holders).[31]

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[24] Commonwealth of Australia2004, *Schedule of Pharmaceutical Benefits for Approved Pharmacists and Medical Practitioners*, <www.health.gov.au/pbs> (July 2004).
[25] Therapeutic Goods Administration 2004, *Medicines definitions*, <http://www.tga.gov.au/docs/html/meddef.htm> (20 July 2004).
[26] Therapeutic Goods Administration 2004, *Medicines definitions*, <http://www.tga.gov.au/docs/html/meddef.htm> (30 August 2004).
[27] Commonwealth Department of Health and Ageing 2003, *Australian Statistics on Medicines. 1999–2000* <www.health.gov.au/pbs/healthpro/pubs/pdf/asm00.pdf> (12 August 2004).
[28] Health Insurance Commission 2004, *HIC Statistical Reporting*, <http://www.hic.gov.au/cgi-bin> (1 September 2004).
[29] Commonwealth Department of Health and Ageing 2003, *About the PBS* <http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-pbs-general-aboutus.htm> (1 August 2004).
[30] Pharmaceutical Benefits Pricing Authority 2004, *Annual Report for the year ended 30 June 2003*, Commonwealth Department of Health and Ageing, Canberra.
[31] Health Insurance Commission 2004, *HIC Statistical Reporting*, <http://www.hic.gov.au/cgi-bin> (1 September 2004).

3.2 Characteristics of returned medicines

3.2.1 Generic and proprietary (brand) name medicines

As discussed earlier in Chapter I of this Report, the vast majority of the returned medicines were identified and verified using the PBS Generic Name Index and Proprietary Name Index[32] as the main data source. There were approximately 190 medicines returned which were not listed by the PBS, those were identified/verified using the AMH.[33] Analysis of RUMS data revealed that the vast majority of medicines returned were proprietary labelled medicines (N=2143, 96 percent) and the proportion of generically labelled medicines (N=87, 4 percent) was significantly lower.

RUMS findings suggest that the proportion of generically labelled medicines returned in RUMS is lower that the proportion of generically labelled medicines dispensed in the Australian community. However, there are certain difficulties associated with obtaining data about the use of generics in Australia[34] that have to be taken into account when interpreting these findings.

The recent proliferation of the use of generic medicines in Australia has been well documented. The use of generics has been steadily increasing as a result of economic pressure,[35,36] and the support for the practice of generic substitution by Australian Government and other major stakeholders.[37] In 1999, about 12 percent of all PBS scripts dispensed were generics.[38] By 2001, the share of generics in the prescription medicines market only was 18.9 percent (by number of scripts) and 9.6 percent (by value).[39]

It is possible that the disproportion of generic medicines returned in RUMS compared to those reported elsewhere reflects differences in definitions of generics utilised in this study and elsewhere. It is important to take into consideration difficulties with the PBS hierarchy of listing[40] and existing definitions. As Birkett (2003) pointed out, the use of the term 'generic' may vary, which can be potentially confusing. The term can be used to define 'a product marketed under the drug's non-proprietary approved name', as it is used in RUMS, or 'it can … mean a product marketed under a different brand (proprietary) name'.[41] Confusion may reflect the fact, that the

[32] Commonwealth of Australia 2004, *Schedule of Pharmaceutical Benefits for Approved Pharmacists and Medical Practitioners,* <www.health.gov.au/pbs> (August – October 2004).
[33] *Australian Medicines Handbook*, 2004.
[34] Centre for Strategic Economic Studies 1999, *Pharmaceuticals in Australia: Equity, cost, containment and industry development*, Victoria University, Melbourne.
[35] Hassali A, Stewart K. 2004, 'Quality use of generic medicine', *Aust Prescr*, 27: 80–1.
[36] Smeaton J. 2000, 'The generics market', *Aust J Pharm*, 81: 540–2.
[37] Commonwealth Department of Health and Aged Care 2000, *National Medicines Policy 2000*, Canberra: Commonwealth Department of Health and Aged Care.
[38] Centre for Strategic Economic Studies 1999, *Pharmaceuticals in Australia: Equity, cost, containment and industry development*, Victoria University, Melbourne.
[39] D'Alwis E. 19 October 2004, *Presentation to the Generic Drug Industry Conference*, ABN AMRO Generic Drug Industry Conference, <http://www.sigmaco.com.au> (18 October 2004).
[40] Parliament of Australia 2003, *The Pharmaceutical Benefits Scheme – an Overview*, <http://www.aph.gov.au/library/intguide/SP/pbs.htm> (12 October 2004).
[41] Birkett, D.J. 2003, 'Generics – equal or not?', *Aust Prescr*, 26:85–7.

'generic' brands available through the PBS are named according to the pharmacy chain, while comprising the same active ingredients and produced by the same manufacturer.[42]

3.2.2 Prescription and non-prescription medicines

In RUMS the vast majority of returned medicines identified with regard to the SUSDP classification were prescription medicines. Out of those, the highest proportion comprised medicines incorporating ingredients which are described in Schedule 4 of the SUSDP (N=1652, valid percent 86.0). There was a less significant proportion of prescription medicines incorporating ingredients which are described in Schedule 8 (N=53, valid percent 2.8) of the SUSDP. Non-prescription (over-the-counter or OTC) medicines returned in RUMS included those containing ingredients which are described in Schedule 2 (N=131, valid percent 6.8), Schedule 3 (N=82, valid percent 4.3) and Schedule 6 (N=1, valid percent 0.1). There were also medicines not identified according to the SUSDP classification (14.7 percent), some of which were listed or unscheduled medicines (i.e. complementary medicines).

The proportion of prescription medicines reported in RUMS appears high, even when taking into account the share of those not identified with regard to the SUSDP classification. Comparing RUMS data on prescription and non-prescription medicines with other Australian data is challenging. Firstly, national data on returned medicines is not available and RUMS data can only be related to national data on dispensing and/or use of medicines. Secondly, definitions of prescription and non-prescription medicines and the data collection methods utilised in existing sources may vary. For example, the proportion of prescription medicines returned in RUMS appears to be higher compared with self-reported consumer use of medicines reported by the National Health Survey (NHS). [43,44]

Nevertheless, RUMS findings suggest that consumer practices pertinent to the disposal, storage and, in fact, use of prescription and non-prescription medicines may differ. Understanding of consumer perceptions and socio-cultural influences underlying those practices is outside the scope of this study. It is possible that consumers perceive non-prescription medicines as being less poisonous, and presenting less risk of environmental toxicity. While consumers' rationale for different practices of medicinal return and disposal of non-prescription medicines deserves further investigation, RUMS identified poor disposal practices in relation to non-prescription medicines as well as possible misuse of those medicines. This result is significant for its practical

[42] Birkett, D.J. 2003, 'Generics – equal or not?', *Aust Prescr*, 26:85–7.
[43] Australian Bureau of Statistics 2002, *4364.0 National Health Survey – Summary of Results, Australia*, <http://www.abs.gov.au/Ausstats/abs@.nsf> (19 October 2004).
[44] Australian Bureau of Statistics 1999, *4377.0 National Health Survey, Use of Medications, Australia*, <http://www.abs.gov.au/Ausstats/abs@.nsf> (21 October 2004).

implications and should be taken into account when developing the content of relevant community awareness campaigns and activities.

3.2.3 Form and presentation

In terms of medicinal form, 68.4 percent of reported medicines were solid (i.e. tablets, lozenges, etc.); 11.8 percent were liquid (i.e. drops, mixtures, solutions, sprays, etc.); and 5.0 percent semi-solid (ointments, creams, suppositories, etc.). In terms of presentation, the vast majority of reported medicines were tablets (N=1408, valid percent 62.6) and capsules (N=237, valid percent 10.5). Other presentation forms included ampoules (N=15, valid percent 0.7), cachets (N=3, valid percent 0.1), drops (N=45, valid percent 2.0), inhalers (N=37 valid percent 1.6), lozenges (N=3 valid percent 0.1), ointments or creams (N=29 valid percent 1.3), pastilles (N=2 valid percent 0.1), sachets (N=11 valid percent 0.5) and suppositories (N=12 valid percent 0.5).

3.2.4 Subsidy category

In RUMS 62 percent of medicines were 'concessional', 19.3 percent were 'general' and for 18.4 percent the subsidy category was unknown or not applicable. The proportion of medicines under *general category* in RUMS appears to be higher and the proportion of the *concessional category* lower in comparison with PBPA data on dispensed medicines (processed by script numbers). Thus in 2002–2003, in Australia, 25.9 million (approximately 16.3%) of prescriptions, were *general* and 132.7 million (approximately 83.6%), were *concessional*.[45]

Socio-cultural influences underlying divergent consumer practices of medicinal return in relation to medicines sold under general and concessional categories need further exploration. However the pragmatic implication of RUMS findings is that messages regarding the *RUM Project* and safe disposal of unwanted medicines should target concessional cardholders.

3.2.5 Medicines' use-by dates

Medicines' expiry dates were recorded by data collectors using information from the original medicinal packages and/or containers. In some instances expiry dates were missing or not readily identifiable. For data analysis and presentation purposes, expiry dates were recoded into five categories (see Figure 3.1). RUMS findings demonstrate that returned medicines vary greatly in terms of their expiry dates with a range of over 30 years, from 1979 to 2009. Approximately 7 percent of returned medicines had passed their use-by date from 1979 to 1999. RUMS findings suggest that consumers store medicines in their homes for extended periods of time before bringing them for ultimate disposal to a pharmacy.

[45] Pharmaceutical Benefits Pricing Authority 2004, *Annual Report for the year ended 30 June 2003*, Commonwealth Department of Health and Ageing, Canberra.

Figure 3.1: Expiry Date Range

		Frequency	Percent	Valid percent	Cumulative percent
Valid	2005–2009	989	44.0	44.0	44.0
	2000–2004	943	41.9	41.9	85.9
	Missing	161	7.2	7.2	93.0
	1990–1999	144	6.4	6.4	99.4
	1979–1989	13	0.6	0.6	100.0
	Total	2250	100.0	100.0	

In the context of QUM, long term storage of medicines that have passed their use-by date may indicate possible use of medicines in the community that are not effective and/or not safe. Poor storage and disposal practices may be associated with various socio-cultural influences. However, consumers may pay insufficient attention to medicines' expiry dates due to lack of awareness about their importance. This highlights a need for including relevant topics and explanations into relevant promotional materials and various community awareness and educational programs.

Another important finding is that a substantial proportion of returned medicines had not passed their expiry date at the time of return. Thus, the highest proportion (44.0%) of returned medicines was unused (expiry date ranging between years 2005 and 2009). Issues related to the return of unused medicines will be discussed later in this chapter. However it is important to stress here that, contrary to expectations, only 29 percent of those were due to the consumer's death or departure from the institution (return in accordance with the institutional protocols); other medicines that had not passed their use by date were returned for various reasons.

A substantial proportion of unused medicines may be indicative of practices that potentially jeopardise QUM. Those may include either non-judicious prescribing by practitioners or unwise use by the consumer. Apart from concerns about consumers' health, safety and therapeutic outcomes there is also concern about possible waste of medicines in the community.

3.3 Classification of returned medicines

The kinds of medicines returned presented in this study are arranged using two major categories: 'therapeutic class' and 'generic name'. Fourteen *therapeutic classes* (TC) utilised in RUMS for classification of medicines match with the Therapeutic Index (TI).[46] TI is the first level of the classification system adopted by the Commonwealth of Australia and the Commonwealth Department of Health and Ageing. TI divides medicines into different groups according to their site of action representing the anatomical main group. TI corresponds with the first level of the

[46] Commonwealth of Australia 2004, *Schedule of Pharmaceutical Benefits for Approved Pharmacists and Medical Practitioners,* <www.health.gov.au/pbs/scripts/listtherlvl1.cfm> (August – October 2004).

Anatomical Therapeutic Chemical classification system recommended by the World Health Organization and adopted by the Australian Drug Evaluation Committee.[47]

In RUMS, there are 14 TC classes corresponding with the 14 anatomical main groups of the Australian classification system[48] as follows:

1. Alimentary tract and metabolism (ALIM)
2. Blood and blood forming organs (BLOOD)
3. Cardiovascular system (CARD)
4. Dermatologicals (DERM)
5. Genito-urinary system and sex hormones (GEN/U)
6. Systemic hormonal preparations, excl. sex hormones and insulins (HORM)
7. Anti-infectives for systemic use (A/Inf)
8. Antineoplastic and immunomodulating agents (A/Neo)
9. Musculo-skeletal system (MUSC)
10. Nervous system (NERV)
11. Antiparasitic products, insecticides and repellents (A/Par)
12. Respiratory system (RESP)
13. Sensory organs (SENS)
14. Various (VAR)

RUMS classification utilised two additional categories: 'section 100' (S100) and 'complementary' (COMP). The 'section 100' category here includes medicines that are available under special arrangements but their site of action and/or the anatomical main group may vary or has not been identified.[49] The 'complementary' category here includes complementary medicines[50] with possible various or multiple sites of action.

3.4 The most commonly returned medicines

In RUMS, the most commonly returned medicines were those prescribed and/or used for cardiovascular system (19.8%), nervous system (19.5%) and alimentary tract and metabolism (14.6%) (see Figure 3.2).

[47] Commonwealth Department of Health and Ageing 2003, *Australian Statistics on Medicines 1999–2000*, <www.health.gov.au/pbs/healthpro/pubs/pdf/asm00.pdf> (25 October 2004).
[48] Commonwealth of Australia 2004, *Schedule of Pharmaceutical Benefits for Approved Pharmacists and Medical Practitioners,* <www.health.gov.au/pbs/scripts/listtherlvl1.cfm> (August – October 2004).
[49] Commonwealth of Australia 2004, *Schedule of Pharmaceutical Benefits for Approved Pharmacists and Medical Practitioners,* <www.health.gov.au/pbs> (1 August 2004).
[50] Therapeutic Goods Administration 2004, *Medicines definitions*, <http://www.tga.gov.au/docs/html/meddef.htm > (3 September 2004).

Figure 3.2: Medicines Returned by Therapeutic Class (in descending order)

	Frequency	Percent	Valid percent	Cumulative percent
Cardiovascular system	445	19.8	19.8	19.8
Nervous system	439	19.5	19.5	39.3
Alimentary tract and metabolism	329	14.6	14.6	53.9
Musculo-skeletal system	196	8.7	8.7	62.7
Respiratory system	185	8.2	8.2	70.9
Anti-infectives for systemic use	178	7.9	7.9	78.8
Dermatologicals	103	4.6	4.6	83.4
Blood & blood forming organs	81	3.6	3.6	87.0
Sensory organs	81	3.6	3.6	90.6
Genito-urinary system & sex hormones	74	3.3	3.3	93.9
Systemic hormonal preparations excl. sex hormones and insulins	60	2.7	2.7	96.5
Antiparasitic products, insecticides and repellents	26	1.2	1.2	97.7
Complementary	23	1.0	1.0	98.7
Antineoplastic immunomodulating agents	13	0.6	0.6	99.3
Various	13	0.6	0.6	99.9
Section 100	3	0.1	0.1	100.0
Total	2249	100.0	100.0	

This data corresponds with evidence about most commonly used medicines in Australia,[51] while return of complementary medicines in RUMS appears to be low. Complementary medicines are used by a substantial and increasing proportion of the Australian population.[52,53] The low proportion of complementary medicines returned to community pharmacies for ultimate disposal may reflect consumer perceptions about these medicines as being less likely to poison and creating less risk of environmental toxicity. It may, however, indicate that consumers are less aware about safe practices associated with storage and disposal, and in fact use, of complementary medicines. This finding identifies a need for inclusion of information about safe disposal of complementary medicines into community awareness activities and relevant information materials.

Figures 3.3 and 3.4 describe most commonly returned medicines. Figure 3.3 shows the top 25 medicines by either proprietary or non-proprietary (generic) name, whereas Figure 3.4 includes the top 25 most commonly returned medicines by generic name. Statistics used in those tables are based on all the cases with valid data in the specified range(s) for all variables in each table.

[51] Commonwealth Department of Health and Ageing 2003, *Australian Statistics on Medicines. 1999–2000*, <www.health.gov.au/pbs/healthpro/pubs/pdf/asm00.pdf> (12 August 2004).
[52] Bensoussan, A., Myers, S.P., Wu, S.M., O'Connor, K. 2004, 'Naturopathic and western herbal medicine practice in Australia – a workforce survey', *Complement Ther Med*, 12: 17–27.
[53] MacLennan, A.H., Wilson, D.H., Taylor, A.W. 2002, 'The escalating cost and prevalence of alternative medicines', *Prev Med,* 35(2): 166–73.

Figure 3.3: The 25 Five Most Commonly Returned Medicines (all reasons)

Medicine name	Brand or generic	Frequency	Percent
1. Coumadin	brand	36	1.6
2. Panadeine Forte	brand	24	1.1
3. Celebrex	brand	24	1.1
4. Ventolin	brand	23	1
5. Vioxx	brand	22	1
6. Temaze	brand	19	0.8
7. Norvasc	brand	19	0.8
8. Panamax	brand	18	0.8
9. Stemetil	brand	17	0.8
10. Maxolon	brand	17	0.8
11. Anginine Stabilised	brand	17	0.8
12. Tramal	brand	16	0.7
13. Nitrolingual Pumpspray	brand	16	0.7
14. Lasix	brand	16	0.7
15. Solone	brand	15	0.7
16. Rani 2	brand	15	0.7
17. Slow-K	brand	14	0.6
18. Lipitor	brand	14	0.6
19. Brufen	brand	14	0.6
20. PREDNISOLONE	generic	13	0.6
21. Lanoxin	brand	13	0.6
22. Avapro HCT 300/12.5	brand	13	0.6
23. Avapro HCT 150/12.5	brand	13	0.6
24. Pramin	brand	12	0.5
25. Panafcortelone	brand	12	0.5

In RUMS Coumadin (WARFARIN) is the most commonly returned medicine. This is not surprising given the current trends of the use of WARFARIN in Australia and possible negative effects associated with its use. In Australia, WARFARIN is commonly used in the community setting for indications such as uncomplicated deep vein thrombosis[54] and in patients with high risk of stroke.[55] Hemorrhagic complications of long-term WARFARIN therapy are well documented:[56,57] they are particularly common early in the course of therapy.[58] Despite the risks of bleeding, WARFARIN use in Australia is steadily increasing;[59] it has increased between 6 percent and 9 percent per annum in the last four years, with current growth at about 9 percent per year.[60]

[54] Baker, R.I., Coughlin, P.B., Gallus, A.S. et al. 2004, 'Warfarin reversal: consensus guidelines, on behalf of the Australasian Society of Thrombosis and Haemostasis', *MJA*, 2004, 181(9): 492–497.
[55] Jackson, S.L., Peterson, G.M, Vial, J.H. 2004., 'A community-based educational intervention to improve antithrombotic drug use in atrial fibrillation', *Ann Pharmacother*, 38(11): 1794–9. Epub 2004 Sep 28.
[56] Levine, M.N., Raskob, G., Landefeld, S. et al. 1998, 'Hemorrhagic complications of anticoagulant therapy', *Chest*, 114: 511S–523S.
[57] Gallus, A.S., Baker, R.I., Chong, B.H. et al. 2002, 'Consensus guidelines for warfarin therapy' *Med J Aust*, 172: 600–605.
[58] Jackson, S.L., Peterson, G.M., Vial, J.H. et al. 2004, 'Improving the outcomes of anticoagulation: an evaluation of home follow-up of warfarin initiation', *J Intern Med*, 256(2):137–144.
[59] Halstead, P.J., Roughead, E.E., Rigby, K. et al. 1999, 'Towards the safer use of warfarin II: results of a workshop', *J Qual Clin Pract*., 19(1): 61–62.
[60] *Australian Pharmaceutical Index* 2004, Sydney: IMS Health.

Figure 3.4: The Top 25 Most Commonly Returned Medicines (all reasons by Generic Name)

Generic name	Frequency	Percent
1. GLYCERYL TRINITRATE	49	2.2
2. PREDNISOLONE	41	1.8
3. SALBUTAMOL SULFATE	40	1.8
4. PARACETAMOL	39	1.7
5. WARFARIN SODIUM	39	1.7
6. FRUSEMIDE	37	1.6
7. AMOXYCILLIN	33	1.5
8. ASPIRIN	32	1.4
9. METOCLOPRAMIDE HYDROCHLORIDE	31	1.4
10. CODEINE PHOSPHATE with PARACETAMOL	30	1.3
11. RANITIDINE HYDROCHLORIDE	30	1.3
12. IRBESARTAN with HYDROCHLOROTHIAZIDE	28	1.2
13. DIGOXIN	26	1.2
14. TEMAZEPAM	26	1.2
15. TETRACYCLINE HYDROCHLORIDE	26	1.2
16. AMLODIPINE BESYLATE	25	1.1
17. TRAMADOL HYDROCHLORIDE	25	1.1
18. CELECOXIB	24	1.1
19. ROFECOXIB	22	1
20. CEPHALEXIN	21	0.9
21. IBUPROFEN	21	0.9
22. MORPHINE SULFATE	21	0.9
23. PROCHLORPERAZINE	20	0.9
24. DICLOFENAC SODIUM	19	0.8
25. RAMIPRIL	19	0.8

Statistics in Figure 3.4 correspond with evidence about medicines most commonly dispensed and used in the Australian community reported by PBPA,[61] the ASM[62] and the Drug Utilisation Sub-Committee (DUSC)[63] for many medicines listed. However, differences in data collection and measurement have to be taken into consideration. The PBPA report data by highest volume and highest government cost by PBS item. The ASM and DUSC report data drawn from the HIC records of prescriptions submitted for payment under the PBS and RPBS, and the Guild's Survey – an ongoing survey of a representative sample of community pharmacies for the non-subsidised use of prescription medicines in the community. Figure 3.5 summarises ASM results with regard to the top ten most commonly used medicines (in descending order) defined by daily dose per thousand population per day for total community use and by prescription count.

[61] Pharmaceutical Benefits Pricing Authority 2004, *Annual Report for the year ended 30 June 2003*, Commonwealth Department of Health and Ageing, Canberra.
[62] Commonwealth Department of Health and Ageing 2003, *Australian Statistics on Medicines. 1999–2000*, <www.health.gov.au/pbs/healthpro/pubs/pdf/asm00.pdf> (12 August 2004).
[63] Drug Utilisation Sub-Committee 2003, 'Top 10 drugs', *Aust Prescr*, 26:4.

Figure 3.5: ASM Results: the Top 10 Most Commonly Used Medicines in the Australian Community

Medicines defined by	1999*	2000*	2001–2002[64]
daily dose per 1000 population/ day for total community use	1. SALBUTAMOL 2. ATORVASTATIN 3. SIMVASTATIN 4. FRUSEMIDE 5. BUDESONIDE 6. RANITIDINE 7. ENALAPRIL 8. IPRATROPIUM BROMIDE 9. AMLODIPINE 10. THYROXINE	1. ATORVASTATIN 2. SALBUTAMOL 3. SIMVASTATIN 4. FRUSEMIDE 5. RANITIDINE 6. BUDESONIDE 7. CELECOXIB 8. IPRATROPIUM BROMIDE 9. ENALAPRIL 10. AMLODIPINE	1. ATORVASTATIN 2. SIMVASTATIN 3. SALBUTAMOL 4. OMEPRAZOLE 5. FRUSEMIDE 6. RAMIPRIL 7. CELECOXIB 8. ROFECOXIB 9. IRBESARTAN 10. AMLODIPINE
prescription counts for total community use	1. PARACETAMOL 2. SALBUTAMOL 3. CODEINE with PARACETAMOL 4. AMOXYCILLIN 5. SIMVASTATIN 6. RANITIDINE 7. TEMAZEPAM 8. ATENOLOL 9. ATORVASTATIN 10. LEVONORGESTREL with ETHINYLOESTRADIOL	1. PARACETAMOL 2. SALBUTAMOL 3. SIMVASTATIN 4. AMOXYCILLIN 5. ATORVASTATIN 6. CODEINE with PARACETAMOL 7. RANITIDINE 8. TEMAZEPAM 9. ATENOLOL 10. LEVONORGESTREL with ETHINYLOESTRADIOL	1. ATORVASTATIN 2. SIMVASTATIN 3. PARACETAMOL 4. OMEPRAZOLE 5. CELECOXIB 6. SALBUTAMOL 7. CODEINE 30MG with PARACETAMOL 8. RANITIDINE 9. ATENOLOL 10. IRBESARTAN

* data in this table are adopted from the *Australian Statistics on Medicines. 1999–2000*

RUMS data about the most commonly returned medicines also corresponds with statistics provided by the PBPA[65] with regard to the most commonly used medicines in Australia both by highest volume and the highest Government cost. The top ten medicines returned in RUMS there were: GLYCERYL TRINITRATE, PREDNISOLONE, SALBUTAMOL SULFATE (spelling as per PBS), PARACETAMOL, WARFARIN SODIUM, FRUSEMIDE, AMOXYCILLIN, ASPIRIN, METOCLOPRAMIDE HYDROCHLORIDE, CODEINE PHOSPHATE with PARACETAMOL. While some data was similar to AMS data,[66] there were also some differences. For example, RUMS recorded a higher proportion of GLYCERYL TRINITRATE, PREDNISOLONE and WARFARIN SODIUM. This can possibly be explained by the differences in the demographic characteristics of consumers in RUMS and the total Australian community.

Within each of the TC there were some medicines that were returned more commonly (all reasons) than others. The most commonly returned medicines within the TCs corresponding with

[64] Drug Utilisation Sub-Committee 2003, 'Top 10 drugs', *Aust Prescr*, 26:4.
[65] Pharmaceutical Benefits Pricing Authority 2004, *Annual Report for the year ended 30 June 2003*, Commonwealth Department of Health and Ageing, Canberra.
[66] Commonwealth Department of Health and Ageing 2003, *Australian Statistics on Medicines. 1999–2000*, <www.health.gov.au/pbs/healthpro/pubs/pdf/asm00.pdf> (20 August 2004).

the anatomical main groups are listed below. Here, all medicines are categorised by their generic name (percent of return within relevant TC):

Alimentary tract and metabolism

- METOCLOPRAMIDE HYDROCHLORIDE (9.40%)
- RANITIDINE HYDROCHLORIDE (9.10%)
- PROCHLORPERAZINE (6.10%)

Anti-infectives for systemic use

- AMOXYCILLIN (18.50%)
- TETRACYCLINE HYDROCHLORIDE (14.00%)
- CEPHALEXIN (11.80%)

Antineoplastic and immunomodulating agents

- TAMOXIFEN CITRATE (23.10%)
- FLUOROURACIL (15.40%)
- CYCLOSPORIN (15.40%)

Antiparasitic products, insecticides and repellents

- QUININE BISULFATE (42.30%)
- QUININE SULFATE (26.90%)

Blood and blood forming organs

- WARFARIN SODIUM (48.10%)
- FERROUS SULFATE DRIED with FOLIC ACID (11.10%)
- ASPIRIN (9.90%)

Cardiovascular system

- GLYCERYL TRINITRATE (11.00%)
- FRUSEMIDE (8.30%)
- IRBESARTAN with HYDROCHLOROTHIAZIDE (6.30%)
- DIGOXIN (5.80%)
- AMLODIPINE BESYLATE (5.60%)
- RAMIPRIL (4.30%)

Dermatologicals

- BETAMETHASONE DIPROPIONATE (14.60%)
- BETAMETHASONE VALERATE (14.60%)
- METHYLPREDNISOLONE ACEPONATE (8.70%)

Genito urinary system and sex hormones

- OESTRADIOL (14.90%)
- RICINOLEIC ACID with ACETIC ACID and HYDROXYQUINOLINE SULFATE (10.80%)
- SODIUM CITRO-TARTRATE (9.50%)
- OESTRIOL (6.80 %) and OESTROGENS - CONJUGATED (6. 80%)

Musculo-skeletal system

- CELECOXIB (12.20%)
- ROFECOXIB (11.20%)
- IBUPROFEN (10.70%)

- DICLOFENAC SODIUM (9.20%)
- NAPROXEN (9.20%)

Nervous system

- PARACETAMOL (8.40%)
- CODEINE PHOSPHATE with PARACETAMOL (6.60%)
- TEMAZEPAM (5.90%)
- TRAMADOL HYDROCHLORIDE (5.70%)
- ASPIRIN (5.50%)
- DIAZEPAM (3.60%)
- MORPHINE HYDROCHLORIDE (3.40%)

Respiratory system

- SALBUTAMOL SULFATE (21.60%)
- FLUTICASONE PROPIONATE with SALMETEROL XINAFOATE (8.60%)
- TERBUTALINE SULFATE (7.60%)
- BECLOMETHASONE DIPROPIONATE (5.40%)
- BUDESONIDE (4.90%)

Sensory organs

- CHLORAMPHENICOL (21.00%)
- BIMATOPROST (8.60%)
- TRIAMCINOLONE ACETONIDE with NEOMYCIN SULFATE, GRAMICIDIN and NYSTATIN (8.60%)

Systemic hormonal preparations, excl. sex hormones and insulins

- PREDNISOLONE (66.70%)
- THYROXINE SODIUM (11.70%).

Part B: The reasons for return

3.5 Classification of reasons

3.5.1 Individual reasons and explanations

RUMS respondents offered a wide range of individual reasons and explanations of why they returned medicine/s and why those were either not needed or not wanted.

Listed are individual reasons and explanations offered by consumers:

- medicine passed use-by date
- consumer got better/stopped taking medicine without completing the recommended course
- consumer passed away
- consumer experienced unwanted effects of a medicine
- medicine was recalled by the manufacturer
- doctor changed/replaced medicine (with either different medicine/brand/type)

- doctor recommended to stop/cease medicine (without replacing)
- doctor changed prescription to different dosage/administration mode/same medicine
- consumer completed recommended course of medication
- consumer stopped medicine without consulting a medical practitioner
- consumer unable to take oral medication
- consumer did not experience benefits (i.e. medicine 'does not work', 'is useless', 'not effective')
- consumer moved into a nursing home and left medicines behind
- consumer stated that 'medicine is no longer needed'
- medicine expired since opening (i.e. eye drops expired in 30 days after opening)
- consumer is not able/not willing to use medicine in prescribed administration mode
- consumer was taken off this medicine while in hospital
- consumer moved out of home and left medicines behind
- consumer 'refused' to take medicine for unknown reasons
- consumer stopped medicines due to information from 'the media'
- consumer departed the institution (return in accord with the institutional protocols)
- consumer thought that medicine/prescription was inappropriate
- consumer cannot use medicine due to pregnancy
- consumer's 'health/health status' changed
- consumer stopped medication because medicine is 'too expensive'
- unable 'to use medicine properly' (no further explanation)
- medication stopped as per recommendation from the home medication review team
- purchase of medicine over needs

3.5.2 Reason categories

For the purpose of data analysis and presentation, individual reasons and explanations relevant to medicinal returns were categorised into several broader categories – 'reason categories' – and subsequently recoded. *Reason categories*, associated codes and individual reasons and explanations under relevant *reason category* are described in Figure 3.6.

Figure 3.6: *Reason Category* and Stated Reasons for Return

Code	Reason category	Stated reason
I.	**Safety associated with medicinal use/efficacy of medicines**	Medicine: ▪ passed their expiry date ▪ was recalled by the manufacturer ▪ expired since opening Consumer: ▪ cannot use medicine due to pregnancy
II.	**Change in therapy/medication recommended by a medical practitioner/other health professional**	Doctor: ▪ changed/replaced medicine (with different medicine/brand/type) ▪ recommended to stop/cease medicine (without replacing) ▪ changed prescription to different dosage/or administration mode of the same medicine ▪ took the patient off medicine while in hospital Home medication review team: ▪ recommended to stop/cease medicine
III.	**Consumer's death**	Consumer passed away
IV.	**Consumer perception regarding the need for medicines/medication**	Consumer: ▪ got better and stopped taking medicine without completing the recommended course ▪ completed recommended course of medication ▪ 'health'/'health status' have changed ▪ stated that 'medicine is no longer needed' (no further explanation given) ▪ purchased medicine over needs
V.	**Consumer's ability to use medicine/prescribed administration mode**	Consumer: ▪ unable to take oral medication ▪ not able/not willing to use medicine in prescribed administration mode ▪ unable 'to use medicine properly' (no further explanation given)
VI.	**Consumer's perception of effectiveness of medicine/medication**	Consumer: ▪ did not experienced benefits of medication (including statements that a medicine is 'not working'; 'useless'; 'not effective') ▪ perceived medicine/prescription as not appropriate
VII.	**Financial barriers**	Consumer stopped medication because medicine was 'too expensive'
VIII.	**Experience of unwanted effects**	Consumer experienced unwanted effects of a medicine
IX.	**Consumer moved and left medicines behind**	Consumer moved: ▪ into a nursing home ▪ out of home ▪ out of the institution/return in accord with the intuitional protocols/by agency/worker
X.	**Other**	Consumer: ▪ stopped medicine without consulting the medical practitioner who prescribed this medicine ▪ 'refused' to take medicine for unknown reasons ▪ stopped medicines due to information from 'media'

3.6 Stated reasons for return

3.6.1 Single and multiple reasons

Among the reasons and explanations that consumers offered with respect to why they returned medicines and why these medicines were either not needed or not wanted, the majority of consumers stated at least one reason/explanation for each medicine returned (N=2217, 98.5%). There were also instances of multiple responses where a medicine was returned for a number of individual reasons and explanations. Thus 14.5 percent (N=325) of medicines were returned for two reasons and 0.4 percent (N=8) were returned for three individual reasons. In this study both individual reasons and *reason categories* were analysed. The first reason stated was coded as 'Reason 1', the second as 'Reason 2' and the third as 'Reason 3'. It is important to note that sequence of the reason 'number' here is of no significance as data was analysed for multiple

responses. Figures 3.7 and 3.8 show results for *reason 1* and *reason 2* by *reason categories* respectively.

Figure 3.7: *Reason 1* Return by *Reason category*

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Safety of use/efficacy of medicines	709	31.5	32.9	32.9
	Consumer's death	585	26.0	27.1	60.0
	Change in therapy/medication recommended by a medical practitioner/other health professional	283	12.6	13.1	73.1
	Consumer's perception regarding the need for medicines/medication	199	8.8	9.2	82.3
	Experience of unwanted effects	183	8.1	8.5	90.8
	Consumer moved and left medicines behind	158	7.0	7.3	98.1
	Other	21	0.9	1.0	99.1
	Consumer's perception of effectiveness of medicine/medication	12	0.5	0.6	99.7
	Consumer's ability to use medicine/prescribed administration mode	6	0.3	0.3	100.0
	Financial barriers to medicine taking	1	0.0	0.0	100.0
	Total	2157	95.9	100.0	
	Missing system	93	4.1		

For *reason 1* return (see Figure 3.7) the five most frequent individual reasons/explanations for return were:

1) all individual reasons
   - medicine passed expiry (N=685, 30.9%)
   - consumer passed away (N=585, 26.4%)
   - doctor changed/replaced medication (N=189, 8.5%)
   - consumer experienced unwanted effects (N=183, 8.3%)
   - consumer 'got' better and did not complete the recommended course (N=140, 6.3%)
2) all individual reasons excluding those where the patient/consumer 'passed away' or departed the institution/return in accord with the intuitional protocols
   - medicine passed expiry (N=685, 42.2%)
   - doctor changed/replaced medication (N=189, 11.6%)
   - consumer experienced unwanted effects (N=183, 11.3%)
   - consumer 'got' better and did not complete the recommended course (N=140, 8.6%)

For *reason 2* return (see Figure 3.8), the most frequent individual reasons/explanations offered were:

1) all individual reasons
   - doctor changed/replaced medication (N=115, 35.4%)
   - consumer stopped medicines without consultation (N=62, 19.1%)
   - medicine passed expiry (N=30, 9.2%)
   - doctor stopped medication (N=27, 8.3%)

Figure 3.8: *Reason 2* Return by *Reason Category*

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Change in therapy/medication recommended by a medical practitioner/other health professional	153	6.8	47.5	47.5
	Other	66	2.9	20.5	68.0
	Safety of use/efficacy of medicines	36	1.6	11.2	79.2
	Consumer's perception regarding the need for medicines/medication	32	1.4	9.9	89.1
	Consumer moved and left medicines behind	24	1.1	7.5	96.6
	Experience of unwanted effects	7	0.3	2.2	98.8
	Consumer's perception of effectiveness of medicine/medication	3	0.1	0.9	99.7
	Consumer's ability to use medicine/prescribed administration mode	1	0.0	0.3	100.0
	Total	322	14.3	100.0	
	Missing system	1928	85.7		
Total		2250	100.0		

2) individual reasons excluding those where the patient/consumer 'passed away' or departed the institution/return in accord with the intuitional protocols
   - doctor changed/replaced medication (N=115, 35.7%)
   - consumer stopped medicines without consultation (N=62, 19.3%)
   - medicine passed expiry (N=27, 8.4%)
   - doctor stopped medication (N=27, 8.4%)

For *reason 3* return, data for individual reasons were the same for 'all medicines' and medicines excluding those where departed the institution/return in accord with the institutional protocols:

- doctor stopped medication (N=1, 12.5%)
- consumer stopped medicines without consultation (N=3, 37.5%)
- consumer not experienced benefits (N=2, 25.0%)
- consumer stated medicines 'no longer needed' (N=1, 12.5%)
- consumer unwilling/unable to take medicines (N=1, 12.5%)

3.6.2 Multiple responses by reason category

The following figures present RUMS findings for multiple responses – for all medicines by reason categories excluding individual reasons/explanations where patient/consumer either 'passed away' or departed the institution (return in accord with the institutional protocols). Figure 3.9 comprised data for *reason categories* and TC (percent of responses and percent of cases) for multiple responses, whereas Figure 3.10 demonstrates data for multiple responses within *reason category* for each of the TC.

Figure 3.9: Multiple Responses – Reasons for Return – Excluding Selected Reasons*

Reason category	Code	Count	% of responses	% of cases
Safety of use/efficacy of medicines	I	742	39.2	47.4
Change in medication recommended by a medical practitioner/other health professional	II	437	23.1	27.9
Consumer's perception regarding the need for medication	IV	231	12.2	14.8
Consumer's ability to use medicine	V	8	0.4	.5
Consumer's perception of effectiveness of medicine/medication	VI	17	0.9	1.1
Financial barriers to medicine-taking	VII	1	0.1	0.1
Experience of unwanted effects	VIII	190	10.0	12.1
Consumer moved and left medicines behind	IX	176	9.3	11.2
Other	X	90	4.8	5.7
Total responses		1892	100.0	120.8

*excluding individual reasons/explanations where patient/consumer either 'passed away' or departed the institution/return in accord with the institutional protocols.

As data in Figure 3.9 demonstrates, consumers more often returned medicines due to individual reasons falling under *reason categories* associated with safety of medicines and the use and efficacy of medicines (39.2% of responses; 47.4% of cases), change in medication recommended by a medical practitioner or other health professional (23.2% of responses; 27.9% of cases), consumer's perception regarding the need for medication (12.2% of responses; 14.8% of cases) and experience of unwanted effects (10% of responses; 12.1% of cases).

- ***Multiple responses by reason category and TC***

Figure 3.10 presents data on returned medicines for multiple responses for each of the therapeutic classes. Here percentages are based on respondents within *reason categories*. Evidence in Figure 3.10 demonstrates that distribution of reasons within therapeutic classes varies. Likewise, the share of medicines representing different therapeutic classes ranges within each of the *reason categories*. Thus medicines prescribed and used for the cardiovascular system were the most commonly returned due to change in medication recommended by a medical practitioner or other health professional (33.4% within *reason category*). Anti-infectives were the most frequently returned for reasons associated with consumer's perception regarding the need for medication (23.8% within *reason category*). Medicines prescribed and used for the nervous system were those most frequently returned due to perceived effectiveness of treatment (29.4% within *reason category*) and due to unwanted effects (31.1% within *reason category*).

Figure 3.10: Multiple Responses – Therapeutic Class by *Reason Category*

TC code	Percent within reason category of return										
	I	II	III	IV	V	VI	VII	VIII	IX	X	Total
S100	0.1	0	0	0.9	0	0	0	0	0	0	0.1
ALIM	13.4	13.5	18.5	13.4	12.5	11.8	0	7.4	13.1	10	14.6
A/Inf	8.6	5.5	4.3	23.8	12.5	17.6	100	10	6	28.9	7.9
A/Neo	0.1	0.7	1.4	0.4	0	0	0	0	0	0	0.6
A/Par	1.1	0.5	1.7	0.4	0	0	0	0	2.7	2.2	1.2
BLOOD	1.2	2.3	7	1.7	0	5.9	0	2.1	7.1	1.1	3.6
CARD	11.4	33.4	20.5	8.2	0	11.8	0	24.2	26.8	4.4	19.5
DERM	9.1	1.1	3.4	5.2	0	0	0	0	2.2	0	4.7
GEN/U	3.1	4.3	2.1	1.7	37.5	0	0	10	3.8	10	3.4
HORM	2.3	1.4	4.5	2.6	0	0	0	0.5	2.2	2.2	2.6
MUSC	13	8.2	5.7	5.6	12.5	11.8	0	11.1	8.7	2.2	8.9
NERV	14	24.3	19.9	17.3	12.5	29.4	0	31.1	24	36.7	19.4
RESP	12.8	4.3	7	12.6	12.5	11.8	0	1.6	1.1	1.1	8.3
SENS	7.5	0	2.2	5.2	0	0	0	1.1	1.6	1.1	3.7
VAR	0.8	0.5	0.5	0.9	0	0	0	0.5	0	0	0.6
Comp	1.5	0.2	1.4	0	0	0	0	0	0.5	0	1
Total percent	34.5*	20.3*	27.1*	10.7	0.4*	0.8*	0*	8.8*	8.5*	4.2*	100*

* Percentages based on respondents

- ***Multiple responses by selected reason category and TC***

Medicines returned under the *reason categories* I and III represent a significant proportion of returned medicines (34.5% and 27.1% respectively). Medicines in category III were mainly returned because a consumer had passed away. Returns under this category are more likely to be consistent with principles of safe disposal of unwanted medicines. Matters relating to *reason category* I returns are not as straightforward. Here, consumers most commonly returned medicines stating that those medicines were not needed because they had passed their use-by date. At first glance, consumer rationale here also matches up with the QUM principles of safe medicinal use and disposal. However, further analysis of RUMS data revealed that among medicines that had passed their expiry dates there were unused ones (see section on unused medicines later in this chapter). In such instances the primary reason for return could not be determined within the parameters of this study.

There are several possible explanations here, ranging in their complexity. It is possible that consumers who returned medicines for others were simply not aware of the primary reason of why those medicines were not wanted. Respondents could have forgotten about the primary

reason for not using their medicines or have offered a response that in their view was socially expected. It is also possible that there are more complex socio-cultural influences on consumer practices that can be uncovered in further research by utilisation of methods that are equipped for in-depth exploration of the issue.

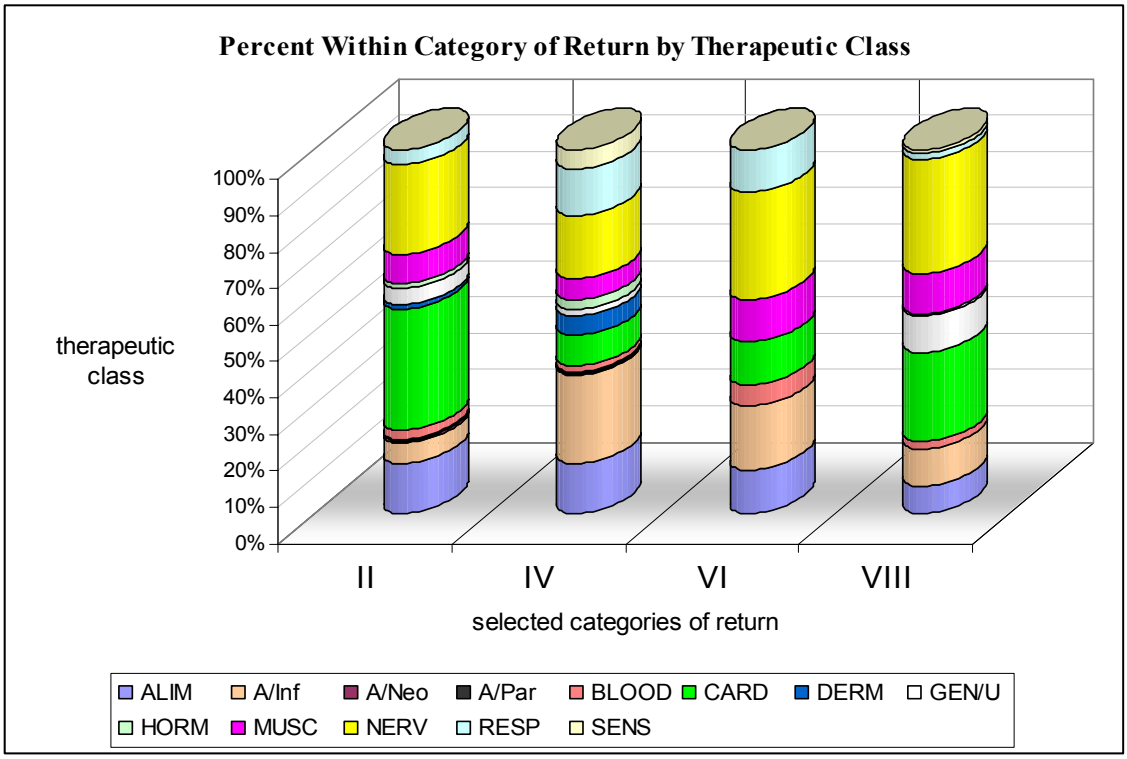
Several *reason categories* were of greater interest to RUMS because of their relevance to medication management in the community (see Figure 3.11). Those 'selected' categories included:

- change in medication recommended by a medical practitioner/other health professional (category II);
- consumer's perception regarding the need for (category IV) and effectiveness of (category VI) medicine/medication; and
- experience of unwanted effects (category VIII).

Figure 3.11 illustrates the share of TCs representing the main anatomical groups within each of the 'selected' *reason categories*. For example, it shows that medicines most commonly returned due to change in medication recommended by a medical practitioner or other health professional were those prescribed and used for cardiovascular and nervous systems.

Among medicines returned due to consumer's perception regarding the need for medication, anti-infectives (23.8 percent) were returned most. High representation of anti-infectives is of concern, because individual reasons and explanations here included consumers ceasing medication without completing the recommended course of treatment.

Figure 3.11: Percent Within Category of Return by Therapeutic Class



Among anti-infectives returned within *reason category* IV, CEPHALEXIN (27.9%) and AMOXYCILLIN (16.3%) were the most commonly returned.

RUMS findings with regard to the return of anti-infectives point to possible misuse of those medicines in the community. In Australia, issues associated with over-prescribing and misuse of anti-infectives has attracted the attention of major stakeholders since the late 1980s,[67, 68, 69] leading to the introduction of various educational activities in the context of QUM.[70, 71] In the past three decades, the use of anti-infectives has continued to be the focus of professional education and community awareness activities. However, RUMS findings suggest that despite all the effort, there is still room to improve the use of anti-infectives in Australia.

Consumer perceptions about the need for specific medicines and/or completing of the recommended course of treatment were often associated with consumers' experiences of illness and/or symptoms. For example, some returned medicines were perceived as 'not needed' due to experience of positive effects of medication: consumer 'got better', experienced positive

[67] Birkett, D. J. et al. 1991, 'Profiles of antibacterial drug use in Australia. A report from the Drug Utilisation Subcommittee of the Pharmaceutical Benefits Advisory Committee', *MJA*,155: 410–415.
[68] Mcmanus, P. et al. 1997, 'Antibiotic use in the Australian community', *MJA*, 167: 124–127.
[69] Turnidge, J. 1997, 'Antibiotic use or misuse?', *MJA*, 167: 116–117.
[70] Harvey, K., Stewart, R. & Hemming, M. 1986, 'Educational antibiotic prescribing', *MJA*, 1986,145: 28–32.
[71] De Santis, G. et al. 1994, 'Improving the quality of antibiotic prescription patterns in general practice: the role of educational intervention.' *MJA*, 160: 502–505.

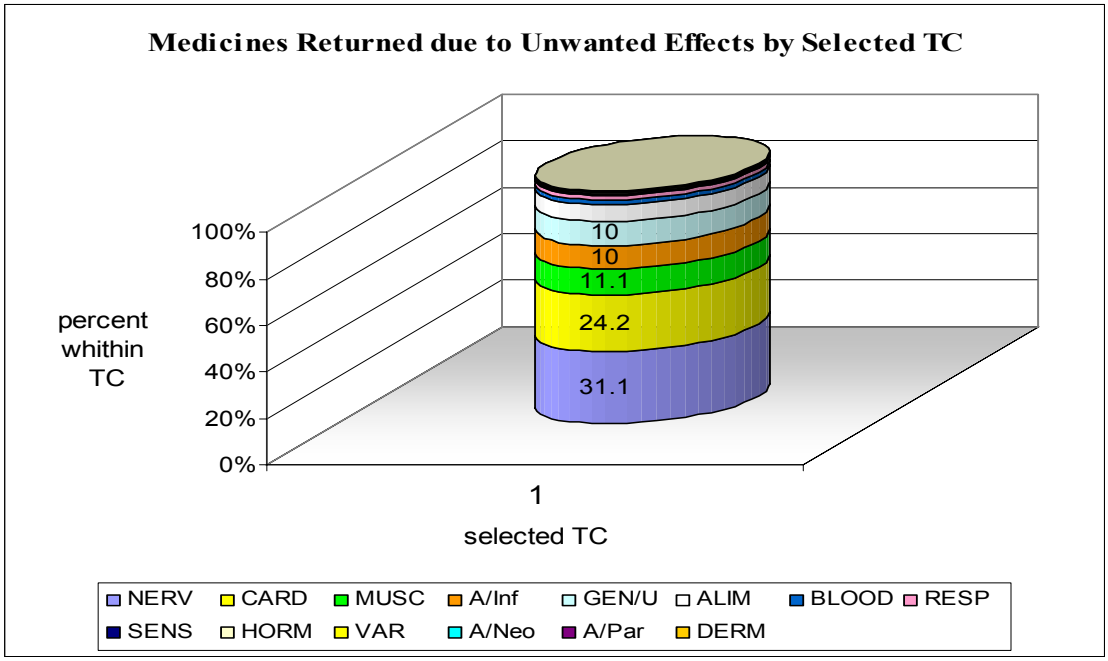
therapeutic outcomes, positive changes in symptoms or in 'health' and interrupted medicine-taking.

Importantly, consumers also reported stopping medicines due to their perception of the effectiveness or non effectiveness of the medicine/medication. In terms of statistics this category is less significant. However, it is essential in the context of QUM. What is important here is the criteria that consumers use for establishing whether or not medicines are effective. Here consumers utilise their criteria based on their expectations of and experiences with medicine-taking, i.e. perceived therapeutic effects of medicines. Within *reason category* VI, consumers stopped medications and perceived medicines as 'not effective', 'not working' or 'useless' in instances where they did not experienced any positive changes of symptoms or improved health. This finding is particularly relevant to medicines prescribed for preventive purposes, in particular in chronic disease management and secondary prevention.

3.6.3 Medicines returned due to unwanted effects

RUMS results suggest that consumers often return medicines and cease medications due to experiences of various unwanted effects. One hundred and ninety medicines were not wanted by consumers due to experiences of unwanted negative effects. This represents about 10 percent of all responses and 12.1 percent of all cases (see Figure 3.9). Figure 3.12 illustrates the share of medicines representing main TC within this category of return.

Figure 3.12: Medicines Returned due to Unwanted Effects by Selected TC



As data in Figure 3.12 illustrates, 31 percent of medicines returned due to experience of unwanted effects were medicines used for the nervous system (31.1%), cardiovascular system (24.2%) and musculo-skeletal system (11.1%). In addition, figures 3.14 and 3.15 provide information about all medicines returned by consumers due to unwanted effects. Figure 3.13 categorises data with respect to the main anatomical TC while Figure 3.14 presents a list of the ten top most commonly returned medicines categorised by their generic name.

Figure 3.13: Medicines Returned due to 'Unwanted Effects' by Therapeutic Class

	Therapeutic class	Frequency	Percent	Valid percent	Cumulative percent
Valid	Alimentary tract and metabolism	14	7.4	7.4	7.4
	Anti-infectives for systemic use	19	10.0	10.0	17.4
	Blood & blood forming	4	2.1	2.1	19.5
	Cardiovascular system	46	24.2	24.2	43.7
	Genito-urinary system and sex hormones	19	10.0	10.0	53.7
	Musculo-skeletal	21	11.1	11.1	64.7
	Nervous system	59	31.1	31.1	95.8
	Respiratory system	3	1.6	1.6	97.4
	Sensory organs	3	1.6	1.6	98.9
	Systemic hormonal preparations excl. sex hormones	1	0.5	0.5	99.5
	Various	1	0.5	0.5	100.0
	Total	190	100.0	100.0	

Figure 3.14: The Top 10 Generic Medicines Returned due to Experiencing 'Unwanted Effects'

Generic name	Frequency	Percent within reason
1. IRBESARTAN with HYDROCHLOROTHIAZIDE	6	3.2
2. OXYCODONE HYDROCHLORIDE	6	3.2
3. CELECOXIB	5	2.6
4. SIMVASTATIN	5	2.6
5. AMLODIPINE BESYLATE	4	2.1
6. ATORVASTATIN CALCIUM	4	2.1
7. OXYBUTYNIN HYDROCHLORIDE	4	2.1
8. TRAMADOL HYDROCHLORIDE	4	2.1
9. AMITRIPTYLINE HYDROCHLORIDE	3	1.6
10. AMOXYCILLIN	3	1.6

3.6.4 Medicines stopped without consulting a medical practitioner

A total of 77 medicines returned in RUMS were stopped by consumers without consulting a medical practitioner. While the overall number is not great, of concern is the high proportion of anti-infectives in general (see Figure 3.15) and selected generic name medicines in particular (see Figure 3.16), for example AMOXYCILLIN (N=7, 9.1%) and CEPHALEXIN (N=5, 6.5%).

3.15: Medicines Stopped by Consumers Without Consulting a Medical Practitioner by TC

	Therapeutic class	Frequency	Percent	Valid percent	Cumulative percent
Valid	Alimentary tract and metabolism	7	9.1	9.1	9.1
	Anti-infectives for systemic use	23	29.9	29.9	39.0
	Antiparasitic insecticides or repellents	2	2.6	2.6	41.6
	Blood & blood forming	1	1.3	1.3	42.9
	Cardiovascular system	4	5.2	5.2	48.1
	Genito urinary system and sex hormones	9	11.7	11.7	59.7
	Musculo-skeletal	2	2.6	2.6	62.3
	Nervous system	25	32.5	32.5	94.8
	Respiratory system	1	1.3	1.3	96.1
	Sensory organs	1	1.3	1.3	97.4
	Systemic hormonal preparations excl. sex hormones	2	2.6	2.6	100.0
	Total	77	100.0	100.0	

3.16: The 10 Top Medicines Stopped by Consumers Without Consulting a Medical Practitioner

Generic name	Frequency	Percent within reason
1. AMOXYCILLIN	7	9.1
2. CEPHALEXIN	5	6.5
3. CODEINE PHOSPHATE with PARACETAMOL	3	3.9
4. CYPROTERONE ACETATE	2	2.6
5. DEXTROPROPOXYPHENE NAPSYLATE	2	2.6
6. METRONIDAZOLE	2	2.6
7. OLANZAPINE	2	2.6
8. PREDNISOLONE	2	2.6
9. RANITIDINE HYDROCHLORIDE	2	2.6
10. SODIUM VALPROATE	2	2.6

In RUMS, AMOXYCILLIN and CEPHALEXIN were among the top 25 most commonly returned medicines and the top 3 most commonly returned anti-infectives. Among anti-infectives returned due to reasons associated with consumer perception about the need for medication, CEPHALEXIN (27.9%) and AMOXYCILLIN (16.3%) were the most commonly returned (see material described earlier in this chapter). Data in Figure 3.15 also demonstrates that AMOXYCILLIN (N=7, 9.1%) and CEPHALEXIN (N=5, 6.5%) were often stopped without consulting the prescriber.

3.6.5 Unused medicines

'Unused medicines' here are defined as medicines with 'zero percent use'. Usage of returned medicines was determined by comparing quantities of medicines returned with quantities of medicines in the original packages and recoded into the 'percentage usage categories' established with 10 percent intervals (see Figure 3.17).

Figure 3.17: Percentage Usage Category (frequencies in descending order)

	Percentage usage category	Frequency	Percent	Valid percent	Cumulative percent
Valid	Zero percent used	394	17.5	19.2	19.2
	More than 30 up to 40	255	11.3	12.4	31.6
	More than 40 up to 50	228	10.1	11.1	42.7
	More than 10 up to 20	212	9.4	10.3	53.0
	More than zero up to 10	180	8.0	8.8	61.8
	More than 50 up to 60	168	7.5	8.2	70.0
	More than 70 up to 80	163	7.2	7.9	77.9
	More than 60 up to 70	137	6.1	6.7	84.6
	More than 20 up to 30	121	5.4	5.9	90.5
	More than 80 up to 90	119	5.3	5.8	96.3
	More than 90, less than 100	75	3.3	3.7	99.9
	100 percent used	2	0.1	0.1	100.0
	Total	2054	91.3	100.0	
	Missing system	196	8.7		
Total		2250	100.0		

'Unused medicines' were those with quantity of returned medicines being equal to quantity of medicines in the original package. Quantities of medicines returned were estimated and recorded by the data collectors. The original quantities of medicines were identified from original medicinal labels. Returned medicines in solid form (i.e. tablets, lozenges etc.) were counted and their quantities recorded with 'number of medicines'. Quantities of medicines in semi-solid form (i.e. ointments, creams etc.) were estimated and recorded according to their weight. Quantities of medicines in liquid form (i.e. drops, solutions, aerosols etc.) were estimated and recorded according to their volume. Using quantities in the original packages as 100 percent, percentages for quantities returned have been calculated by SPSS. There were also instances where 'quantity used' was not readily identifiable, for example, where the actual chemical substance was enclosed in a container (i.e. inhaler etc.).

As data in Figure 3.17 demonstrates, generally returned medicines tend to have a low percentage of use. Thus 394 medicines were in the 'zero percent used' category or unused, representing the highest proportion of medicines returned (17.5% or 19.2 valid percent) among all percentage usage categories. Furthermore, 61.7 percent of all medicines returned had a percentage of use of less than 50 percent. Figure 3.18 below shows usage of medicines returned for all reasons for each of the TC, based on the percentage usage category for all the cases with valid data in the specified ranges.

Figure 3.18: Frequency Table for Unused Medicines by Therapeutic Class (all medicines)

	Therapeutic class	Frequency	Percent	Valid percent	Cumulative percent
Valid	Section 100	1	0.3	0.3	0.3
	Alimentary tract and metabolism	58	14.7	14.7	15.0
	Anti-infectives for systemic use	22	5.6	5.6	20.6
	Antineoplastic immunomodulating agents	4	1.0	1.0	21.6
	Antiparasitic insecticides/repellents	6	1.5	1.5	23.1
	Blood & blood forming	3	0.8	0.8	23.9
	Cardiovascular system	65	16.5	16.5	40.4
	Dermatologicals	29	7.4	7.4	47.7
	Genito-urinary system and sex hormones	16	4.1	4.1	51.8
	Musculo-skeletal	28	7.1	7.1	58.9
	Nervous system	57	14.5	14.5	73.4
	Respiratory system	57	14.5	14.5	87.8
	Sensory organs	30	7.6	7.6	95.4
	Systemic hormonal preparations excl. sex hormones	6	1.5	1.5	97.0
	Various	7	1.8	1.8	98.7
	Complementary	5	1.3	1.3	100.0
	Total	394	100.0	100.0	

As data in Figure 3.18 illustrates, among unused medicines 16.5 percent were those for the cardiovascular system, 14.7 percent were those for the alimentary tract and metabolism, 14.5 percent for the nervous system and 14.5 percent for the respiratory system. The top ten unused medicines categorised by generic name are listed in Figure 3.19 below.

Figure 3.19: Frequencies for Zero Percent Used Medicines by Generic Name (all reasons)

Generic name	Frequency	Percent	Valid percent
1. SALBUTAMOL SULFATE	15	3.8	3.8
2. COMPLEMENTARY	8	2	2
3. FLUTICASONE PROPIONATE with SALMETEROL XINAFOATE	8	2	2
4. METOCLOPRAMIDE HYDROCHLORIDE	8	2	2
5. GLYCERYL TRINITRATE	7	1.8	1.8
6. IRBESARTAN with HYDROCHLOROTHIAZIDE	7	1.8	1.8
7. TERBUTALINE SULFATE	7	1.8	1.8
8. AMOXYCILLIN	6	1.5	1.5
9. FRUSEMIDE	6	1.5	1.5
10. HYDROCHLOROTHIAZIDE	6	1.5	1.5

As shown in Figure 3.19, SALBUTAMOL SULFATE was a medicine that was most commonly returned unused. There are several possible explanations of the substantial proportion of SALBUTAMOL SULFATE being returned unused. It is also useful to note here that, estimating quantities of medicines in liquid form (i.e. aerosols etc.) may present a difficulty. Nevertheless, RUMS results indicate a high proportion of SALBUTAMOL SULFATE returned unused, which may suggest misuse of this medicine for asthma treatment and management. As discussed earlier in this chapter, SALBUTAMOL SULFATE was the third of the top most commonly returned medicines in RUMS and the most commonly returned medicine used for the respiratory system (21.60%

within therapeutic class). Yet out of a total of 40 occasions where SALBUTAMOL SULFATE was returned, on 15 occasions it was unused.

It is important to note here that, most recently, SALBUTAMOL SULFATE was one of the most commonly dispensed and prescribed medicines in Australia – as reported by ASM in 1999–2000[72] and 2001–2002[73] – and elsewhere.[74] According to the ASM data, in 1999 SALBUTAMOL SULFATE was the most commonly used medicine in the Australian community, in 2000 it was the second and in 2001–2002 it was the third (defined by daily dose/thousand population/day, which adjusts for the quantity dispensed per prescription). SALBUTAMOL SULFATE also ranked second by prescription count for 1999 and 2000 and sixth in 2001–2002. In terms of cost to the Australian Government (i.e. subsidised prescriptions) SALBUTAMOL SULFATE ranked ninth in 1999.[75] In early 2000 SALBUTAMOL SULFATE was one of the top twenty medicines prescribed in general practice in Australia.[76] From January 1999 to September 2001 the number of prescriptions was 24,938, to 16,395 patients. The majority of prescriptions were for asthma (80%). Regarding the age of patients it was prescribed to, there was a high proportion of patients in younger age groups: 15 percent of patients were aged less than 10 and 21 percent of patients were aged from 10 to 24.[77]

A high proportion of SALBUTAMOL SULFATE returned unused is of particular concern due to the high proportion of SALBUTAMOL SULFATE being prescribed to children and young adults. In addition, RUMS results indicate possible wastage of resources. While the use of SALBUTAMOL SULFATE in the context of QUM requires further investigation, it would be useful to inform the prescribers about relevant RUMS findings.

As discussed earlier, RUMS participants returned 394 medicines that were unused. Out of those a substantial proportion (32.9%) had not passed their expiry date (see Figure 3.20).

[72] Commonwealth Department of Health and Ageing 2003, *Australian Statistics on Medicines. 1999–2000*, <www.health.gov.au/pbs/healthpro/pubs/pdf/asm00.pdf> (12 August 2004).
[73] Drug Utilisation Sub-Committee 2003, 'Top 10 drugs', *Aust Prescr*, 26:4.
[74] Computachem Services, E-Newsletter 2001, *Prescribing focus: Salbutamol sulfate inhaler*, <http://www.computachem.com.au/enewsletter/ed36f.html> (1 October 2004).
[75] Commonwealth Department of Health and Ageing 2003, *Australian Statistics on Medicines. 1999–2000*, <www.health.gov.au/pbs/healthpro/pubs/pdf/asm00.pdf> (22 October 2004).
[76] Computachem Services, E-Newsletter 2001, *Data Updates: Top 20 medications prescribed*, <http://www.computachem.com.au/enewsletter/ed36f.html> (1 October 2004).
[77] Computachem Services, E-Newsletter 2001, *Data Updates: Top 20 medications prescribed*, <http://www.computachem.com.au/enewsletter/ed36f.html> (1 October 2004).

Figure 3.20: Expiry Date Range – Unused Medicines – Selected Reasons* – Multiple Responses

	Expiry date range	Frequency	Percent	Valid percent	Cumulative percent
Valid	Missing	9	3.2	3.2	3.2
	1979–1989	4	1.4	1.4	4.7
	1990–1999	12	4.3	4.3	9.0
	2000–2004	161	58.1	58.1	67.1
	2005–2009	91	32.9	32.9	100.0
	Total	277	100.0	100.0	

* excluding reasons where a medicine returned due to consumers' death of departure from the institution/return in accord with the intuitional protocols

Figures 3.21 and 3.22 describe statistics relating to expiry dates of unused medicines by *reason category* for multiple responses. Figure 3.21 includes all *reason categories* and Figure 3.22 excludes category III (reasons such as consumer 'passed away' or 'departed the institution'). Analysis of data relating to unused medicines revealed that unused medicines were often returned due to changes in medication recommended by a medical practitioner/other health professional (category II), consumer's perception regarding the need for (category IV) and effectiveness of (category VI) medicine/medication and experience of unwanted effects (category VIII).

Figure 3.21: Expiry Date – Unused Medicines by All *Reason Categories*

Expiry date range	I	II	III	IV	V	VI	VII	VIII	IX	X	Total
1979–1989	2.7	0	0	7.1	0	0	0	0	0	0	1.0
1990–1999	8.1	0	1.8	0	0	0	0	0	0	0	3.7
2000–2004	81.1	39.3	35.4	46.4	0	33.3	0	41.7	26.8	28.6	52.1
2005–2009	6.1	60.7	54.0	46.4	100	66.7	0	58.3	70.7	42.9	38.7
Missing	-	-	-	-	-	-	-	-	-	-	4.5

*Percents and totals based on respondents

As data in both figures above shows, there was a high proportion of unused medicines returned due to reasons categorised as relating to safety of medicinal use and efficacy of medicines. From the QUM perspective such practice may appear desirable. However, we need to take into consideration the composition of reasons and explanations under this category. They were: medicine 'passed their expiry date', 'expired since opening', 'was recalled by the manufacturer' and 'could not be used due to pregnancy'.

Figure 3.22: Expiry Date – Unused Medicines by *Reason Category* excluding *Reason Category* III

Expiry date range	I	II	IV	V	VI	VII	VIII	IX	X	total
1979–1989	2.7	0	7.1	0	0	0	0	0	0	1.5
1990–1999	8.2	0	0	0	0	0	0	0	0	4.5
2000–2004	81.0	39.3	46.4	0	33.3	0	41.7	29.7	28.6	60.0
2005–2009	6.1	60.7	46.4	100	66.7	0	58.3	67.6	42.9	31.8
Missing	-	-	-	-	-	-	-	-	-	2.6

* Percents and totals based on respondents

The latter two reasons only accounted for a negligible number of responses here, whereas 'expired since opening' is not applicable since unused medicines were unopened. It then appears that the main reason/explanation stated by consumers under this category includes medicines that had passed their expiry date. While disposal of medicines that past their expiry date is a practice harmonious with the QUM principles, the question remains as to why those medicines were not used in the first instance.

With regard to the reasons and explanations of why consumers did not need or want the medicines, consumers sometimes stated reasons relating to their perceptions of the effectiveness of the medicine/medication and their experiences with medications. This is contradictory to the fact that those medicines were unused. For example, there were some unused medicines reported unwanted due to experiencing negative or 'unwanted' effects. It is theoretically possible that more than one package of the same medicine was purchased. The consumer then used, or partially used, one package and experienced some unwanted effects, or did not experience expected positive effects, and returned the remaining medicine unused. However, there are other possible explanations of contradictions in responses. Consumers may purchase more medicines than they need, confuse the reasons where they return medicines for others, forget the reasons for not wanting medicines purchased a long time ago, or offer responses which, in their view, are more socially acceptable.

CHAPTER IV: SUMMARY OF KEY RESEARCH FINDINGS AND RECOMMENDATIONS

This chapter summarises RUMS key research findings pertinent to consumer practices of disposal of unwanted and out-of-date medicines and provides recommendations within the context of QUM. Based on findings in this report, several recommendations relate to future research and others relate to the development of activities promoting the *RUM Project* and safe disposal of unwanted medicines among diverse population groups. Recommendations are provided in terms of strategies aiming to expand community awareness about the *RUM Project* among health care providers and all consumers, as well as consumers with specific needs. The challenge is to tailor consumer awareness programs to specific population groups using a systematic approach and ensuring consistency of messages.

The material in this chapter is outlined under the following subheadings:

Part A: Key research findings – consumer practices

Part B: Key research findings – the kinds of medicines returned and the reasons for return

Part C: Recommendations

Part A: Key research findings – consumer practices

In total, a representative sample of 605 consumers participated in RUMS in Melbourne. In terms of socio-demographic characteristics, consumers varied in age; gender; levels of formal education reached; country of birth; language spoken at home; place of residence; and living arrangements.

4.1 Findings from RUMS suggest some association between consumer socio-demographic determinants and their practices of return of unwanted medicines to community pharmacies for ultimate disposal. In Melbourne:

- 4.1.1 older consumers are much more likely to return unwanted and out-of-date medicines to pharmacies than their younger counterparts;
- 4.1.2 consumers aged between 65 and 79 years return medicines much more frequently than people in any other age group;
- 4.1.3 males are much less likely to return medicines to pharmacies than females;
- 4.1.4 overseas-born Australians, particularly those born in non English speaking (NES) countries, are less likely to return medicines to pharmacies than their Australian-born counterparts;

4.1.5 Australians who speak a language other than English (LOTE) at home are less likely to return unwanted medicines to pharmacies than those for whom English is the only language spoken at home;

4.1.6 consumers who reside in districts 5, 6 and 4 (the Guild's classification in metropolitan Melbourne) are more likely to return unwanted medicines to pharmacies than their counterparts who live in other geographic areas; and

4.1.7 consumers living in group households are more likely to return medicines than people living in lone person households (people living alone).

4.2 RUMS results provide information on consumer practices of and experiences with return of unwanted medicines to community pharmacies, in particular on location and occurrences of return. In Melbourne consumers are more likely to:

4.2.1 return medicines to the same pharmacy rather than to different pharmacies; this is particularly true for older consumers;

4.2.2 return medicines to a regional centre pharmacy than to a shopping strip pharmacy;

4.2.3 have previously returned medicine (i.e. before participating in RUMS); the older the consumer the more likely they are to have had prior experience with medicinal return; and

4.2.4 return medicines within one calendar year.

4.3 RUMS findings reveal that consumers return their own unwanted medicines as well as medicines prescribed to and/or used by other consumers. Here, 'other' include spouses, partners, children, parents, other family, flatmates and friends. Various socio-demographic influences on consumer practices relating to whose medicines they return for ultimate disposal:

4.3.1 consumers aged 65 years and over and younger consumers are more likely to return their own medicines;

4.3.2 middle-aged consumers (35–64) are more likely to return medicines prescribed to and/or used by 'others only' or a combination of those and their own medicines;

4.3.3 middle-aged consumers are more likely to return medicines for others because someone has passed away; and

4.3.4 younger consumers (18–34) and females are more likely to return medicines for someone who has moved out of home.

4.4 In RUMS consumer practices and behaviours relating to medicinal return are likely to be linked with pharmacy practice and pharmacists' attitudes relating to the *RUM Project* and

relevant activities. While the pharmacists' role is undoubtedly more significant than the role of other professionals, their own awareness about, attitudes towards, perceptions of and the ways they participate in the *RUM Project* vary greatly. For example, some pharmacists actively promote to their clients their services with regard to disposal of unwanted medicines while others, although offering the services, do not actively promote them. The majority of pharmacists communicate verbally with their clients about the disposal of unwanted medicines, others advertise in print media or display posters. Sources of information that pharmacists access may also be inconsistent. RUMS findings suggest that:

4.4.1 pharmacy location appears to be the only characteristic associated with consumer behaviours relating to medicinal return; and

4.4.2 other measured characteristics such as working hours or numbers of staff in the pharmacy seem to have limited influence.

Most likely differences in rates of returns between participating pharmacies reflect:

- pharmacists' attitudes towards the *RUM Project*;
- diversity of existing pharmacy practices, possibly including pharmacy ownership, management and staffing arrangements;
- availability of resources within a pharmacy;
- the kinds of relationships pharmacists developed with their customers; and
- the ways pharmacists communicate with consumers.

4.5 Findings from RUMS reveal that consumers in Melbourne utilise a range of information sources relating to safe disposal of medicines including health professionals, lay sources and, to a lesser extent, consumer medicine information and advertising. Some consumers in RUMS find it difficult to identify specific sources of information they have been exposed to. Findings from RUMS suggest that:

4.5.1 among health professionals, pharmacists play a most significant role in promoting the *RUM Project* and safe practices of disposal of unwanted medicines; doctors and other health professionals – including various hospital staff, district nurses, psychiatric nurses and diabetes educators – also play some role, and could be more involved;

4.5.2 consumers often learn about safe practices of disposal of unwanted medicines from lay sources, including family members, other relatives, friends, work colleagues and neighbours;

4.5.3 consumers are exposed to information relating to the *RUM Project* and safe practices of medicinal disposal through advertising in media and advertising by pharmacies; and

4.5.4 the role of written consumer information in promoting safe disposal of medicines, and the *RUM Project* in particular, is negligible.

4.6 RUMS findings demonstrate a link between consumer utilisation of various information sources promoting the *RUM Project* and safe practices of disposal of unwanted medicines and consumer gender and age. For example:

4.6.1 males are more likely than females to utilise doctors;

4.6.2 females are more likely than males to utilise media advertising;

4.6.3 pharmacists are the most significant source of information for consumers of all ages, however utilisation of pharmacists increases with age: the older the consumer the more significant the role of the pharmacist;

4.6.4 younger consumers tend to utilise lay sources more than their older counterparts;

4.6.5 utilisation of lay sources decreases with age (apart from age group 80+, where lay sources are slightly more significant in comparison with other older age groups);

4.6.6 advertising is more significant among the middle-age groups (35–49 and 50–64); and

4.6.7 consumers aged 65–70 are more likely to utilise doctors as sources of information than are people in any other age group.

4.7 RUMS results indicate that language spoken at home is also associated with consumer utilisation of various information sources. Thus:

4.7.1 pharmacists are the most significant sources for all language groups, however they are most significant to people speaking LOTE at home;

4.7.2 consumers who stated English as the only language spoken at home reported the highest proportion of utilisation of media and pharmacy advertising and the lowest proportion of utilisation of lay sources;

4.7.3 consumers speaking English and other languages at home reported lower utilisation of media but higher proportion of pharmacy advertising and of lay sources; and

4.7.4 consumers speaking only LOTE at home reported zero utilisation of media and a very low proportion of utilisation of pharmacy advertising, while the proportion of utilisation of lay sources within this group was higher than among other language groups.

Part B: Key research findings – the kinds of medicines returned and the reasons for return

In RUMS consumers in Melbourne returned a total of 2,250 medicines on 605 occasions, with the number of items returned on each occasion ranging from 1 to 22. Returned items represented 787 different kinds of medicines, with a range of different characteristics and reasons for return.

4.8 RUMS findings reveal differences between consumer practices in relation to the kinds of medicines returned. Thus consumers:

- 4.8.1 are more likely to return prescription medicines and less likely to return non-prescription and complementary medicines;
- 4.8.2 are more likely to return medicines in solid form rather than semi-solid and liquid; and
- 4.8.3 are more likely to return medicines sold under the *concessional* rather than the *general* category.

4.9 RUMS findings suggest that consumers store medicines in their homes for extended periods of time before bringing them for ultimate disposal to a pharmacy, and often dispose of medicines that have not passed their expiry dates. In RUMS:

- 4.9.1 expiry dates of returned medicines ranged over a 30 year period, from 1979 to 2009;
- 4.9.2 a substantial proportion of returned medicines have not passed their expiry date at the time of return;
- 4.9.3 returned medicines generally tend to have a low percentage of use; and
- 4.9.4 a substantial proportion of returned medicines are unused.

4.10 RUMS data about the top most commonly returned medicines largely correspond with various Australian reports relating to the use of medicines in the community. In RUMS:

- 4.10.1 the most commonly returned medicines were those prescribed and/or used for the cardiovascular system, the nervous system and the alimentary tract and metabolism;
- 4.10.2 among proprietary name medicines Coumadin (WARFARIN SODIUM)is the most commonly returned; and
- 4.10.3 the top ten generic medicines returned include: GLYCERYL TRINITRATE, PREDNISOLONE, SALBUTAMOL SULFATE, PARACETAMOL, WARFARIN SODIUM, FRUSEMIDE, AMOXYCILLIN, ASPIRIN, METOCLOPRAMIDE HYDROCHLORIDE, CODEINE PHOSPHATE with PARACETAMOL.

The top medicines returned for each of the therapeutic classes representing the main anatomical groups are listed in Figure 4.1 below.

Figure 4.1: The Top Generic Medicines Returned by Therapeutic Class

Therapeutic class	The top generic medicines (percent within therapeutic class)
Alimentary tract and metabolism	METOCLOPRAMIDE HYDROCHLORIDE (9.40%)
Anti-infectives for systemic use	AMOXYCILLIN (18.50%)
Antineoplastic and immunomodulating agents	TAMOXIFEN CITRATE (23.10%)
Antiparasitic products, insecticides and repellents	QUININE BISULFATE (42.30%)
Blood and blood forming organs	WARFARIN SODIUM (48.10%)
Cardiovascular system	GLYCERYL TRINITRATE (11.00%)
Dermatologicals	BETAMETHASONE DIPROPIONATE (14.60%)
Genito-urinary system and sex hormones	OESTRADIOL (14.90%)
Musculo-skeletal system	CELECOXIB (12.20%)
Nervous system	PARACETAMOL (8.40%)
Respiratory system	SALBUTAMOL SULFATE (21.60%)
Sensory organs	CHLORAMPHENICOL (21.00%)
Systemic hormonal preparations, excl. sex hormones and insulins	PREDNISOLONE (66.70%)

4.11 RUMS respondents provided a wide range of reasons and explanations with respect to why they returned medicines and why these medicines were either not needed or not wanted.

4.11.1 The main reasons and explanations related to issues associated with:

- safety of medicines/medicinal use and efficacy of medicines;
- change in therapy/medication recommended by medical practitioners and other health professionals;
- consumer's death;
- consumer perception regarding the need for medicines/medication and/or effectiveness of medicine/medication; and
- consumer experience of unwanted effects.

4.11.2 Less often consumers returned medicines due to:

- limited ability to utilise medicines in prescribed administration mode;
- financial barriers; or
- moving out of place of residence or moving into/out of institution.

4.11.3 A significant proportion of medicines are returned because a consumer has passed away or because medicines have passed their use by date.

4.11.4 There is a high proportion of unused medicines among those returned because they have passed their expiry dates.

4.11.5 The share of medicines representing different therapeutic classes range within each of the reason categories. For example:

- medicines prescribed and used for the cardiovascular system are the most commonly returned due to change in medication recommended by a medical practitioner or other health professional;
- anti-infectives are the most frequently returned for reasons associated with the consumer's perception regarding the need for medication;
- medicines prescribed and used for the nervous system are most frequently returned due to perceived effectiveness of treatment or to unwanted effects;
- among medicines returned due to experience of unwanted effects, most are medicines used for the nervous system, cardiovascular system and musculo-skeletal system;
- among medicines stopped without consulting a medical practitioner anti-infectives have the highest proportion;
- among unused medicines there is a high proportion of medicines used for the cardiovascular system, alimentary tract and metabolism and nervous system; and
- SALBUTAMOL SULFATE is the top medicine among those returned unused.

Part C: Recommendations

4.12 Recommendations for further research

4.12.1 RUMS describes consumer practices, the kinds of medicines returned and the reason for return in metropolitan Melbourne. Understanding of consumer practices relating to disposal of unwanted medicines and the kinds of medicines returned may be further enhanced by investigating similar issues in rural and remote areas and in different states. It is therefore recommended to conduct similar study/studies among rural consumers, and also nationwide.

4.12.2 RUMS findings reveal several influences on consumer practices of medicinal return and a range of reasons for return. Thus RUMS findings suggest that consumer practices are associated with various socio-demographic characteristics, specific pharmacy characteristics and practices. RUMS findings also suggest existing socio-cultural influences underlying consumer perceptions that shape practices of medicinal return. There are many possible socio-cultural influences underlying consumer perceptions that shape practices of medicinal return that could not be determined within the parameters of this study. In depth exploration of complex socio-cultural influences will be best served by the utilisation of research methods equipped for such exploration (i.e. qualitative methods or mixed methodologies). A better understanding of complex socio-cultural influences shaping lay perceptions and practices will potentially add an extra dimension and further inform the development of programs and activities for consumers in the ways that are both appropriate and effective.

4.12.3 The need for further exploration of complex socio-cultural influences is also warranted by contradictions revealed in RUMS in relation to 'stated' reasons for return vs. level of usage of returned medicines. For example, medicines returned because they were 'not effective' or caused unwanted effects included some that were unused. Similarly, among medicines returned because they had passed their use-by date were some that were unused or unopened.

4.12.4 Issues recommended for in depth explorations may include those investigating divergent practices of medicinal return in relation to generics vs. proprietary medicines, prescription vs. non-prescription medicines and medicines sold under general vs. concessional categories. It is possible, for instance, that consumers perceive non-prescription medicines as less poisonous to people and presenting less risk of environmental toxicity. Similarly, the low proportion of complementary medicines returned to community pharmacies for ultimate disposal may reflect consumer perceptions about these medicines as being less dangerous. Issues recommended for in depth explorations may also include those investigating socio-cultural influences on long term home storage of medicines that have passed their use-by date.

4.12.5 In the context of broader QUM issues, the relationships between socio-cultural influences and lay perceptions of and experiences with positive therapeutic outcomes are of primary interest. In particular with regard to medication used for

chronic disease management and for secondary prevention. Other broader issues include the use of antiinfectives and the use of medicines in chronic disease management.

4.13 Target populations

RUMS findings suggest that two broad population groups should be the focus of development of various activities promoting the *RUM Project* and safe disposal of unwanted and out-of-date medicines. These are health professionals and lay consumers.

4.13.1 RUMS findings suggest that community pharmacists play the most essential role in relation to the *RUM Project*. Here, they are the key service providers and also play the major role in promoting those services and practices of safe disposal of medicines to their customers. Other health professionals, in particular doctors and nurses, both in the community and health care institutions, also play some role. However, their role is limited to delivery of information to lay consumers.

4.13.2 While the pharmacists' role is undoubtedly more significant than the role of other professionals, their own awareness about, attitudes towards, perceptions of and ways they participate in the *RUM Project* vary greatly. This suggests that pharmacists may benefit from educational activities and access to consistent information promoting the *RUM Project*. It should also be taken into consideration that pharmacists' participation in the *RUM Project* reflects the diversity of existing business and staffing arrangements within individual pharmacies and availability of resources. For some individual pharmacies participation in the *RUM Project* – in particular activities associated with its promotion to clients and consumers – can present a considerable challenge within the context of the everyday pharmacy operation. Therefore, it is recommended that:

- pharmacists be provided with access to consistent information about the *RUM Project* and safe disposal of unwanted and out-of-date medicines in the context of QUM. This can be achieved through the development of relevant information and their incorporation in the relevant curricula including undergraduate pharmacy courses and continuing professional education, including professional forums such as conferences, electronic media, professional journals and other publications;
- pharmacists be encouraged to become more active partners of the *RUM Project*, and that mechanisms be established to support individual pharmacies in their activities, in particular those promoting the *RUM*

Project to consumers and clients. Such support may include financial incentives and provision of resources for advertising in local media; and

- dissemination of consumer information through pharmacies be encouraged by identification and promoting of pharmacy best practice and provision of consumer promotional materials in a format that is most suitable for delivery in the pharmacy context. For example, leaflets containing consumer information can be made available without any implications to everyday pharmacy practices, a poster with a promotional message can be printed and displayed in community pharmacies.

4.13.3 With regard to other health professionals, it is essential to ensure that they have access to consistent information about the *RUM Project* and practices relating to safe disposal of unwanted and out-of-date medicines. This can be achieved by promotion of relevant issues through professional organisations and forums. While it is unlikely that primary care practitioners, doctors in particular, will actively promote safe disposal of medicines, consumers may benefit from their doctor's enhanced knowledge of the program, for example in instances where consumers actively seek information from their doctors about what to do with unwanted medicines. This will particularly assist consumers aged 80+ and those who speak a LOTE at home, as their utilisation of doctors as sources of relevant information is greater than among other consumers.

4.13.4 Findings from RUMS imply the existence of some level of consumer awareness about the *RUM Project* and safe disposal of unwanted and out-of-date medicines. However, levels of awareness vary among population groups with different socio-demographic characteristics, and sources of consumer information appear to be inconsistent. In the context of QUM, the challenge is to introduce a systematic approach to developing consumer awareness programs and activities to ensure consumer access to consistent promotional information. It is, therefore, recommended to develop basic consumer information in the context of QUM.

4.13.5 RUMS findings suggest that currently consumers have limited access to consistent messages and information promoting the *RUM Project* and safe disposal of unwanted and out-of-date medicines. It is recommended that basic consumer information incorporating consistent key messages promoting the *RUM Project* and safe disposal of medicines in the context of QUM be developed. The content of such information should be utilised across awareness campaigns targeting various

population groups. However, the format of promotional material could be changed depending on the type of medium used. For example, written consumer information may differ in format from consumer information used for media advertising.

4.13.6 RUMS identified several broader issues that should be included in the content of community awareness campaigns and promotional information, as well as more specific issues. Among broader issues are those explaining fundamental principles of safe storage and disposal and explanation of the universality of the *RUM Project*. It is recommended that a greater emphasis be placed on applicability of principles of safe disposal on different kinds of medicines i.e. generics and proprietary medicines, prescription and non-prescription medicines, medicines sold under general and concessional categories. It is recommended that an extra dimension be added to the existing motto of the *RUM Project* and that the present message be extended from 'ANY PHARMACY AT ANY TIME' to 'ANY MEDICINE TO ANY PHARMACY AT ANY TIME'.

4.13.7 It is recommended that community awareness campaigns and activities be focused on several consumer groups identified in RUMS. These include consumers who currently are either more likely to return medicines to participating pharmacies and those who seem to be less aware of practices of safe disposal. As RUMS findings suggest women and consumers aged 65 years and over are more likely to return medicines to community pharmacies, it is recommended that consumer awareness activities be tailored to these groups. For both groups, a community development approach may be useful, and both groups can be reached through relevant community organisations such as women's groups, neighbourhood houses, support groups and carers associations. In addition, younger women seem to be best targeted by media advertising.

4.13.8 RUMS also identified several groups of consumers who currently are less likely to participate in the *RUM Project* and relevant practices. These special needs consumer groups include consumers who:

- are living in solo households;
- were born overseas, in particular those born in NES countries; or
- speak LOTE at home.

RUMS findings suggest that a community development approach may also be useful with regard to community awareness activities in relation to the special

needs groups. This can be achieved by involvement of associated community groups and ethno-specific organisations.

4.13.9 RUMS data indicate that people born overseas, particularly in NES countries, and those who speak LOTE at home tend to rely more than any other consumers on lay sources of information about safe disposal of medicines, while underutilising media and advertising. Underutilisation of media and advertising is likely to demonstrate non-availability of culturally and linguistically appropriate resources. It is therefore recommended that culturally and linguistically appropriate information materials be developed, and that these be distributed through ethno-specific organisations, ethnic media and bilingual health care providers.

4.13.10 With regard to specific therapeutic classes and medicines, RUMS findings unveil issues of concern relating to broader QUM contexts, for example issues relating to return of anti-infectives and SALBUTAMOL SULFATE. The issues uncovered here are not confined to practices of medicinal return, but rather point to other practices potentially jeopardising principles of QUM. For example, the high proportion of SALBUTAMOL SULFATE returned unused suggests mismanagement of preventive asthma medication. This is of particular concern due to the high proportion of SALBUTAMOL SULFATE being prescribed to children and young adults. Therefore it is recommended that relevant key stakeholders be informed about RUMS findings, in particular those concerned with misuse of anti-infectives and asthma medication, and that these stakeholders be encouraged to take this information into account in relevant educational activities among health providers and the community.

In conclusion, RUMS has been a complex project which has achieved an accurate description of a representative sample of the unwanted and out-of date medicines returned by consumers to community pharmacies; several influences on consumer practices of medicinal return and a range of reasons for return. Given the complexity of the study, considerable effort was taken to test and refine the RUMS approach. Extensive fieldwork arrangements allowed RUMS to achieve high response rates. Several quality assurance processes were implemented to ensure the accuracy and consistency of data obtained.

Findings from RUMS reveal several influences on consumer practices of medicinal return and a range of reasons for return. RUMS results imply the existence of a certain level of consumer awareness about the *RUM Project* and about safe disposal of unwanted and out-of-date medicines.

It is important to emphasise here that the current Commonwealth agreement does not provide funding for consumer awareness activities. Therefore, the success that the *RUM Project* has so far achieved seems to rely exclusively on the considerable efforts of the *RUM Project* management and the Board; the enthusiasm of participating pharmacists; the common sense of consumers; and, to some extend, the support of the pharmaceutical industry. The challenge now lies in finding effective ways of enhancing this existing consumer awareness in order to maximise the return, in terms of QUM, for all parties involved.

RUMS findings suggest that consumer awareness activities are one area where a change in approach is desirable. Such activities, tailored to the needs of specific population groups, are critical in developing a broader understanding of the objectives of the *RUM Project* and have great potential to drive consumer practices relating to the management of medicines. Findings from RUMS have implications not only for community education in safe disposal of unwanted or out-of-date medicines, but also for development of improved consumer understanding of broader aspects of medicine use and storage.

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APPENDICES

Appendix 1: PLAIN LANGUAGE STATEMENT FOR DATA COLLECTORS

(Pharmacists or pharmacy students only)

You are invited to be a data collector in the Returned Unwanted Medicines Survey (RUMS).

What is the project about

In Australia, consumers sometimes return unwanted medicines to pharmacies. However, very little information is available about which medicines are not wanted or why consumers return them. RUMS endeavours to answer these questions. It is anticipated that findings from this study will enhance understanding of consumer practices related to the disposal of medicines and inform development of practices that promote the safe disposal of medicines. Ultimately the outcomes of the study will augment the quality use of medicines among Australian consumers.

Who has supported this study

This study was initiated by the Return Unwanted Medicines (RUM) Project, endorsed by the Pharmacy Guild of Australia and funded by the Commonwealth Government.

Who is able to participate in RUMS as a data collector and can participation be refused

Pharmacists and/or pharmacy students who work in your pharmacy will have an understanding of this study after having received instructions on how to conduct data collection. Participation is entirely voluntary, both for you and for your customers, which means that either you or they may refuse participation or withdraw from the study at any time.

Will there be risks involved and will the privacy of customers be protected

Participation in this study does not involve any risk to either you or your customers as the data collected is purely about the returned medicines. Any identifying information about the consumers such as names or addresses is not required for this study. As a further privacy precaution we request that you store the surveys separate from the returned medicines until they are appropriately disposed of.

How long will participation take and how will remuneration occur

For each consumer the process of data collection is expected to take about 5 minutes.
As agreed with the Pharmacy Guild of Australia, you will be remunerated for participation **at $10.00 per completed survey**. We will provide payment upon receiving **the completed survey(s) and a signed invoice**. A copy of a tax invoice will be provided to you at a later stage. You may provide invoices by mail, fax or via email. Payment will be provided by cheque or deposited directly into your nominated bank account.

What participation will entail

Participation will entail
Ensuring that participating consumers who return medicines to your pharmacy receive information about this study

- Conducting a brief interview with participating consumers using a survey provided to you by the researchers
- Recording responses and compiling a record of returned medicines in a survey
- Ensuring that anonymity of participants and data is protected
- Ensuring that access to data is limited to data collectors and researchers
- Short term storage of completed surveys

What to do with completed surveys

Upon completion of the interview and the audit of returned medicines store the completed surveys until collected by the researchers/forwarded to the researchers by mail. Should you need to return completed surveys by mail we will either provide return paid envelope or have your postage expenses reimbursed.

How can extra information about the study be obtained or any concerns voiced

Should you need any further information regarding this study please contact the research team. The contact details are as follows:
Dr Bella Brushin
Survey Director
RUMS
PO BOX 284 CAULFIELD SOUTH VIC 3162
Tel: (03) 9505 3589 Fax: (03) 95053273
E-mail RUMS@interfaceprofessionals.com

Should you have any concerns about the conduct of this study please contact the Return Unwanted Medicines (RUM) Project. The contact details are as follows:
Mr Simon Appel
Project Manager
The RUM Project
PO BOX 2856 CHELTENHAM VIC 3192
Tel: (03) 9583 8699 Fax: (03) 9583 8533
E-mail: rum@netconnect.com.au

Appendix 2: PLAIN LANGUAGE STATEMENT FOR CONSUMERS

You are invited to participate in the Returned Unwanted Medicines Survey (RUMS).

What this project is about

In Australia, consumers sometimes return unwanted medicines to pharmacies. However, very little information is available about which medicines are unwanted or why consumers return them. This study aims to help answer these questions. It is anticipated that findings from this study will improve understanding of consumer practices relating to the disposal of medicines and inform the development of initiatives and activities promoting safe disposal of medicines among Australian consumers.

Who has supported this study

This study was initiated by the Return Unwanted Medicines (RUM) Project, endorsed by the Pharmacy Guild of Australia and funded by the Commonwealth Government.

Who is able to participate in this study

To be eligible to participate you have to be over eighteen years old and returning any unused medicine(s) to a participating pharmacy.

What participation will entail

Your participation will involve answering some questions and allowing us to make a record of the medicines you have returned. A pharmacist or pharmacy student will ask the questions. The process will take about five minutes.

Will there be risks involved

There are no possible risks involved with participating in this **study as no identifying information about you is collected**. Your participation is **entirely voluntary**, which means that you may refuse participation or withdraw from the study at any time.

How can extra information about the study be obtained or any concerns voiced

Should you need any further information regarding this study please contact the RUMS research team. The contact details are as follows:

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Appendix 3: CONSENT FORM FOR DATA COLLECTORS

CONSENT FORM

I,.....*(print name)* of.....

Hereby consent to be a data collector in the Returned Unwanted Medicines Survey (RUMS). I agree that this study is an important example of community pharmacy's support for the principles of Quality Use of Medicines. I have been informed about the aims, methods, procedures and anticipated outcomes of this study as well as issues of privacy relating to the management of data.

I acknowledge

1. That I understand the aims, methods and procedures of this study.
2. That I voluntarily and freely give my consent to participate in this study.
3. That I am free to withdraw my consent at any time throughout the course of this study, in which event my participation in the research will be immediately terminated.
4. That I will ensure that consumers participating in this study will remain fully anonymous and I will not record any information that might reveal their identity (such as name or address) in the surveys.
5. That upon completion, I will safely store surveys separately from the returned medicines until a representative of the research team collects them.
6. That I appreciate that while individual results **will not** be released to any person, aggregated results will be reported in relevant documents, including professional and/or academic journals.

Signature .....Date:.....

Pharmacy details (stamp/sticker)

Pharmacy identification number (office use only): ☐ ☐☐☐

Should you need any further information regarding this study please contact the RUMS research team. The contact details are as follows:
Director
RUMS
PO BOX 284
CAULFIELD SOUTH VIC 3162
Tel: (03) 9505 3589
Fax: (03) 95053273
E-mail RUMS@interfaceprofessionals.com

Should you have any concerns about the conduct of this study please contact the Return Unwanted Medicines Project. The contact details are as follows:
Project Manager
The Return Unwanted Medicines (RUM) Project
PO BOX 2856
CHELTENHAM VIC 3192
Tel: (03) 9583 8699
Fax: (03) 9583 8533
E-mail: rum@netconnect.com.au

Appendix 4: SURVEY COMPLETION INSTRUCTION MANUAL

FOR THE DATA COLLECTOR (PHARMACIST OR PHARMACY STUDENT ONLY)

Thank you for participating in the Returned Unwanted Medicines Survey (RUMS). The following instructions provide you with step-by-step guide of data collection procedures. Please note that following these instructions is of paramount importance to ensuring rigorous and systematic data collection procedures as well as the validity of study results.

Step one: familiarisation with RUMS

Prior to commencing data collection familiarise yourself with all project materials provided by the researchers including:

- Plain Language Statement for data collectors
- Plain Language Statement for participants
- The Returned Medicines Survey form (the survey)
- This Manual

Step two: storage arrangement

Completed surveys will be collected by or forwarded to the researchers. However, while in your possession the surveys will need to be stored safely by you. Please ensure that:

- Only data collector(s) have access to the completed surveys
- The completed surveys are stored separately from the returned medicines (until you dispose of the medicines accordingly)

Step three: recruitment of participants

- When your customer wants to return any medicines to your pharmacy for disposal, ask him/her to participate in this study.
- Using information provided to you by the researchers (verbally and in the Plain Language Statement), explain what the study is about and what participation in this study entails. Emphasise the voluntary nature of participation and how participants′ privacy is protected.
- Provide your client with the written Plain Language Statement for participants provided to you by the researchers.
- Once the participant agrees to take part in the study proceed with the interview.

Step four: interview and the audit of the returned medicines

- You will need to proceed with the interview strictly following the guidelines as highlighted throughout the survey in bold italicised text.
- The interview consists of nineteen questions. Ask these questions and probe the participant as indicated throughout the survey.
- Record the participant′s responses in the spaces provided and fill out the tables where appropriate.
- Record responses as clearly and as accurately as possible – please use block letters to record/list the returned medicines!
- Thank the participant for their contribution and complete the audit of the returned medicines where applicable.
- Compile a record of returned medicines in the survey.
- Dispose of medicines as per your internal procedure.

Step five: data storage

Upon accurate completion of the interview and the audit

- Store the completed surveys until collected by the researchers or forwarded to the researchers by mail.
- Should you need to return completed surveys by mail we will have your postage expenses reimbursed.

Should you need any additional information about any aspects of data collection!
Should you need additional copies of any study materials please contact the research team!

Thank you once again for your involvement!

Appendix 5: COVERING LETTER TO DATA COLLECTORS

date

Dear Colleague

Thank you for agreeing to participate in the Returned Unwanted Medicines Survey (RUMS).
This study aims to develop a better understanding of consumer practices related to the disposal of unwanted medicines. It is anticipated that findings from this research will inform the development of programs and activities that promote safe practices of the disposal of unwanted medicines. As such, this study is an important example of community pharmacies support for the principles of Quality Use of Medicines. Your contribution to this study is greatly appreciated.

To facilitate the data collection process we developed various study materials including

- Plain language statement for data collectors
- Plain language statement for participating consumers
- Consent form to be signed by data collectors
- Returned Medicines Surveys
- Returned Medicines Survey Completion Manual
- Invoice

Copies of the afore mentioned documents are enclosed. Please familiarise yourself with these materials to ensure that data **is collected and recorded as accurately as possible and the study protocols are adhered to.**

SHOULD YOU NEED ADDITIONAL COPIES OF ANY STUDY MATERIALS PLEASE CONTACT THE RESEARCH TEAM!

As agreed with the Pharmacy Guild of Australia, you will be remunerated for participation at $10.00 per completed survey. Please note that we will provide payment upon receiving the completed survey(s) and a signed invoice. A copy of a tax invoice will be provided to you at a later stage. You may provide invoices by mail, fax or via email. Payment will be provided by cheque or deposited directly into your nominated bank account.

Upon completion of the interview and the audit of returned medicines store the completed surveys until collected by the researchers/forwarded to the researchers by mail. Should you need to return completed surveys by mail we will have your postage expenses reimbursed.

Please note that for data collection and analysis purposes all participating pharmacies have been assigned a Pharmacy Identification number. This number is provided below. Please quote this number in any relevant correspondence including invoices.

Thank you once again for your interest and support in this crucial study.

Yours sincerely

Dr Bella Brushin
Survey Director
RUMS
PO BOX 284
CAULFIELD SOUTH, VIC, 3162
Tel (03) 95053589
Fax (03) 9505 3273
RUMS@interfaceprofessionals.com.

Appendix 6: PHARMACY GUILD DISTRICTS AND PHARMACY LOCATIONS IN MELBOURNE

DISTRICT 1	DISTRICT 2	DISTRICT 3	DISTRICT 4	DISTRICT 5	DISTRICT 6	DISTRICT 7
Abbotsford	Airport West	Broadmeadows	Balwyn	Ashburton	Aspendale	Bayswater North
Albert Park	Altona	Brunswick	Balwyn North	Ashwood	Balnarring	Belgrave
Brunswick	Altona Gate	Brunswick West	Blackburn	Balaclava	Beaconsfield	Berwick
Brunswick East	Altona North	Bundoora	Blackburn North	Bennettswood	Beaumaris	Boronia
Burnley	Ascot Vale	Campbellfield	Blackburn South	Bentleigh	Bentleigh East	Boronia Heights
Carlton	Avondale Heights	Coburg	Box Hill	Box Hill South	Berwick	Brandon Park
Carlton North	Bacchus Marsh	Coolaroo	Box Hill North	Brighton	Black Rock	Burwood East
Clifton Hill	Braybrook	Craigieburn	Briar Hill	Brighton East	Blairgowrie	Clayton
Collingwood	Broadmeadows	Dallas	Bulleen	Brighton North	Brighton North	Clayton North
Melbourne East	Burnside	Diamond Creek	Chirnside Park	Canterbury	Carrum Downs	Dandenong
South Melbourne	Deer Park	Eltham	Croydon	Carnegie	Chelsea	Dandenong North
Fitzroy	East Keilor	Epping	Croydon North	Caulfield East	Chelsea Heights	Dandenong West
Fitzroy North	Essendon	Fairfield	Croydon South	Caulfield North	Cheltenham	Doveton
Flemington	Footscray	Fawkner	Croydon West	Caulfield South	Cheltenham East	Emerald
Footscray	Footscray North	Glenroy	Doncaster	Chadstone	Clayton	Endeavour Hills
Hawthorn	Gisborne	Greensborough	Doncaster East	Elsternwick	Cranbourne	Ferntree Gully
Hawthorn East	Gladstone Park	Heidelberg West	Forest Hill	Elwood	Dandenong	Forest Hill
Hawthorn West	Glenroy	Hurstbridge	Greythorn	Gardenvale	Dromana	Fountain Gate
Kensington	Greenvale	Ivanhoe	Healesville	Glen Iris	Edithvale	Glen Waverley
Malvern	Hoppers Crossing	Keon Park	Heidelberg	Glenhuntly	Frankston	Hallam
Malvern	Kealba	Kingsbury	Ivanhoe East	Huntingdale	Frankston North	Heathmont
Malvern East	Keilor	Lalor	Kew East	Malvern	Hampton	Knoxfield
Melbourne	Keilor Downs	Lower Plenty	Kew	Malvern East	Hampton East	Monbulk
Middle Park	Kingsville	Macleod	Kilsyth	Mckinnon	Hampton Park	Mount Evelyn
Newmarket	South	Merlynston	Lilydale	Middle Camberwell	Hastings	Mount Waverley
Newport	Laverton	Mill Park	Lower Templestowe	Moorabbin	Highett	Mulgrave
North Melbourne	Maribyrnong	Montmorency	Mitcham	Mount Waverley	Keysborough	Narre Warren
Parkville	Melbourne Airport	Moonee Ponds	Montrose	Murrumbeena	Langwarrin	Noble Park
Point Cook	Melton	Northcote	Mooroolbark	Oakleigh	Mentone	Noble Park East
Port Melbourne	Melton South	Pascoe Vale	Nunawading	Oakleigh East	Moorabbin	Olinda
Prahran	Moonee Ponds	Preston	Ringwood	Ormond	Mordialloc	Rowville
Richmond	Niddrie	Research	Ringwood East	Prahran	Mornington	Springvale
Seddon	Oak Park	Reservoir	Ringwood North	Ripponlea	Mt Eliza	Springvale South
South Yarra	Pascoe Vale	Riddells Creek	Seville	Ripponlea	Mt Martha	Upper Beaconsfield
Southbank	Romsey	Rosanna	St Albans	South	Narre Warren	Upper Ferntree Gully
St Kilda	St Albans	Roxburgh Park	Vermont	St Kilda	Noble Park	Upwey
Toorak	Strathmore	St Helena	Vermont East	Surrey Hills	Pakenham	Vermont South
Yarraville	Sunbury	Thomastown	Warrandyte	Windsor	Parkdale	Wantirna
	Sunshine	Thornbury	West		Patterson Lakes	Wantirna South
	Sunshine West	Viewbank	Yarra Glen		Pearcedale	Wantirna South
	Taylors Lakes	Wandong			Red Hill	Wheelers Hill
	Wallan	Watsonia			Rosebud	
	Werribee West	Whittlesea			Rosebud South	
	Westmeadows				Rye	
	Williamstown				Rye Beach	
	Wyndham Vale				Sandringham	
	Yarraville				Seaford	
					Somerville	
					Sorrento	
					Springvale South	
					Stratford	

Appendix 7: A JOINT LETTER OF THE PARMACY GUILD AND THE RUM PROJECT

DATE

Dear Colleague,

The Pharmacy Guild of Australia, and the RUM Project team, urges your participation in a Survey of consumers in Victoria who return unwanted, and out-of-date, medicines to pharmacies for ultimate disposal.

Since its inception in 1998, the Return Unwanted Medicines (RUM) Project has provided a professional and efficient process for collection and disposal of these items via community pharmacy.

Pharmacists in Victoria have demonstrated the largest per pharmacy collection rates in Australia, and have been chosen to begin the Survey, which will extend to other states and territories over time.

Survey Interviews will collect information relating to the returned products, with no personal identification of patients required or recorded.

Our aim is to include approximately 100 pharmacies in the Survey, with participation across the variety of Pharmacy Guild Divisions.

You will be remunerated for participation (at $10.00 per interview), with the average interview to last about 5 minutes.

In the coming weeks, you will be contacted by a representative of the Survey team, and invited to participate. The representative will describe the details of the Survey, and offer to send further information when you indicate an interest in participation.

Please consider this invitation seriously. The RUM Project offers an important example of community pharmacy's support for the principles of Quality Use of Medicines.

Thank you in anticipation,

Maurice Sheehan
Director
Pharmacy Guild of Australia

Simon Appel
Project Manager
RUM Project

Appendix 8: PHARMACY DATA LOGBOOK

ID	District	Pcode	Location	No staff	Hours /week	Poster display	Other advertising	Comments

Appendix 9: RETURNED MEDICINES SURVEY

Thank you for agreeing to participate in the Returned Medicines Survey.
I would like to ask you the following questions

1 Have you returned unwanted medicines to a pharmacy before? ***(probe, tick one)***

Yes	☐	
No	☐	***if no, go to question 4***

2 When was the last time that you returned unwanted medicines to a pharmacy?
Was it within the last … ***(probe, tick one)***

6 months	☐	
1 year	☐	
2 years	☐	
5 years	☐	
cannot remember	☐	
other	☐	……..***(specify)***

3 Do you usually return unwanted medicines to…

the same pharmacy	☐	
different pharmacies	☐	

4 How did you know that you could return unwanted medicines to a pharmacy?
Was it through ***(probe, tick as many as needed)***

a doctor	☐	
a pharmacist	☐	
neighbours, friends, family	☐	
media advertisement	☐	
advertisement in a pharmacy	☐	
other	☐	……..***(specify)***

5 Whose medicines do you want to dispose of today?
Were these medicines used by/prescribed for … ***(probe, tick one)***

yourself only	☐	***go to question 6***
yourself and others	☐	***go to question 5a***
others only	☐	***go to question 5a***

5A Were medicines you are returning used by/prescribed for …
(probe, tick as many as needed)

your spouse/partner	☐	
your child/children	☐	
your parents/other family	☐	
your flatmate/friend	☐	
client/s of a health care institution i.e. nursing home, clinic etc)	☐	……..***(specify)***
other	☐	……..***(specify)***

Now go to question 6A

6 Are you returning these medicines because **you...** ***(probe, tick as many as needed)***
(a) completed the recommended course of medicines

Yes ☐ No ☐

(b) got better and stopped taking these medicines without completing the recommended course

Yes ☐ No ☐ ***if yes, list medicines***……..
……..

(c) experienced unwanted effects

Yes ☐ No ☐ ***if yes, list medicines***……
……..

(d) other reasons

Yes ☐ No ☐ ……..***(specify)***

Now go to question 8

6A Are you returning these medicines because the **person(s)** these medicines belonged to …
(probe, tick as many as needed)

(e) completed the recommended course of medicines

Yes ☐ No ☐

(f) got better and stopped taking these medicines without completing the recommended course

Yes ☐ No ☐ ***if yes, list medicines*** ……..……
……..…… ……..…… ……..…..

(g) experienced unwanted effects

Yes ☐ No ☐ .
if yes, list medicines……..
……

(h) other reasons

Yes ☐ No ☐ ……..***(specify)***

7 Why are you returning medicines used by/prescribed for **other people**?
(*DO NOT probe, tick as many as needed)*

The person(s) these medicines belonged to …

(i) passed away

Yes ☐ No ☐

(j) moved out and left their medicines behind

Yes ☐ No ☐

(k) departed from the health institution and left their medicines behind

Yes ☐ No ☐ ***(if yes, complete table II, but DO NOT complete table III)***

(l) other reasons

Yes ☐ No ☐ ……..***(specify)***

8 Are you returning any medicines today because they... ***(probe, tick as many as needed)***
(m) are past their expiry dates

Yes ☐ No ☐

(n) have been recalled by the manufacturer

Yes ☐ No ☐ ***if yes, list medicines***……..…
……

(p) have been replaced with different medicines by a medical practitioner

Yes ☐ No ☐ ***if yes, list medicines***……
……...

(q) other reasons ……***(specify)***

9 Among the medicines you are returning today, are there any that have been stopped without consulting the medical practitioner who prescribed them?

Yes ☐ ***(if yes, go to question 10)***
No ☐ ***(if no, go to question 11)***

10 Which medicines have been stopped without consulting the medical practitioner who prescribed them and why? ***(record answers in table I, please use block letters)***

Table I: Reasons for stopping medicines

Name of medicine	Reason for stopping medicines

Now I would like to ask you a couple of questions about yourself

11 What age group do you belong to? ***(probe, tick one)***

17 or younger ☐
18-34 ☐
35-49 ☐
50-64 ☐
65-79 ☐
80+ ☐

12 What was the highest level of education that you achieved? ***(probe, tick one)***

primary school ☐
secondary/high school ☐
trade certificate or similar ☐
diploma or similar ☐
bachelor degree or higher ☐
other ☐

13 What country were you born in? ……..……..

14 What language do you speak at home? ……..……..

15 What is the postcode of your current home? ……..……..

16 How many people are living at your home with you? ……..……..

17 How many of those are younger than 18 years of age? ……..……..

At this stage thank the participant, conclude the interview and note the participant's gender below

18 Participant's gender male ☐ female ☐

Now count medicines returned and note the numbers of items in table II

Table II: Number of medicines returned

Type of medicine	Number of items
prescription only	
pharmacist only/pharmacy medicines	
other	

Now separate prescription only medicines and record data about them in table III below (please use block letters)

Table III: Audit of prescription medicines

Proprietary name ***(use block letters)***	**Therapeutic class/ therapeutic index**	**Presentation**	**Form**	**Poison stds**	**Quantity returned**			**Quantity in original pack**			**Expiry date**	**Subsidy type**
The registered trademark of therapeutic goods or the unique name assigned by sponsor/ as appearing on label	***(use block letters)***	eg tablets [T] cachets [Cach] capsules [Cap]	solid [S] semi-solid [SS] liquid [L]	eg S4	number	weight [mg]	volume [ml]	number	weight [mg]	volume [ml]	year	general [G] concession [C]

Interview completed on ……..…… **(date)**

Survey completed by ……..…… pharmacist / pharmacy student

At this stage, the survey is complete.
Thank you for your participation !

Now, please dispose of returned medicines according to your usual procedure.

Appendix 10: RUMS DATA CODING MANUAL*

1. Output to be in CSV format.
2. Trailing spaces removed after KE3.
3. Create abbreviated headings for each column.
4. First field is pharmacy ID code which is handwritten at top of first page of the Survey.
5. Stamp a unique 3 digit number under the pharmacy ID and capture it as the second field.
6. Q1. Code 1 for yes, 2 for no. If 2, then go to Q4.
7. Q2. Code 1 to 6 going down, one only. If 6, key specified text.
8. Q3. Code 1 or 2.
9. Q4. Multiple codes 1 to 6
10. Q5. Code 1 to 3. If 1, then go to Q6.
11. Q5A. Multiple codes. Code 1 to 6. If 5 or 6, enter text field(s). Go to Q6A.
12. Q6. Multiple codes.
    (a) Code 1 for yes, 2 for no.
    (b) Code 1 for yes, 2 for no If yes, key text field. If spelling unclear key '?' and tag.
    (c) Code 1 for yes, 2 for no. If yes, key text field. If spelling unclear, key '?' and tag
    (d) Code 1 for yes, 2 for no. If yes, key text field.
    Go to Q8.
13. Q6A. Multiple codes.
    (e) Code 1 for yes, 2 for no.
    (f) Code 1 for yes, 2 for no. If yes, key text field. If spelling unclear key '?' and tag.
    (g) Code 1 for yes, 2 for no. If yes, key text field. If spelling unclear, key '?' and tag.
    (h) Code 1 for yes, 2 for no. If yes, key text field.
14. Q7. Multiple codes.
    (i) Code 1 for yes, 2 for no.
    (j) Code 1 for yes, 2 for no.
    (k) Code 1 for yes, 2 for no.
    (l) Code 1 for yes, 2 for no. If yes, key text field.
15. Q8. Multiple codes.
    (m) Code 1 for yes, 2 for no.
    (n) Code 1 for yes, 2 for no. If yes, key text field. If spelling unclear, key '?' and tag.
    (p) Code 1 for yes, 2 for no. If yes, key text field. If spelling unclear, key '?' and tag.
    (q) Code 1 for yes, 2 for no. If yes, key text field.
16. Q9. Code 1 for yes, 2 for no. If 2, then go to Q11.
17. Q10. Multiple codes x 2 (Table 1). If spelling unclear, key '?' and tag specific line.
    Allow for 4 lines maximum.
18. Q11. Code 1 to 6 going down, one only.
19. Q12. Code 1 to 6 going down, one only.
20. Q13. Free text.
21. Q14. Free text. Could be more than one language but place all in one field.
22. Q15. Postcode, usual check.
23. Q16. Numeric.
24. Q17. Numeric.
25. Q18. Code 1 or 2.
26. Table II – 3 numeric fields.
27. Last page field 1 – total number of medicines listed in Table III. Handwritten on the last page by the person coding the medicine names.
28. Last page field 2 – Date survey completed, always 2004.
29. Last page field 3 – code 1 for pharmacist, code 2 for student.
30. Table III will have a different output file. There will be one record output for each medicine listed.
    1. The first field to be output is the Pharmacy ID – see point 1.

* developed by Harrison Data Capture Pty Ltd for data coding purposes

2. The second field to be output is the stamp number – see point 2.
3. Next field is the sequence # of this medicine in Table III.
4. Four digit code from PBS list of medicine names that matches the proprietary name on the survey. Hand code by visually inspecting response. **This field is to be verified (both in coding and in keying).** If the survey response has a number after it e.g. celebrex 200 and there is only celebrex without any number then choose that. If no match is found, then code '9999'. If there are no entries in Table III, but the first entry in Table II indicates there should be, then use code '9998'. The code itself will be output; in addition the B or G code and 3 therapeutic classes codes from the KE3 table (medicines lookup – see below) will be output.
5. Presentation.

Tablets	code T
Capsules	code C
Pastilles	code P
Cachets	code Cach
Lozenges	code L
Pessaries	code Pe
Suppositories	code Sup
Powder	code Pow
Powder for ingestion	code PI
Ampoule	code A
Sachet	code Sac
Inhaler	code I
Drops	code D
Ointment or Cream	code O

   If something doesn't obviously match any of these, then key X.
6. Form. S, SS or L. If something that doesn't obviously match any of these 3, then key O (for other).
7. Poison standard. Key only the number e.g. in S2, S4 enter 2, 4.
8. Quantity returned – number.
9. Quantity returned – weight in mg. If g, gm or grams then add 3 zeroes. E.g. 2gm = 2000
   Quantity returned – Volume in ml. If l, lt or litre then add 3 zeroes. E.g. 2l = 2000
10. Same rules as 5.
11. Same rules as 6.
12. Same rules as 7.
13. Expiry date. Only key last 2 digits of the year. E.g. 98 or 04
14. Subsidy type.

General	code G
Concession	code C
Repatriation	code R
Safety net	code E
OTC	code O
Complementary	code Com
Anything else code X (if no entry or – leave blank)	

15. Reasons. Three fields with numeric codes from 1 to 31.

The medicines lookup table.

This is a flat file of 14 characters.
The key code field is 4 characters.
The P or G code is 1 character starting in column 5.
The 3 therapeutic class codes are 4,3 & 2 characters starting in positions 6,10 & 13.

Appendix 11: MEDICINES RETURNED IN RUMS BY *MEDICINE* NAME

FREQUENCY TABLE - MEDICINE NAME				
Medicine name	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
AB Dental Ointment	1	.0	.0	.1
Abbocillin-V	2	.1	.1	.2
Accomin Adult Tonic	1	.0	.0	.2
Accupril	1	.0	.0	.3
Acenorm 25 mg	2	.1	.1	.4
Acenorm 50 mg	1	.0	.0	.4
Acimax Tablets	8	.4	.4	.8
Aclor 250	1	.0	.0	.8
Actifed	1	.0	.0	.8
Actilax	1	.0	.0	.9
Activan	1	.0	.0	.9
Actonel	3	.1	.1	1.1
Actos	1	.0	.0	1.1
Actrapid	1	.0	.0	1.2
Acyclo-V 200	1	.0	.0	1.2
Adalat 10	1	.0	.0	1.2
Adalat 20	1	.0	.0	1.3
Adalat Oros 20mg	2	.1	.1	1.4
Adalat Oros 30	3	.1	.1	1.5
Adefin XL 30	1	.0	.0	1.6
Adefin XL 60	1	.0	.0	1.6
Advantan	9	.4	.4	2.0
Aeroguard	1	.0	.0	2.0
Agiofibre	1	.0	.0	2.1
Agon SR	1	.0	.0	2.1
Airomir	1	.0	.0	2.2
Akamin 100	1	.0	.0	2.2
Akilene Tired Foot Cream	1	.0	.0	2.3
Albalon Liquifilm	1	.0	.0	2.3
Alcon Ear Drops	1	.0	.0	2.4
Aldactone	9	.4	.4	2.8
Aldomet	2	.1	.1	2.8
Alepam	1	.0	.0	2.9
Alepam 15	1	.0	.0	2.9
Alkeran	2	.1	.1	3.0
Alodorm	2	.1	.1	3.1
Alphagan	1	.0	.0	3.2
Alphamox 125	5	.2	.2	3.4
Alphamox 250	1	.0	.0	3.4
Alphapril	7	.3	.3	3.7
ALUMINIUM ACETATE	2	.1	.1	3.8
Amaryl	2	.1	.1	3.9

AMINO ACID FORMULA with VITAMINS and MINERALS without METH	2	.1	.1	4.0
Amizide	1	.0	.0	4.0
Amohexal	1	.0	.0	4.1
Amoxil	8	.4	.4	4.4
AMOXYCILLIN	3	.1	.1	4.6
Amprace 10	2	.1	.1	4.7
Amprace 5	1	.0	.0	4.7
Amytal	1	.0	.0	4.8
Andramine	1	.0	.0	4.8
Andrews Tum	1	.0	.0	4.8
Androcur	3	.1	.1	5.0
Anginine Stabilised	17	.8	.8	5.7
Anpec SR	1	.0	.0	5.8
Antenex 2	2	.1	.1	5.9
Antenex 5	3	.1	.1	6.0
Antroquoral Oint	1	.0	.0	6.0
Antroquoril	3	.1	.1	6.2
Apomine	1	.0	.0	6.2
Aprinox	3	.1	.1	6.4
Aquacare H.P.	1	.0	.0	6.4
AQUEOUS CREAM	1	.0	.0	6.4
Aratac 200	2	.1	.1	6.5
Aricept	3	.1	.1	6.7
Aristocort 0.02%	4	.2	.2	6.8
Aromasin	1	.0	.0	6.9
Aropax	8	.4	.4	7.2
Arthrexin	2	.1	.1	7.3
Arthroaid	1	.0	.0	7.4
Asasantin SR	6	.3	.3	7.6
ASCORBIC ACID	1	.0	.0	7.7
Asig	1	.0	.0	7.7
Asmol 2.5 uni-dose	6	.3	.3	8.0
Asmol 5 uni-dose	3	.1	.1	8.1
Aspalgin	1	.0	.0	8.2
ASPIRIN	2	.1	.1	8.3
Aspro	1	.0	.0	8.3
Astrix	7	.3	.3	8.6
Atacand	2	.1	.1	8.7
Ativan	1	.0	.0	8.8
ATROPINE SULFATE	1	.0	.0	8.8
Atrovent	7	.3	.3	9.1
Atrovent Nasal Forte	4	.2	.2	9.3
Augmentin	2	.1	.1	9.4
Augmentin Duo	1	.0	.0	9.4
Augmentin Duo forte	8	.4	.4	9.8
Aurorix	2	.1	.1	9.9
Auspril	1	.0	.0	9.9
Avanza	3	.1	.1	10.0

Avapro	6	.3	.3	10.3
Avapro HCT 150/12.5	13	.6	.6	10.9
Avapro HCT 300/12.5	13	.6	.6	11.5
B Complex	1	.0	.0	11.5
BACLOFEN	1	.0	.0	11.6
Bactrim	3	.1	.1	11.7
Bactrim DS	2	.1	.1	11.8
Bactroban	1	.0	.0	11.8
Bansuk	1	.0	.0	11.9
Becloforte	2	.1	.1	12.0
Beconase	2	.1	.1	12.0
Becotide	1	.0	.0	12.1
Benadryl	1	.0	.0	12.1
Benadryl Expelturant	1	.0	.0	12.2
Bepanthen	1	.0	.0	12.2
Betadine	3	.1	.1	12.4
Betaloc	7	.3	.3	12.7
BETAMETHASONE ACETATE with BETAMETHASONE SODIUM PHOSPHATE	1	.0	.0	12.7
Betamin	2	.1	.1	12.8
Betnovate 1/5	2	.1	.1	12.9
Betoptic S	1	.0	.0	12.9
Biaxsig	1	.0	.0	13.0
Bicor	1	.0	.0	13.0
Bisalax	1	.0	.0	13.1
Bisolvon	2	.1	.1	13.2
Bisolvon Chesty	1	.0	.0	13.2
Brenda Ed	1	.0	.0	13.2
Brevinor	2	.1	.1	13.3
Bricanyl	3	.1	.1	13.5
Bricanyl Turbuhaler	11	.5	.5	14.0
Brufen	14	.6	.6	14.6
Buscopan	3	.1	.1	14.7
Cal-Sup	1	.0	.0	14.8
Calamine Lotion	1	.0	.0	14.8
Caltrate	10	.4	.4	15.2
Canavral Co	1	.0	.0	15.3
Canesten	3	.1	.1	15.4
Capadex	2	.1	.1	15.5
Capoten	5	.2	.2	15.7
Cardiprin 100	1	.0	.0	15.8
Cardizem	9	.4	.4	16.2
Cardizem CD	2	.1	.1	16.3
Ceclor	1	.0	.0	16.3
Ceclor CD	3	.1	.1	16.4
Cefkor CD	1	.0	.0	16.5
Celapram	4	.2	.2	16.7
Celebrex	24	1.1	1.1	17.7
Celestone-M	9	.4	.4	18.1

Celestone-V Half Strength	1	.0	.0	18.2
Celestone Chronodose	1	.0	.0	18.2
Centrum	1	.0	.0	18.3
CEPHALEXIN	1	.0	.0	18.3
Cepore X	1	.0	.0	18.4
Cerumol	1	.0	.0	18.4
Chelatrel	1	.0	.0	18.4
Chemadol	1	.0	.0	18.5
Chemart Cold & Flu	2	.1	.1	18.6
CHLORAMPHENICOL	1	.0	.0	18.6
CHLORHEXIDINE GLUCONATE	1	.0	.0	18.7
Chloromycetin	5	.2	.2	18.9
Chloroquin	1	.0	.0	18.9
Chlorsig	11	.5	.5	19.4
Chlorvescent	2	.1	.1	19.5
Chlotride	2	.1	.1	19.6
Cilamox	4	.2	.2	19.8
Cilex	2	.1	.1	19.9
Cilicaine	6	.3	.3	20.1
Cipramil	4	.2	.2	20.3
Ciproxin 250	1	.0	.0	20.4
Clamoxyl Duo forte	1	.0	.0	20.4
Claratyne	4	.2	.2	20.6
Clavulin Duo Forte	3	.1	.1	20.7
Cleocin	1	.0	.0	20.8
Clexane	4	.2	.2	20.9
Climara 100	1	.0	.0	21.0
Climara 25	1	.0	.0	21.0
Clinda Tech	1	.0	.0	21.1
Clinoril 200	1	.0	.0	21.1
Codalgin Forte	2	.1	.1	21.2
Codeine Linctus	2	.1	.1	21.3
CODEINE PHOSPHATE	1	.0	.0	21.3
Codral Cold & Flu	3	.1	.1	21.5
Codral Forte	1	.0	.0	21.5
Cogentin	1	.0	.0	21.6
COLCHICINE	1	.0	.0	21.6
Colgout	8	.4	.4	22.0
Colofac	5	.2	.2	22.2
Coloxyl	5	.2	.2	22.4
Coloxyl with Senna	5	.2	.2	22.6
Combantrin	1	.0	.0	22.7
Combivent	2	.1	.1	22.8
Coras	2	.1	.1	22.8
Cordarone X 200	3	.1	.1	23.0
Cortate	2	.1	.1	23.1
Coumadin	36	1.6	1.6	24.7
Coversyl	8	.4	.4	25.0

Coversyl Plus 4/1.25	2	.1	.1	25.1
Cranberry Forte	1	.0	.0	25.2
Curash	1	.0	.0	25.2
Cyclazine Lactate	1	.0	.0	25.2
Cytotec	1	.0	.0	25.3
Daily Plus	1	.0	.0	25.3
Daktarin	2	.1	.1	25.4
Dalacin C	1	.0	.0	25.5
Daonil	2	.1	.1	25.6
Dapa-Tabs	6	.3	.3	25.8
Dapatab	1	.0	.0	25.9
Deca-Durabolin	1	.0	.0	25.9
Demazin Sinus	4	.2	.2	26.1
Deptran 10	4	.2	.2	26.3
Deptran 25	1	.0	.0	26.3
Deptran 50	2	.1	.1	26.4
Deralin 10	1	.0	.0	26.4
Dermaid	1	.0	.0	26.5
DEXAMETHASONE	3	.1	.1	26.6
Dexmethsone	3	.1	.1	26.8
Diabex	2	.1	.1	26.8
Diaformin	7	.3	.3	27.2
Diamicron	11	.5	.5	27.6
Diamicron MR	1	.0	.0	27.7
Diamox	1	.0	.0	27.7
Diathup	1	.0	.0	27.8
DIAZEPAM	1	.0	.0	27.8
Dichlotride	10	.4	.4	28.3
Diclac	1	.0	.0	28.3
Diclocil	1	.0	.0	28.4
DICLOFENAC POTASSIUM	1	.0	.0	28.4
Dicloxsig	2	.1	.1	28.5
Didronel	1	.0	.0	28.5
Difflam	1	.0	.0	28.6
Diflucan	1	.0	.0	28.6
Digesic	9	.4	.4	29.0
DIGOXIN	1	.0	.0	29.1
Dilantin	6	.3	.3	29.3
Dilatrend 12.5	1	.0	.0	29.4
Dilatrend 6.25	1	.0	.0	29.4
Diltahexal	1	.0	.0	29.5
Dinac	1	.0	.0	29.5
Diprosone	9	.4	.4	29.9
Distaph 500	1	.0	.0	30.0
Dithiazide	1	.0	.0	30.0
Ditropan	5	.2	.2	30.2
Dolobid	1	.0	.0	30.3
Donnatabs	1	.0	.0	30.3

Doryx	1	.0	.0	30.4
Dothep 25	3	.1	.1	30.5
Dothep 75	1	.0	.0	30.5
Dourogesic	1	.0	.0	30.6
Doxylin 100	3	.1	.1	30.7
Doxylin 50	1	.0	.0	30.8
Dramamine	1	.0	.0	30.8
Ducene	3	.1	.1	30.9
Duofilm	1	.0	.0	31.0
Duphalac	2	.1	.1	31.1
Duphaston	1	.0	.0	31.1
Duro-Tuss	1	.0	.0	31.2
Durogesic 25	1	.0	.0	31.2
Durogesic 50	1	.0	.0	31.2
Durolax	8	.4	.4	31.6
Dymadon Forte	1	.0	.0	31.6
Dymadon P	1	.0	.0	31.7
E-Mycin 400	2	.1	.1	31.8
E.E.S. 400 Filmtab	1	.0	.0	31.8
Ear Clear for Ear Wax Removal	1	.0	.0	31.9
Echinacea	1	.0	.0	31.9
Ecotrin	2	.1	.1	32.0
Edronax	1	.0	.0	32.0
Ees	1	.0	.0	32.1
Efexor-XR	2	.1	.1	32.2
Efexor	6	.3	.3	32.4
Efudix	2	.1	.1	32.5
Egocort Cream 1%	1	.0	.0	32.6
Eleuphrat	6	.3	.3	32.8
Elixophyllin	1	.0	.0	32.9
Elocon	5	.2	.2	33.1
Emetrol	1	.0	.0	33.2
Endep 10	3	.1	.1	33.3
Endep 25	2	.1	.1	33.4
Endep 50	1	.0	.0	33.4
Endone	5	.2	.2	33.6
Ensalate	1	.0	.0	33.7
Epilim	2	.1	.1	34.1
Epilim EC	1	.0	.0	34.1
Epilim Liquid	1	.0	.0	34.2
Epilim Syrup	1	.0	.0	34.2
EpiPen Jr.	1	.0	.0	34.3
Eryc	2	.1	.1	34.4
Estalis continuous 50/140	2	.1	.1	34.4
Estraderm 100	1	.0	.0	34.5
Estraderm 25	1	.0	.0	34.5
Estrofem	1	.0	.0	34.6
Eu- Clear Inhale	1	.0	.0	34.6

Euhypnos	2	.1	.1	34.7
Eurax Lotion	1	.0	.0	34.8
Evista	1	.0	.0	34.8
Evitypros	1	.0	.0	34.8
Exelon	1	.0	.0	34.9
Extralife	1	.0	.0	34.9
F-Tabs	1	.0	.0	35.0
F.G.F.	4	.2	.2	35.2
Febridol	4	.2	.2	35.3
Fefol	3	.1	.1	35.5
Feldene	7	.3	.3	35.8
Felodur ER 10 mg	1	.0	.0	35.8
Felodur ER 5 mg	1	.0	.0	35.9
Femtran 50	1	.0	.0	35.9
Fenac	2	.1	.1	36.0
FENTANYL	1	.0	.0	36.0
Ferrogradumet	3	.1	.1	36.2
Ferrum H	1	.0	.0	36.2
Fibrax	1	.0	.0	36.3
Fiorinal	1	.0	.0	36.3
Flagyl	4	.2	.2	36.5
Flarex	2	.1	.1	36.6
Fleet Phspho Mixt	1	.0	.0	36.6
Flixotide	3	.1	.1	36.8
Flixotide Accuhaler	2	.1	.1	36.8
Flopen	2	.1	.1	36.9
FML Liquifilm	2	.1	.1	37.0
FOLIC ACID	1	.0	.0	37.1
Foradile	1	.0	.0	37.1
Fosamax 10 mg	7	.3	.3	37.4
Fosamax Once Weekly	2	.1	.1	37.5
Fragmin	1	.0	.0	37.6
Fucidin	1	.0	.0	37.6
Fungilin	6	.3	.3	37.9
Fungilin Lozenge	1	.0	.0	37.9
Fybogel	1	.0	.0	38.0
Gastro-Stop Loperamide	4	.2	.2	38.1
Gastrogel	1	.0	.0	38.2
Gastrolyte	4	.2	.2	38.4
Gaviscon P	1	.0	.0	38.4
GEMFIBROZIL	1	.0	.0	38.4
Genox 20	3	.1	.1	38.6
GenRx Amiodarone	1	.0	.0	38.6
GenRx Cephalexin	1	.0	.0	38.7
GenRx Doxycycline	1	.0	.0	38.7
Genteal gel	1	.0	.0	38.8
GLICLAZIDE	2	.1	.1	38.8
Glimel	1	.0	.0	38.9

Glucoflex-R	1	.0	.0	38.9
Glucohexal	1	.0	.0	39.0
Glucotren D Plus	2	.1	.1	39.1
GLYCERINE	1	.0	.0	39.1
Goldshield	1	.0	.0	39.2
Gopten	1	.0	.0	39.2
Greenridge Echinacle	1	.0	.0	39.2
Greenridge Olive	1	.0	.0	39.3
Grisovin 500	1	.0	.0	39.3
Haldol decanoate	1	.0	.0	39.4
HALOPERIDOL	2	.1	.1	39.5
Hiprex	1	.0	.0	39.5
Humalog Mix25	1	.0	.0	39.6
Hycor	2	.1	.1	39.6
Hydrea	1	.0	.0	39.7
Hydrene 25/50	1	.0	.0	39.7
HYDROCORTISONE	1	.0	.0	39.8
Hygroton 25	2	.1	.1	39.9
Hylands Teething Rel.	1	.0	.0	39.9
Hypnovel	2	.1	.1	40.0
Ibilex 125	3	.1	.1	40.1
Ibilex 250	4	.2	.2	40.3
Ibilex 500	5	.2	.2	40.5
Ileum Drops	1	.0	.0	40.6
Imdur	1	.0	.0	40.6
Imdur 120 mg	5	.2	.2	40.8
Imdur Durule	2	.1	.1	40.9
Imigran	1	.0	.0	41.0
Imodium	8	.4	.4	41.3
Imovane	1	.0	.0	41.4
Imuran	1	.0	.0	41.4
Inderal	2	.1	.1	41.5
Indocid	8	.4	.4	41.9
Intal	2	.1	.1	42.0
Intal Forte CFC-Free	2	.1	.1	42.0
Interdens	1	.0	.0	42.1
Intrasite Gel 7313	1	.0	.0	42.1
Iodine Paint	1	.0	.0	42.2
Ipratrin	4	.2	.2	42.4
Iscover	3	.1	.1	42.5
Isoptin	2	.1	.1	42.6
Isoptin 180 SR	3	.1	.1	42.7
Kapanol	2	.1	.1	42.8
Karvea	3	.1	.1	42.9
Karvezide 150/12.5	2	.1	.1	43.0
Keflex	5	.2	.2	43.2
Keflor	1	.0	.0	43.3
Keflor CD	5	.2	.2	43.5

Kenacomb	1	.0	.0	43.6
Kenacomb Otic	3	.1	.1	43.7
Kenacombotic Cream	1	.0	.0	43.7
Kenalog	1	.0	.0	43.8
Kliogest	1	.0	.0	43.8
KP 24 Cream	1	.0	.0	43.9
Kwells	1	.0	.0	43.9
Lamictal	1	.0	.0	44.0
Lamisil	1	.0	.0	44.0
Lanoxin-PG	9	.4	.4	44.4
Lanoxin	13	.6	.6	45.0
Largactil	3	.1	.1	45.1
Lasix-M	3	.1	.1	45.2
Lasix	16	.7	.7	46.0
Laxettes	1	.0	.0	46.0
Ledermycin	1	.0	.0	46.0
Leuko Antifungal	1	.0	.0	46.1
Lexapro	1	.0	.0	46.1
Lexotan	1	.0	.0	46.2
Lipex 10	2	.1	.1	46.3
Lipex 20	6	.3	.3	46.5
Lipex 40	3	.1	.1	46.7
Lipitor	14	.6	.6	47.3
LISINOPRIL	2	.1	.1	47.4
Lithicarb	1	.0	.0	47.4
Logicin Rapid Relief	2	.1	.1	47.5
Lomotil	10	.4	.4	48.0
LOPERAMIDE HYDROCHLORIDE	1	.0	.0	48.0
Losec Hp7	2	.1	.1	48.1
Losec Tablets	3	.1	.1	48.2
Lovan 20 Tab	1	.0	.0	48.3
LPV	2	.1	.1	48.4
Lumigan	7	.3	.3	48.7
Lumin 20	1	.0	.0	48.7
Lycinate	1	.0	.0	48.8
Macro Molecular	2	.1	.1	48.8
Macro Molecular	1	.0	.0	48.9
Macrodantin	2	.1	.1	49.0
Madopar	1	.0	.0	49.0
Magicul 400	3	.1	.1	49.2
Maxidex	2	.1	.1	49.2
Maxolon	17	.8	.8	50.0
Megafol 5	3	.1	.1	50.2
Melleril	1	.0	.0	50.2
Meningtel	1	.0	.0	50.3
Menorest	1	.0	.0	50.3
Menorest 100	2	.1	.1	50.4
Menorest 75	1	.0	.0	50.4

Menthol Cream	1	.0	.0	50.5
MERCURACHROME	1	.0	.0	50.5
Mersyndol	5	.2	.2	50.8
Mersyndol Forte	1	.0	.0	50.8
Mesasal	1	.0	.0	50.8
Metamucil Regular	1	.0	.0	50.9
Metformin-BC	1	.0	.0	50.9
METHYL SALICYLATE	1	.0	.0	51.0
METOCLOPRAMIDE HYDROCHLORIDE	2	.1	.1	51.1
Metoprolol	1	.0	.0	51.1
Metrogyl 200	1	.0	.0	51.2
Metrogyl 400	3	.1	.1	51.3
METRONIDAZOLE	2	.1	.1	51.4
Metsal Cream	2	.1	.1	51.5
Mexitil	2	.1	.1	51.6
Micardis	4	.2	.2	51.7
Micardis Plus 40/12.5 mg	2	.1	.1	51.8
Microgynon 30 ED	1	.0	.0	51.9
Microgynon 50 ED	1	.0	.0	51.9
Microlax	4	.2	.2	52.1
Micronor	1	.0	.0	52.1
MIDAZOLAM	1	.0	.0	52.2
Minax 100	2	.1	.1	52.3
Minax 50	4	.2	.2	52.4
Minipress	3	.1	.1	52.6
Minitran	1	.0	.0	52.6
Minomycin-50	1	.0	.0	52.7
Minomycin	1	.0	.0	52.7
Mirtazon	1	.0	.0	52.8
Mobic	4	.2	.2	52.9
Moduretic	6	.3	.3	53.2
Mogadon	4	.2	.2	53.4
Monodur 60 mg	2	.1	.1	53.5
Monoplus	1	.0	.0	53.5
Monoplus 10/12.5	1	.0	.0	53.6
Monoplus 20/12.5	1	.0	.0	53.6
Monopril	4	.2	.2	53.8
MORPHINE HYDROCHLORIDE	7	.3	.3	54.1
MORPHINE SULFATE	6	.3	.3	54.4
Movicol	1	.0	.0	54.4
MS Contin	8	.4	.4	54.8
MS Contin Suspension 30 mg	2	.1	.1	54.8
MS Contin Suspension 60 mg	3	.1	.1	55.0
Murelax	1	.0	.0	55.0
Mycospor	1	.0	.0	55.1
Mycostatin	2	.1	.1	55.2
Mylanta	5	.2	.2	55.4
Mylanta Double Strength	1	.0	.0	55.4

Mystellin	2	.1	.1	55.5
na - na - na	18	.8	.8	56.3
Naprogesic	1	.0	.0	56.4
Naprosyn	11	.5	.5	56.8
Naprosyn SR1000	2	.1	.1	56.9
Naprosyn SR750	1	.0	.0	57.0
Naramig	1	.0	.0	57.0
Nardil	1	.0	.0	57.1
Natrilix	6	.3	.3	57.3
Natrilix SR	3	.1	.1	57.5
Navoban	1	.0	.0	57.5
Nemdyn	1	.0	.0	57.6
Neo-Cytamen	1	.0	.0	57.6
Neo-Mercazole	2	.1	.1	57.7
Neoral 100	1	.0	.0	57.7
Neoral 25	1	.0	.0	57.8
Neosporin	2	.1	.1	57.9
Neotigason	1	.0	.0	57.9
Neulactil	4	.2	.2	58.1
Neurontin	2	.1	.1	58.2
New Eral	1	.0	.0	58.2
Nexium	8	.4	.4	58.6
Nicabate CQ 14	1	.0	.0	58.6
NICOTINIC ACID	1	.0	.0	58.7
Nilstat	7	.3	.3	59.0
Nitro-Dur 5	1	.0	.0	59.0
Nitrobid	1	.0	.0	59.1
Nitrolingual Pumpspray	16	.7	.7	59.8
Nordette 28	1	.0	.0	59.8
Norimin 28 Day	1	.0	.0	59.9
Normafibre	2	.1	.1	60.0
Normison	4	.2	.2	60.1
Noroxin	8	.4	.4	60.5
Norvasc	19	.8	.8	61.3
Noten	7	.3	.3	61.9
NovoMix 30 FlexPen	1	.0	.0	62.0
NovoMix 30 Penfill 3 mL	3	.1	.1	62.1
NovoRapid Penfill 3 mL	1	.0	.0	62.1
Nucosef	2	.1	.1	62.2
Nulax	1	.0	.0	62.3
Nurofen	4	.2	.2	62.4
OMEPRAZOLE	1	.0	.0	62.5
Ordine 10	1	.0	.0	62.5
Ordine 2	4	.2	.2	62.7
Ordine 5	3	.1	.1	62.8
Oroxine	7	.3	.3	63.2
Orthoxicol	3	.1	.1	63.3
Orudis	5	.2	.2	63.5

Orudis SR	1	.0	.0	63.6
Orudis SR 200	3	.1	.1	63.7
Ostelin	1	.0	.0	63.7
Osteoeze	1	.0	.0	63.8
Otocomb Otic	4	.2	.2	64.0
Ovestin	5	.2	.2	64.2
OxyContin	7	.3	.3	64.5
Painstop	1	.0	.0	64.5
Panadeine	2	.1	.1	64.6
Panadeine Forte	24	1.1	1.1	65.7
Panadol	5	.2	.2	65.9
Panafcortelone	12	.5	.5	66.4
Panamax	18	.8	.8	67.2
PARACETAMOL	3	.1	.1	67.4
Parachol	1	.0	.0	67.4
PARADERM PLUS	1	.0	.0	67.5
Paralgin	1	.0	.0	67.5
Pariet	1	.0	.0	67.6
Paxam 0.5	1	.0	.0	67.6
Paxtine	1	.0	.0	67.6
Paxyl Cream	1	.0	.0	67.7
Pepcidine	4	.2	.2	67.9
Periactin	2	.1	.1	68.0
Persantin SR	1	.0	.0	68.0
Phenergan	2	.1	.1	68.1
PHENOBARBITONE	1	.0	.0	68.1
Physeptone	1	.0	.0	68.2
PIROXICAM	1	.0	.0	68.2
Plavix	2	.1	.1	68.3
Plendil ER	1	.0	.0	68.4
Polaramine	2	.1	.1	68.4
Polaramine Resetabs	1	.0	.0	68.5
Poly-Tears	3	.1	.1	68.6
Polycrol	1	.0	.0	68.7
Ponstan	2	.1	.1	68.8
Posalfilin	1	.0	.0	68.8
Pramin	12	.5	.5	69.3
Pravachol	7	.3	.3	69.6
Precision Plus	1	.0	.0	69.7
Prednefrin Forte	4	.1	.1	69.9
PREDNISOLONE	13	.6	.6	70.4
Premarin	5	.2	.2	70.7
Premia 5	1	.0	.0	70.7
Prepulsid	3	.1	.1	70.8
Pressin 1	4	.2	.2	71.0
Pressin 5	2	.1	.1	71.1
Primolut N	1	.0	.0	71.2
Prinivil 20	1	.0	.0	71.2

Probanthine	1	.0	.0	71.2
PROBANTINE	1	.0	.0	71.3
Probitor	1	.0	.0	71.3
Prodeine Forte	2	.1	.1	71.4
Progout 100	3	.1	.1	71.6
Progout 300	1	.0	.0	71.6
Progynova	2	.1	.1	71.7
Propam 2	1	.0	.0	71.7
Propine	1	.0	.0	71.8
Protaphane Penfill 3 mL	2	.1	.1	71.9
Prothiaden	5	.2	.2	72.1
PROTHIADEN	3	.1	.1	72.2
Provelle 28	1	.0	.0	72.3
Provera	5	.2	.2	72.5
Proxen SR 1000	4	.2	.2	72.7
Prozac 20	1	.0	.0	72.7
Prune And Senna	1	.0	.0	72.8
PSEUDOEPHEDRINE HYDROCHLORIDE	1	.0	.0	72.8
Pulmicort Respules	2	.1	.1	72.9
Pulmicort Turbuhaler	6	.3	.3	73.2
Quellada	1	.0	.0	73.2
Questran Lite	1	.0	.0	73.2
Quinate	7	.3	.3	73.6
Quinbisul	4	.2	.2	73.7
QUININE BISULFATE	1	.0	.0	73.8
Quinsul	6	.3	.3	74.0
Qvar 100	1	.0	.0	74.1
Qvar 100 Autohaler	2	.1	.1	74.2
Ramace 5 mg	1	.0	.0	74.2
Rani 2	15	.7	.7	74.9
Ranihexal	1	.0	.0	74.9
Ranitidine-BC	1	.0	.0	75.0
Ranitidine	1	.0	.0	75.0
RANITIDINE HYDROCHLORIDE	2	.1	.1	75.1
Ranoxyl	3	.1	.1	75.2
Rectinol	1	.0	.0	75.3
Refresh Liquigel	1	.0	.0	75.3
Refresh Tears Plus	1	.0	.0	75.4
Renitec	1	.0	.0	75.4
Repalyte New Formulation	1	.0	.0	75.5
Respocort	1	.0	.0	75.5
Respolin	2	.1	.1	75.6
Resprim Forte	2	.1	.1	75.7
Restavol	1	.0	.0	75.7
Rhinocort	2	.1	.1	75.8
Rhinocort (spray)	1	.0	.0	75.9
Risperdal	1	.0	.0	75.9
Ritalin	1	.0	.0	76.0

Rivotril	4	.2	.2	76.1
Rocaltrol	4	.2	.2	76.3
Rondomycin	1	.0	.0	76.4
Rozex	1	.0	.0	76.4
Rulide	8	.4	.4	76.8
Rulide D	1	.0	.0	76.8
Rynacrom	1	.0	.0	76.8
Salazopyrin-EN	3	.1	.1	77.0
Salazopyrin	2	.1	.1	77.1
SALBUTAMOL SULFATE	1	.0	.0	77.1
Sandomigran 0.5	3	.1	.1	77.2
Satobolus	1	.0	.0	77.3
Savlon	3	.1	.1	77.4
Sedagel	1	.0	.0	77.5
SENNA STANDARDISED	1	.0	.0	77.5
Senokot	5	.2	.2	77.7
Serc	3	.1	.1	77.9
Serenace	3	.1	.1	78.0
Serepax	1	.0	.0	78.0
Seretide Accuhaler 100/50	7	.3	.3	78.4
Seretide Accuhaler 250/50	4	.2	.2	78.5
Seretide Accuhaler 500/50	3	.1	.1	78.7
Seretide MDI 125/25	1	.0	.0	78.7
Seretide MDI 250/25	1	.0	.0	78.8
Serevent	2	.1	.1	78.8
Serevent Accuhaler	2	.1	.1	78.9
Seroquel	2	.1	.1	79.0
Serzone	1	.0	.0	79.1
Sigma Liquid Antacid	1	.0	.0	79.1
Sigmacort	4	.2	.2	79.3
Sigmaxin-PG	1	.0	.0	79.3
Sigmaxin	2	.1	.1	79.4
Sinemet 100/25	2	.1	.1	79.5
Sinequan	2	.1	.1	79.6
Sinuplex	1	.0	.0	79.6
Sinutab	1	.0	.0	79.7
Sinutabs	1	.0	.0	79.7
Skelid	1	.0	.0	79.8
Slow-K	14	.6	.6	80.4
Sm33	1	.0	.0	80.4
Sodium Chloride	1	.0	.0	80.5
Sofradex	4	.2	.2	80.7
Soframycin	1	.0	.0	80.7
Solian 400	1	.0	.0	80.8
Solone	15	.7	.7	81.4
Solprin	10	.4	.4	81.9
Solugel 10336	1	.0	.0	81.9
Somac	7	.3	.3	82.2

Sorbolene Cream	1	.0	.0	82.3
Sotacor	3	.1	.1	82.4
Span-K	2	.1	.1	82.5
Spiractin 25	2	.1	.1	82.6
Spiriva	4	.2	.2	82.8
Spren	1	.0	.0	82.8
Staphylex 250	1	.0	.0	82.8
Staphylex 500	2	.1	.1	82.9
Stelazine	6	.3	.3	83.2
Stemetil	17	.8	.8	84.0
Stemzine	3	.1	.1	84.1
Stilnox	3	.1	.1	84.2
Stingose	2	.1	.1	84.3
Sudafed Sinus & Nasal Decongestant	4	.2	.2	84.5
Surgam	1	.0	.0	84.5
Surmontil	1	.0	.0	84.6
Swisse Women	1	.0	.0	84.6
Symbicort Turbuhaler 200/6	2	.1	.1	84.7
Symmetrel 100	2	.1	.1	84.8
Synphasic	1	.0	.0	84.8
Tagamet	3	.1	.1	85.0
Tagamet 800 Express	1	.0	.0	85.0
Tazac	4	.2	.2	85.2
Tegretol 100	4	.2	.2	85.4
Tegretol 200	5	.2	.2	85.6
Tegretol CR 200	1	.0	.0	85.6
Tegretol CR 400	1	.0	.0	85.7
Telfast	4	.2	.2	85.9
Telfast 120	3	.1	.1	86.0
Temaze	19	.8	.8	86.8
Temtabs	1	.0	.0	86.9
Tenopt	3	.1	.1	87.0
Tenormin	6	.3	.3	87.3
Tensig	3	.1	.1	87.4
Tertroxin	1	.0	.0	87.5
TETRACYCLINE HYDROCHLORIDE	2	.1	.1	87.6
Tetrex	4	.2	.2	87.7
Theo-Dur	3	.1	.1	87.9
Ticlid	1	.0	.0	87.9
Tilade CFC-Free	3	.1	.1	88.0
Timoptol	1	.0	.0	88.1
Tincture Iodine	1	.0	.0	88.1
Tixylix Elixir	1	.0	.0	88.2
Tofranil 10	3	.1	.1	88.3
Tofranil 25	7	.3	.3	88.6
Tramal	16	.7	.7	89.3
Tramal 100	3	.1	.1	89.5
Tramal SR 100	2	.1	.1	89.6

Tramal SR 200	2	.1	.1	89.6
Transiderm-Nitro 25	7	.3	.3	90.0
Transiderm-Nitro 50	5	.2	.2	90.2
Transiderm	1	.0	.0	90.2
Travatan	1	.0	.0	90.3
Triprophen	2	.1	.1	90.4
Trisequens Forte	2	.1	.1	90.4
Tritace 1.25 mg	3	.1	.1	90.6
Tritace 10 mg	3	.1	.1	90.7
Tritace 2.5 mg	5	.2	.2	90.9
Tritace 5 mg	7	.3	.3	91.2
Trusopt	1	.0	.0	91.3
Tryptanol	4	.2	.2	91.5
Tylenol	2	.1	.1	91.6
Uniparen	1	.0	.0	91.6
Ural	1	.0	.0	91.6
Ural Sachets	7	.3	.3	92.0
Uremide	11	.5	.5	92.4
Urex-Forte	1	.0	.0	92.5
Urex-M	3	.1	.1	92.6
Urex	3	.1	.1	92.8
Vagisil	1	.0	.0	92.8
Valium	3	.1	.1	92.9
Valpam 2	3	.1	.1	93.1
Valpro 200	3	.1	.1	93.2
Ventolin	23	1.0	1.0	94.2
Ventolin Nebules	4	.2	.2	94.4
Vermox	1	.0	.0	94.4
Viagra	2	.1	.1	94.5
Vibra-Tabs	1	.0	.0	94.6
Vibramycin	1	.0	.0	94.6
Vicks Heaclear	1	.0	.0	94.7
Vioxx	22	1.0	1.0	95.6
Visine Eye Drops	2	.1	.1	95.7
Visken 5	1	.0	.0	95.8
Vitamin C	1	.0	.0	95.8
Vitelle Vitamin C	2	.1	.1	95.9
Voltaren 100	6	.3	.3	96.2
Voltaren 25	2	.1	.1	96.3
Voltaren 50	7	.3	.3	96.6
Voltaren Ophtha	1	.0	.0	96.6
Voltaren Rapid 50	3	.1	.1	96.8
WARFARIN SODIUM	3	.1	.1	96.9
Wart Kill	1	.0	.0	96.9
Waxsol	2	.1	.1	97.0
Woodlife	1	.0	.0	97.1
Xalatan	2	.1	.1	97.2
Xeloda	1	.0	.0	97.2

Xenical	1	.0	.0	97.2
Xylocard 100	1	.0	.0	97.3
Zadine	2	.1	.1	97.4
Zanidip	2	.1	.1	97.5
Zantac	7	.3	.3	97.8
Zestril	7	.3	.3	98.1
Zinc Plus	1	.0	.0	98.1
Zinvit	1	.0	.0	98.2
Zocor	6	.3	.3	98.4
Zoloft	9	.4	.4	98.8
Zomig	1	.0	.0	98.9
Zoton	3	.1	.1	99.0
Zovirax	2	.1	.1	99.1
Zyban	1	.0	.0	99.2
Zydol	2	.1	.1	99.2
Zyloprim	7	.3	.3	99.6
Zyprexa	7	.3	.3	99.9
Zyprexa Zydis	2	.1	.1	100.0
Zyrtec	1	.0	.0	100.0
Total	2250	100.0	100.0	

Appendix 12: MEDICINES RETURNED IN RUMS BY GENERIC NAME

FREQUENCY TABLE - GENERIC NAME					
	Generic name	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	ABACAVIR SULFATE with LAMIVUDINE and ZIDOVUDINE	2	.1	.1	.1
	ACARBOSE	1	.0	.0	.1
	ACETAZOLAMIDE	1	.0	.0	.2
	ACICLOVIR	3	.1	.1	.3
	ACITRETIN	1	.0	.0	.4
	ADRENALINE	1	.0	.0	.4
	ALENDRONATE SODIUM	9	.4	.4	.8
	ALLOPURINOL	11	.5	.5	1.3
	ALTEPLASE	1	.0	.0	1.3
	ALUMINIUM ACETATE	2	.1	.1	1.4
	ALUMINIUM HYDROXIDE with MAGNESIUM HYDROXIDE	7	.3	.3	1.7
	ALUMINIUM HYDROXIDE with MAGNESIUM HYDROXIDE and SIMETHICONE	3	.1	.1	1.9
	ALUMINIUM SULPHATE	2	.1	.1	2.0
	AMANTADINE HYDROCHLORIDE	2	.1	.1	2.0
	AMIODARONE HYDROCHLORIDE	6	.3	.3	2.3
	AMISULPRIDE	1	.0	.0	2.4
	AMITRIPTYLINE HYDROCHLORIDE	11	.5	.5	2.8
	AMLODIPINE BESYLATE	25	1.1	1.1	4.0
	AMOXYCILLIN	33	1.5	1.5	5.4
	AMOXYCILLIN with CLAVULANIC ACID	4	.2	.2	5.6
	AMPHOTERICIN	7	.3	.3	5.9
	ANYLOBARBITONE	1	.0	.0	6.0
	AQUEOUS CREAM	3	.1	.1	6.1
	ASCORBIC ACID	9	.4	.4	6.5
	ASPIRIN	32	1.4	1.4	7.9
	ATENOLOL	16	.7	.7	8.6
	ATORVASTATIN CALCIUM	14	.6	.6	9.2
	ATROPINE SULFATE	1	.0	.0	9.3
	AZATADINE	2	.1	.1	9.4
	AZATHIOPRINE	1	.0	.0	9.4
	BACLOFEN	1	.0	.0	9.5
	BECLOMETHASONE DIPROPIONATE	10	.4	.4	9.9
	BELLADONNA	1	.0	.0	10.0
	BENDROFLUAZIDE	3	.1	.1	10.1
	BENZOCAINE	1	.0	.0	10.1
	BENZTROPINE MESYLATE	1	.0	.0	10.2
	BENZYDAMINE HYDROCHLORIDE	1	.0	.0	10.2
	BETAHISTINE	3	.1	.1	10.4
	BETAMETHASONE ACETATE with BETAMETHASONE SODIUM PHOSPHATE	2	.1	.1	10.4
	BETAMETHASONE DIPROPIONATE	15	.7	.7	11.1
	BETAMETHASONE VALERATE	15	.7	.7	11.8

	BETAXOLOL HYDROCHLORIDE	1	.0	.0	11.8
	BEZALKONIUM	1	.0	.0	11.9
	BIFONAZOLE	1	.0	.0	11.9
	BIMATOPROST	7	.3	.3	12.2
	BISACODYL	9	.4	.4	12.6
	BISOPROLOL FUMARATE	1	.0	.0	12.7
	BRIMONIDINE TARTRATE	1	.0	.0	12.7
	BROMAZEPAM	1	.0	.0	12.8
	BROMHEXINE	1	.0	.0	12.8
	BUDESONIDE	9	.4	.4	13.2
	BUDESONIDE with EFORMOTEROL FUMARATE DIHYDRATE	2	.1	.1	13.3
	BUPROPION HYDROCHLORIDE	1	.0	.0	13.3
	CALAMINE	1	.0	.0	13.4
	CALCITRIOL	4	.2	.2	13.6
	CALCIUM	11	.5	.5	14.0
	CANDESARTAN CILEXETIL	2	.1	.1	14.1
	CAPECITABINE	1	.0	.0	14.2
	CAPTOPRIL	8	.4	.4	14.5
	CARBAMAZEPINE	11	.5	.5	15.0
	CARBAMIDE PEROXIDE	1	.0	.0	15.1
	CARBIMAZOLE	2	.1	.1	15.2
	CARMELLOSE SODIUM	2	.1	.1	15.2
	CARVEDILOL	2	.1	.1	15.3
	CEFACLOR	12	.5	.5	15.9
	CELECOXIB	24	1.1	1.1	16.9
	CEPHALEXIN	21	.9	.9	17.9
	CETIRIZINE HYDROCHLORIDE	1	.0	.0	17.9
	CHLORAMPHENICOL	17	.8	.8	18.7
	CHLORHEXIDINE GLUCONATE	2	.1	.1	18.8
	CHLORHEXINE	5	.2	.2	19.0
	CHLOROTHIAZIDE	2	.1	.1	19.1
	CHLORPHENIRAMINE	1	.0	.0	19.1
	CHLORPROMAZINE HYDROCHLORIDE	3	.1	.1	19.2
	CHLORTHALIDONE	2	.1	.1	19.3
	CHOLESTYRAMINE	1	.0	.0	19.4
	CIMETIDINE	7	.3	.3	19.7
	CIPROFLOXACIN	1	.0	.0	19.7
	CISAPRIDE	3	.1	.1	19.9
	CITALOPRAM HYDROBROMIDE	8	.4	.4	20.2
	CLINDAMYCIN	4	.2	.2	20.4
	CLONAZEPAM	5	.2	.2	20.6
	CLOPIDOGREL HYDROGEN SULFATE	5	.2	.2	20.8
	CLOTRIMAZOLE	3	.1	.1	21.0
	CODEINE PHOSPHATE	4	.2	.2	21.2
	CODEINE PHOSPHATE with ASPIRIN	1	.0	.0	21.2
	CODEINE PHOSPHATE with PARACETAMOL	30	1.3	1.3	22.5
	COLCHICINE	9	.4	.4	22.9
	COMPLEMENTARY	27	1.2	1.2	24.1

	CORTISONE ACETATE	2	.1	.1	24.2
	CROTAMITON	1	.0	.0	24.3
	CYCLAZINE	1	.0	.0	24.3
	CYCLOSPORIN	2	.1	.1	24.4
	CYPROHEPTADINE HYDROCHLORIDE	2	.1	.1	24.5
	CYPROTERONE ACETATE	4	.2	.2	24.7
	DALTEPARIN SODIUM	1	.0	.0	24.7
	DEMECLOCYCLINE HYDROCHLORIDE	1	.0	.0	24.8
	DEXAMETHASONE	8	.4	.4	25.1
	DEXAMETHASONE with FRAMYCETIN SULFATE and GRAMICIDIN	4	.2	.2	25.3
	DEXCHORPHENIRAMINE	2	.1	.1	25.4
	DEXTROMETHORPHAN	3	.1	.1	25.5
	DEXTROPROPOXYPHENE NAPSYLATE	11	.5	.5	26.0
	DIAZEPAM	16	.7	.7	26.7
	DICHLOROBENZENE with CHLORBUTOL and TURPENTINE OIL	1	.0	.0	26.8
	DICLOFENAC POTASSIUM	5	.2	.2	27.0
	DICLOFENAC SODIUM	19	.8	.8	27.8
	DICLOXACILLIN	4	.2	.2	28.0
	DIFLUNISAL	1	.0	.0	28.0
	DIGOXIN	26	1.2	1.2	29.2
	DILTIAZEM HYDROCHLORIDE	14	.6	.6	29.8
	DIMENHYDRINATE	1	.0	.0	29.9
	DIPHENOXYLATE HYDROCHLORIDE with ATROPINE SULFATE	10	.4	.4	30.3
	DIPITEHYDRATE	1	.0	.0	30.4
	DIPIVEFRINE HYDROCHLORIDE	1	.0	.0	30.4
	DIPYRIDAMOLE	1	.0	.0	30.4
	DIPYRIDAMOLE with ASPIRIN	6	.3	.3	30.7
	DISODIUM ETIDRONATE	1	.0	.0	30.8
	DOCUSATE SODIUM	2	.1	.1	30.8
	DOCUSATE SODIUM with BISACODYL	5	.2	.2	31.1
	DOCUSATE SODIUM with SENNA	5	.2	.2	31.3
	DONEPEZIL HYDROCHLORIDE	3	.1	.1	31.4
	DORZOLAMIDE HYDROCHLORIDE	1	.0	.0	31.5
	DOTHIEPIN HYDROCHLORIDE	12	.5	.5	32.0
	DOXEPIN HYDROCHLORIDE	9	.4	.4	32.4
	DOXYCYCLINE	8	.4	.4	32.8
	DOXYLAMINE	6	.3	.3	33.0
	DYDROGESTERONE	1	.0	.0	33.1
	EFORMOTEROL FUMARATE DIHYDRATE	1	.0	.0	33.1
	EGOCALCIFEROL	1	.0	.0	33.2
	ELECTROLYTE REPLACEMENT (ORAL)	1	.0	.0	33.2
	ENALAPRIL MALEATE	12	.5	.5	33.7
	ENOXAPARIN SODIUM	4	.2	.2	33.9
	ERYTHROMYCIN	3	.1	.1	34.0
	ERYTHROMYCIN ETHYL SUCCINATE	4	.2	.2	34.2
	ESCITALOPRAM OXALATE	1	.0	.0	34.3

	ESOMEPRAZOLE MAGNESIUM TRIHYDRATE	8	.4	.4	34.6
	ETHANOL	1	.0	.0	34.7
	EXEMESTANE	1	.0	.0	34.7
	FAMOTIDINE	4	.2	.2	34.9
	FELODIPINE	4	.2	.2	35.1
	FENTANYL	4	.2	.2	35.2
	FERROUS SULFATE DRIED with FOLIC ACID	12	.5	.5	35.8
	FEXOFENADINE HYDROCHLORIDE	7	.3	.3	36.1
	FLUCLOXACILLIN	5	.2	.2	36.3
	FLUCONAZOLE	1	.0	.0	36.4
	FLUOROMETHOLONE	2	.1	.1	36.4
	FLUOROMETHOLONE ACETATE	2	.1	.1	36.5
	FLUOROURACIL	2	.1	.1	36.6
	FLUOXETINE HYDROCHLORIDE	2	.1	.1	36.7
	FLUTICASONE PROPIONATE	5	.2	.2	36.9
	FLUTICASONE PROPIONATE with SALMETEROL XINAFOATE	16	.7	.7	37.6
	FOLIC ACID	4	.2	.2	37.8
	FOSINOPRIL SODIUM	4	.2	.2	38.0
	FOSINOPRIL SODIUM with HYDROCHLOROTHIAZIDE	2	.1	.1	38.1
	FRAMYCETIN SULFATE	1	.0	.0	38.1
	FRUSEMIDE	37	1.6	1.6	39.8
	FUSIDIC ACID	1	.0	.0	39.8
	G METFORMIN HYDROCHLORIDE	2	.1	.1	39.9
	GABAPENTIN	2	.1	.1	40.0
	GEMFIBROZIL	1	.0	.0	40.0
	GLIBENCLAMIDE	3	.1	.1	40.2
	GLICLAZIDE	14	.6	.6	40.8
	GLIMEPIRIDE	4	.2	.2	41.0
	GLUCOSE INDICATOR--BLOOD	3	.1	.1	41.1
	GLYCERINE	1	.0	.0	41.2
	GLYCERYL TRINITRATE	49	2.2	2.2	43.3
	GRISEOFULVIN	1	.0	.0	43.4
	HALOPERIDOL	5	.2	.2	43.6
	HALOPERIDOL DECANOATE	1	.0	.0	43.6
	HEPARIN	1	.0	.0	43.7
	HEXAMINE HIPPURATE	1	.0	.0	43.7
	HYDROCHLOROTHIAZIDE	11	.5	.5	44.2
	HYDROCHLOROTHIAZIDE with AMILORIDE HYDROCHLORIDE	7	.3	.3	44.5
	HYDROCHLOROTHIAZIDE with TRIAMTERENE	1	.0	.0	44.6
	HYDROCORTISONE	5	.2	.2	44.8
	HYDROCORTISONE ACETATE	4	.2	.2	45.0
	HYDROXOCOBALAMIN	1	.0	.0	45.0
	HYDROXYUREA	1	.0	.0	45.1
	HYOSCINE BUTYLBROMIDE	3	.1	.1	45.2
	HYOSCINE HYDROBROMIDE	1	.0	.0	45.2
	HYPROMELLOSE with CARBOMER 980	1	.0	.0	45.3
	HYPROMELLOSE with DEXTRAN	2	.1	.1	45.4

	IBUPROFEN	21	.9	.9	46.3
	IMIPRAMINE HYDROCHLORIDE	10	.4	.4	46.8
	INDAPAMIDE HEMIHYDRATE	16	.7	.7	47.5
	INDOMETHACIN	11	.5	.5	48.0
	INSULIN ASPART	1	.0	.0	48.0
	INSULIN ASPART PROTAMINE SUSPENSION	4	.2	.2	48.2
	INSULIN ISOPHANE (N.P.H.)	2	.1	.1	48.3
	INSULIN LISPRO--INSULIN LISPRO PROTAMINE SUSPENSION	1	.0	.0	48.3
	INSULIN NEUTRAL	1	.0	.0	48.4
	IODINE	2	.1	.1	48.4
	IPRATROPIUM BROMIDE	15	.7	.7	49.1
	IPRATROPIUM BROMIDE with SALBUTAMOL SULFATE	2	.1	.1	49.2
	IRBESARTAN	9	.4	.4	49.6
	IRBESARTAN with HYDROCHLOROTHIAZIDE	28	1.2	1.2	50.8
	IRON POLYMALTOSE COMPLEX	1	.0	.0	50.9
	ISOSORBIDE MONONITRATE	11	.5	.5	51.4
	ISPAGHULA HUSK	1	.0	.0	51.4
	KETOPROFEN	9	.4	.4	51.8
	LACTULOSE	2	.1	.1	51.9
	LAMOTRIGINE	1	.0	.0	52.0
	LANSOPRAZOLE	3	.1	.1	52.1
	LATANOPROST	2	.1	.1	52.2
	LERCANIDIPINE HYDROCHLORIDE	2	.1	.1	52.3
	LEVODOPA with BENSERAZIDE	1	.0	.0	52.3
	LEVODOPA with CARBIDOPA	2	.1	.1	52.4
	LEVONORGESTREL with ETHINYLOESTRADIOL	3	.1	.1	52.5
	LIOTHYRONINE SODIUM	1	.0	.0	52.6
	LISINOPRIL	10	.4	.4	53.0
	LITHIUM CARBONATE	1	.0	.0	53.1
	LOPERAMIDE HYDROCHLORIDE	13	.6	.6	53.6
	LORATADINE	4	.2	.2	53.8
	LORAZEPAM	1	.0	.0	53.9
	MACROGOL 3350	1	.0	.0	53.9
	MALDISON	1	.0	.0	54.0
	MEBENDAZOLE	1	.0	.0	54.0
	MEBEVERINE HYDROCHLORIDE	5	.2	.2	54.2
	MEDROXYPROGESTERONE ACETATE	5	.2	.2	54.4
	MEFENAMIC ACID	2	.1	.1	54.5
	MELOXICAM	4	.2	.2	54.7
	MELPHALAN	2	.1	.1	54.8
	MENINGOLOCICAL VACCINE	1	.0	.0	54.8
	MENTHOL	3	.1	.1	55.0
	MERCURACHROME	1	.0	.0	55.0
	MESALAZINE	1	.0	.0	55.1
	METFORMIN HYDROCHLORIDE	9	.4	.4	55.5
	METHADONE HYDROCHLORIDE	1	.0	.0	55.5
	METHYL SALICYLATE	3	.1	.1	55.6
	METHYLDOPA	3	.1	.1	55.8

	METHYLPHENIDATE	1	.0	.0	55.8
	METHYLPREDNISOLONE ACEPONATE	9	.4	.4	56.2
	METOCLOPRAMIDE HYDROCHLORIDE	31	1.4	1.4	57.6
	METOPROLOL TARTRATE	14	.6	.6	58.2
	METRONIDAZOLE	11	.5	.5	58.7
	MEXILETINE HYDROCHLORIDE	2	.1	.1	58.8
	MIANSERIN HYDROCHLORIDE	1	.0	.0	58.8
	MICONAZOLE	2	.1	.1	58.9
	MIDAZOLAM	3	.1	.1	59.1
	MINOCYCLINE	3	.1	.1	59.2
	MIRTAZAPINE	4	.2	.2	59.4
	MISOPROSTOL	1	.0	.0	59.4
	MOCLOBEMIDE	2	.1	.1	59.5
	MOMETASONE FUROATE	5	.2	.2	59.7
	MORPHINE HYDROCHLORIDE	15	.7	.7	60.4
	MORPHINE SULFATE	21	.9	.9	61.3
	MUPIROCIN	1	.0	.0	61.4
	NANDROLONE DECANOATE	1	.0	.0	61.4
	NAPHAZOLINE HYDROCHLORIDE	1	.0	.0	61.5
	NAPROXEN	18	.8	.8	62.3
	NARATRIPTAN HYDROCHLORIDE	1	.0	.0	62.3
	NEDOCROMIL SODIUM	3	.1	.1	62.4
	NEFAZODONE	1	.0	.0	62.5
	NEOMYCIN UNDECENOATE with BACITRACIN ZINC	1	.0	.0	62.5
	NICOTINE	1	.0	.0	62.6
	NICOTINIC ACID	1	.0	.0	62.6
	NIFEDIPINE	9	.4	.4	63.0
	NITRAZEPAM	6	.3	.3	63.3
	NITROFURANTOIN	2	.1	.1	63.4
	NIZATIDINE	4	.2	.2	63.6
	NORETHISTERONE	2	.1	.1	63.6
	NORETHISTERONE with ETHINYLOESTRADIOL	4	.2	.2	63.8
	NORFLOXACIN	8	.4	.4	64.2
	NOVAQUIN	1	.0	.0	64.2
	NYSTATIN	9	.4	.4	64.6
	OESTRADIOL	11	.5	.5	65.1
	OESTRADIOL and OESTRADIOL with NORETHISTERONE ACETATE	2	.1	.1	65.2
	OESTRADIOL VALERATE	2	.1	.1	65.3
	OESTRADIOL with NORETHISTERONE ACETATE	3	.1	.1	65.4
	OESTRIOL	5	.2	.2	65.6
	OESTROGENS--CONJUGATED	5	.2	.2	65.9
	OESTROGENS--CONJUGATED and OESTROGENS--CONJUGATED with MEDROXYPROGESTERONE ACETA	1	.0	.0	65.9
	OLANZAPINE	9	.4	.4	66.3
	OMEPRAZOLE	2	.1	.1	66.4
	OMEPRAZOLE MAGNESIUM	3	.1	.1	66.5
	OMEPRAZOLE MAGNESIUM and CLARITHROMYCIN and AMOXYCILLIN	2	.1	.1	66.6

	ORLISTAT	1	.0	.0	66.7
	OTHER*	10	.4	.4	67.1
	OXAZEPAM	3	.1	.1	67.2
	OXYBUTYNIN HYDROCHLORIDE	5	.2	.2	67.5
	OXYCODONE HYDROCHLORIDE	12	.5	.5	68.0
	OXYMETAZOLINE HYDROCHLORIDE	2	.1	.1	68.1
	PANTOPRAZOLE SODIUM SESQUIHYDRATE	7	.3	.3	68.4
	PARACETAMOL	39	1.7	1.7	70.1
	PARAFFIN	1	.0	.0	70.2
	PAROXETINE HYDROCHLORIDE	9	.4	.4	70.6
	PERICYAZINE	4	.2	.2	70.8
	PERINDOPRIL ERBUMINE	8	.4	.4	71.1
	PERINDOPRIL ERBUMINE with INDAPAMIDE HEMIHYDRATE	2	.1	.1	71.2
	PERMETHRIN	1	.0	.0	71.2
	PHENELZINE SULFATE	1	.0	.0	71.3
	PHENOBARBITONE	1	.0	.0	71.3
	PHENOXYMETHYLPENICILLIN	2	.1	.1	71.4
	PHENYLEPHRINE	2	.1	.1	71.5
	PHENYTOIN	6	.3	.3	71.8
	PHOLCODINE	1	.0	.0	71.8
	PHOSPHORIC ACID	1	.0	.0	71.9
	PINDOLOL	1	.0	.0	71.9
	PIOGLITAZONE HYDROCHLORIDE	1	.0	.0	72.0
	PIROXICAM	8	.4	.4	72.3
	PIZOTIFEN MALATE	3	.1	.1	72.4
	PODOPHYLLIN	2	.1	.1	72.5
	POLYMYXIN B SULFATE with BACITRACIN and NEOMYCIN SULFATE	2	.1	.1	72.6
	POTASSIUM CHLORIDE	18	.8	.8	73.4
	PRAVASTATIN SODIUM	7	.3	.3	73.7
	PRAZOSIN HYDROCHLORIDE	9	.4	.4	74.1
	PREDNISOLONE	41	1.8	1.8	76.0
	PREDNISOLONE ACETATE with PHENYLEPHRINE HYDROCHLORIDE	3	.1	.1	76.1
	PROCAINE PENICILLIN	6	.3	.3	76.4
	PROCHLORPERAZINE	20	.9	.9	77.2
	PROMETHAZINE HYDROCHLORIDE	3	.1	.1	77.4
	PROPAMIDINE	1	.0	.0	77.4
	PROPANTHELINE	2	.1	.1	77.5
	PROPRANOLOL HYDROCHLORIDE	3	.1	.1	77.6
	PSEUDOEPHEDRINE HYDROCHLORIDE	18	.8	.8	78.4
	PSEUDOEPHEDRINE SULFATE	4	.2	.2	78.6
	PSYLLIUM HYDROPHILIC MUCILLOID	1	.0	.0	78.7
	PYRANTEL	1	.0	.0	78.7
	PYRETARIN	1	.0	.0	78.8
	QUETIAPINE FUMARATE	2	.1	.1	78.8
	QUINAPRIL HYDROCHLORIDE	1	.0	.0	78.9
	QUININE BISULFATE	11	.5	.5	79.4

	QUININE SULFATE	7	.3	.3	79.7
	RABEPRAZOLE SODIUM	1	.0	.0	79.7
	RALOXIFENE HYDROCHLORIDE	1	.0	.0	79.8
	RAMIPRIL	19	.8	.8	80.6
	RANITIDINE HYDROCHLORIDE	30	1.3	1.3	82.0
	REBOXETINE MESILATE	1	.0	.0	82.0
	RICINOLEIC ACID with ACETIC ACID and HYDROXYQUINOLINE SULFATE	8	.4	.4	82.4
	RISEDRONATE SODIUM	3	.1	.1	82.5
	RISPERIDONE	1	.0	.0	82.5
	RIVASTIGMINE HYDROGEN TARTRATE	1	.0	.0	82.6
	ROFECOXIB	22	1.0	1.0	83.6
	ROXITHROMYCIN	10	.4	.4	84.0
	SALBUTAMOL SULFATE	40	1.8	1.8	85.8
	SALICYLIC ACID with PODOPHYLLIN RESIN	1	.0	.0	85.8
	SALMETEROL XINAFOATE	4	.2	.2	86.0
	SENNA STANDARDISED	9	.4	.4	86.4
	SERTRALINE HYDROCHLORIDE	9	.4	.4	86.8
	SILDENAFIL CITRATE	2	.1	.1	86.9
	SIMVASTATIN	17	.8	.8	87.6
	SODIUM ALGINATE with CALCIUM CARBONATE and SODIUM BICARBONATE	1	.0	.0	87.7
	SODIUM CHLORIDE	8	.4	.4	88.0
	SODIUM CITRO-TARTRATE	7	.3	.3	88.4
	SODIUM CROMOGLYCATE	5	.2	.2	88.6
	SODIUM PHOSPHATE	1	.0	.0	88.6
	SODIUM VALPROATE	8	.4	.4	89.0
	SORBITOL with SODIUM CITRATE and SODIUM LAURYL SULFOACETATE	4	.2	.2	89.2
	SORBOLENE	1	.0	.0	89.2
	SOTALOL HYDROCHLORIDE	3	.1	.1	89.3
	SPIRONOLACTONE	11	.5	.5	89.8
	SULFASALAZINE	5	.2	.2	90.0
	SULINDAC	1	.0	.0	90.1
	SUMATRIPTAN	1	.0	.0	90.1
	TAMOXIFEN CITRATE	3	.1	.1	90.3
	TELMISARTAN	4	.2	.2	90.4
	TELMISARTAN with HYDROCHLOROTHIAZIDE	2	.1	.1	90.5
	TEMAZEPAM	26	1.2	1.2	91.7
	TERBINAFINE HYDROCHLORIDE	1	.0	.0	91.7
	TERBUTALINE SULFATE	14	.6	.6	92.4
	TETRACYCLINE HYDROCHLORIDE	26	1.2	1.2	93.5
	TETRAHYROZILINE	2	.1	.1	93.6
	THEOPHYLLIN	4	.2	.2	93.8
	THIAMINE HYDROCHLORIDE	2	.1	.1	93.9
	THIORIDAZINE	1	.0	.0	93.9
	THYROXINE SODIUM	7	.3	.3	94.2
	TIAPROFENIC ACID	1	.0	.0	94.3
	TICLOPIDINE HYDROCHLORIDE	1	.0	.0	94.3

	TILUDRONATE DISODIUM	1	.0	.0	94.4
	TIMOLOL MALEATE	4	.2	.2	94.5
	TIOTROPIUM BROMIDE MONOHYDRATE	4	.2	.2	94.7
	TRAMADOL HYDROCHLORIDE	25	1.1	1.1	95.8
	TRANDOLAPRIL	1	.0	.0	95.9
	TRAVOPROST	1	.0	.0	95.9
	TRIAMCINOLONE ACETONIDE	6	.3	.3	96.2
	TRIAMCINOLONE ACETONIDE with NEOMYCIN SULFATE, GRAMICIDIN and NYSTATIN	8	.4	.4	96.5
	TRIFLUOPERAZINE HYDROCHLORIDE	6	.3	.3	96.8
	TRIMETHOPRIM with SULFAMETHOXAZOLE	7	.3	.3	97.1
	TRIMIPRAMINE	1	.0	.0	97.2
	TROPISETRON HYDROCHLORIDE	1	.0	.0	97.2
	UREA	2	.1	.1	97.3
	VENLAFAXINE HYDROCHLORIDE	8	.4	.4	97.6
	VERAPAMIL HYDROCHLORIDE	6	.3	.3	97.9
	WARFARIN SODIUM	39	1.7	1.7	99.6
	ZINC OXIDE with STARCH and CHLORPHENESIN	1	.0	.0	99.7
	ZINC OXIDE with STARCH AND CHLORPHENESIN	1	.0	.0	99.7
	ZINK SULPHATE	1	.0	.0	99.8
	ZOLMITRIPTAN	1	.0	.0	99.8
	ZOLPIDEM	3	.1	.1	100.0
	ZOPICLONE	1	.0	.0	100.0
	Total	2250	100.0	100.0	

*including items such as ‘medical device’, ‘care products’ etc.