Investigating the Integration of Complementary Medicines in Community Pharmacy Practice

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### Acronyms

<table>
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<tr>
<th>Acronym</th>
<th>Explanation</th>
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<tbody>
<tr>
<td>ADR</td>
<td>Adverse Drug Reaction</td>
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<tr>
<td>ADRAC</td>
<td>Adverse Drug Reactions Advisory Committee</td>
</tr>
<tr>
<td>CMs</td>
<td>Complementary Medicines (refers to medicinal products only)</td>
</tr>
<tr>
<td>CM</td>
<td>Complementary medicine</td>
</tr>
<tr>
<td>GMP</td>
<td>Good Manufacturing Practice</td>
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<tr>
<td>IM</td>
<td>Integrative Medicine</td>
</tr>
<tr>
<td>NCCAM</td>
<td>National Centre for Complementary and Alternative Medicine (US)</td>
</tr>
<tr>
<td>OTC</td>
<td>Over the Counter</td>
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<tr>
<td>QUM</td>
<td>Quality Use of Medicines</td>
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<tr>
<td>WHM</td>
<td>Western Herbal Medicine</td>
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<tr>
<td>TGA</td>
<td>Therapeutic Goods Administration</td>
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Background and rationale for the project

Complementary medicines (CMs) are widely available in Australia as over the counter (OTC) products. Australian surveys consistently indicate that use of CMs is widespread amongst a broad cross section of the community. In Australia a number of studies have been completed investigating CM use in both general and populations defined by gender, age or other characteristics such as those with specific diseases.\(^1\)\(^-\)\(^17\) For example, a recently completed national study estimated that 69% of Australian adults used at least one non-medically prescribed complementary medicine product and that 44% visited at least one complementary healthcare practitioner.\(^2\) While much is known about use by the general Australian adult population, relatively less is known about the use of CM in the context of pharmacy practice.

Community pharmacy is one of the main suppliers of CMs in Australia and is the primary outlet for approximately 40% of the total money spent on this sector which has been estimated at between $800 million and $1.3 billion annually.\(^1\) Despite being a major outlet for CMs there is a paucity of information about the attitudes, information needs and CMs utilisation patterns of community pharmacy customers, and whether there is any disparity between customer needs and the adequacy of community pharmacists to fill these needs.

In addition to stocking CMs there appears to be a growing trend for some community pharmacies to have CM practitioners (chiefly naturopaths or Western herbalists) available in their stores to provide a variety of customer services. Little is known about the prevalence of this development or the role that store naturopaths and herbalists take in community pharmacy, the attitudes of customers or pharmacists to this new practice or its impact on Quality Use of Medicines (QUM).

There is also a growing scientific evidence base for some CMs showing that they can improve health, provide symptomatic relief, reduce disease, and reduce health cost; however they can also interact with numerous drugs and cause adverse events.\(^8\)\(^,\)\(^9\) These factors combine to provide pharmacists and other pharmacy staff with both a major opportunity and a burden of responsibility to ensure that the principles of QUM are applied to this area of therapeutics.

The widespread use of CMs within the general community, the potential of these products to provide both health benefits and risks, and the important role of community pharmacists as advocates of appropriate use of medicines makes it imperative to identify how CMs are currently used within a community pharmacy setting. It is also important to identify areas which would benefit from modification or further development to improve pharmacists’ delivery of QUM and ultimately patient safety and wellbeing.

References


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(16) Welch S. The Use of Complementary Medicines by Inpatients at St Vincent's Hospital Sydney [abstract]Welch S. *The Australian Journal of Hospital Pharmacy* 2001;31:111-113

Definitions

**Complementary medicines (CMs) or complementary medicine products:** are defined as commercially prepared herbal medicines, nutritional and food supplements and homeopathic remedies available over-the-counter (OTC) from pharmacies, supermarkets, health food stores, through mail order companies, the internet and from practitioner and medical clinics. They consist wholly or principally of one or more designated active ingredients, each or which has a clearly established identity and a traditional use or any other use prescribed in the regulations.

**Complementary medicine therapy:** In this report the term is mainly used in reference to therapies which are not considered part of the orthodox medical approach and based on the complementary medicine principles of holism, individualisation and vitalism. Such therapies include: massage therapy, chiropractic, osteopathy, naturopathy and aromatherapy. Some of the practitioners employing these therapies will also use medicinal agents such as CMs.

**Herbal medicines:** are preparations of plants, and other organisms that are treated as plants in the International Code of Botanical Nomenclature which are used as therapeutic agents.

**Nutritional supplements:** refers to products containing essential nutrients (vitamins and/or minerals) or organic compounds essential for health and maintaining body functions (e.g. a multivitamin tablet).

**Food supplements:** refers to products which increase total dietary intake but are not conventional foods. These products may contain concentrated food extracts, for example soy, colostrum or whey protein, probiotics and sometimes contain additional vitamins, minerals, phytochemicals, amino acids, enzymes or herbs.

**Integrative medicine:** health care that combines mainstream medical therapies and CM therapies for which there is some high-quality scientific evidence of safety and effectiveness.

**Naturopath:** a practitioner who is trained in the principles, philosophy and practice of the complementary medical system of naturopathy. This system emphasises healing through stimulating the body’s inherent healing capacity and may include herbal medicine, nutritional medicine, massage and/or homeopathy.

**Western herbal medicine (WHM) practitioner (Herbalist):** a health practitioner who engages in extemporaneous compounding of herbs for therapeutic purposes for individuals under their care and who has training in herbal medicine principles, philosophy and practice.

**AUST L:** the unique Australian Register of Therapeutic goods number for a listed therapeutic product
Project Aims

The primary aim of this project was to investigate the integration of CMs into community pharmacy practice, taking into account the behaviours and perceptions of customers, pharmacists and pharmacy assistants and naturopaths/natural therapists.

To achieve the primary aim, each of these groups was investigated separately using dedicated surveys and additional focus group discussions for pharmacists and pharmacy assistants.

Secondary aims were:

- To identify customer beliefs and attitudes about CMs and areas where pharmacy practice in relation to CMs does not adequately meet customer needs.
- To determine customer use and purchasing patterns of CMs, information sources, disclosure to pharmacists about use of CMs, perceived efficacy of CMs used, prevalence of adverse reactions to CMs and customers behavioural responses.
- To identify pharmacists' and pharmacy assistants ability to meet the CM information needs of customers and lead QUM practices in regards to CMs within the pharmacy setting.
- To describe information sources used by pharmacists and pharmacy assistants for CM information, pharmacists confidence in dealing with customer enquiries, their knowledge about the evidence-base of commonly used CMs, attitudes to CMs and integration, frequency of employing CM practitioners, previous training and further education needs.
- To identify the prevalence of naturopaths/natural therapists working within the pharmacy setting and their role within this setting
- To describe information sources used by naturopaths/natural therapists for CMs, their attitudes to integration of CM practitioners within the pharmacy setting, knowledge about the evidence-base of CMs used by pharmacy customers, referrals to pharmacists and medical practitioners and education.
Shared Methodology

This study consisted of six phases; combining the use of on-line and paper based questionnaires and face-to-face focus groups (Figure 1). The methodology undertaken for each individual phase is further described in the relevant chapters.

**Figure 1  Six phases of the study**

**Ethics approval**

Ethics approval was obtained from the Alfred Human Research Ethics Committee and the Monash Human Research Ethics Committee. Reciprocal ethics approval was obtained from Griffith University for the research conducted at the Gold Coast site and Charles Sturt University for research conducted in Wagga Wagga.
Advisory group

An advisory group was established, consisting of two community pharmacists (one from an independent pharmacy and the other working in a larger format, banner group store), a consumer advocate and a representative of the Pharmaceutical Society of Australia. Terms of Reference were developed and approved (Appendix A). The advisory group met three times over the course of the project. Their role was to advise on the relevance of the content included in the questionnaires and interpretation of the finding of the various phases.

Website

A web-site was established; see http://www.alfred.org.au/camstudy/. Participants were directed to the site for on-line questionnaire completion (Phases 3 and 6) and for additional information, if required.

Data entry and statistics

All data from the customer, pharmacist, pharmacy assistant and naturopath/herbalist questionnaires was entered into SurveyMonkey™, an online survey tool. Descriptive and inferential statistics were derived using SAS version 9.1 (SAS Institute Inc., Cary, NC, USA). Differences in proportions between groups were compared using chi-square tests for equal proportions or Fishers Exact tests where number were small and reported as percentages (n). Continuously normally distributed variables were compared using student t-tests and reported as means (standard errors), while non-normally distributed variables were compared using Wilcoxon Rank Sum tests and reported as medians (interquartile range). To reduce the chance of type I errors, a reduced p-value of 0.01 was considered to be statistically significant.

Correct responses from the knowledge sections were given a score of 1; incorrect responses were given a score of 0. Scores from all answers were then aggregated to give overall scores for knowledge. These scores were then compared between groups in accordance with their underlying distributions, as described above.
Chapter One

Phase 1: Pharmacy customer questionnaire

A brief literature review is presented in the first section of this chapter to provide background information and an introduction to the key issues explored in the pharmacy customer phase of the ‘Investigating the Integration of Complementary Medicine Into Community Pharmacy Practice’ study. The literature review describes information about the attitudes and usage patterns of CMs by adult Australians, reasons for use, disclosure to physicians or pharmacists and sources of recommendation and information regarding CMs. Specifically for this project, the literature was also searched for information about consumers of Australian community pharmacy services.

The subsequent sections describe the aims and objectives of the customer survey, the methodology used, main results obtained and a discussion of the findings.

Background

Literature review

A large number of reports and peer-reviewed studies have been published which describe the attitudes, prevalence and usage patterns of CMs by adult Australians however little information has been published which focuses on pharmacy customers specifically.

A report from the Australian Bureau of Statistics provides information about the general population which a focus on the growth in number of CM practitioners in the country and the increasing utilisation of these practitioners. A Health and Medical Research Opinion Poll released in 2007 provides information about the use of specific CMs and public confidence in CMs and CM services from data gathered from 630 adults Australia-wide.

A 2008 report released by the National Prescribing Service has a focus on the information uses and needs of the CM users and a 2007 national population survey provides information about use of CM therapies and public spend on CMs and complementary therapies in total. Other papers are published peer-reviewed studies which focussed on older Australians, people with cancer, people with HIV, people attending a reproductive unit, chiropractic patients, people living in specific regions of Australia such as South Australia, Sydney’s north shore, NSW rural communities, the north coast of NSW, surgical patients, hospital inpatients, nursing, biomedical and pharmacy students.

Usage trends in Australia

It is difficult to get a clear sense of the prevalence and usage patterns of CM products in Australia as many studies fail to distinguish clearly between the use of such products and consulting with CM practitioners. For example, MacLennan et al. described the prevalence of CMs use and excluded medically prescribed products whereas Jamieson included all CMs, regardless of the prescriber. Sibbritt et al. asked participants about their use of ‘alternative health practitioners’ without defining what this meant thereby leaving the interpretation open to the individual whereas Adams asked specifically about herbal medicine practitioners and naturopaths and excluded the use of herbal therapy and naturopathic products and remedies purchased over the counter, self-administered, and provided by conventional practitioners.

Additionally, investigators asked about use of CMs or CM practitioner services over varying time frames. For example, Xue et al. asked about use of CMs and CM therapies over the previous 12 months whereas Brownie and Rolfe asked participants about their use at the specific time of the survey thereby making it difficult to make relevant comparisons.
Despite these limitations, it is clear that complementary medicine has become a widely used form of healthcare and the majority of adult Australians use CM services and/or products regardless of age, gender or geographical location.

Studies of the general population indicate usage is between 40% and 69% for CMs and CM therapies. Consistently, surveys report that more women use CM services and treatments than men and people who use CMs tend to have higher income and higher education. Vitamin supplements are the most popular type of OTC CMs used by adult Australians. One study found that women’s use of herbal medicines significantly increased from 16.6% in 2000 to 24.9% in 2004 (p<0.01) according to surveys conducted in South Australia. Xue et al. reported on a combined result for the use CMs and CM therapies indicating that 68.9% of Australians had used at least one CM product and/or visited a CM practitioner in the previous 12 months. Use was highest in New South Wales where it was estimated that 72.1% of the population had used CMs and/or visited a CM practitioner, and lowest in South Australia where the estimate was 60.8%.

**Which CMs are actually being used?**

A wide variety of nutritional and food supplements and herbal medicines are being used by Australians however there is little information about specific ingredients because most studies group CMs into broad categories such as clinical nutrition, herbal medicines, vitamins or minerals.

The study by Brownie and Rolfe of older Australians names the actual CMs being taken by their sample population. According to this study, the most commonly used CMs were (starting with most popular): vitamin C, multivitamins, fish oil supplements, vitamin E, calcium supplements, garlic, vitamin B, single vitamins (not specified), zinc and ginkgo biloba. Braun et al. identified the top ten most popular CMs being used by cardiac surgery patients were (starting with most popular): fish oils (25%), multivitamins (25%), glucosamine (22%), vitamin C (21%), vitamin B complex (17%), calcium (15%), vitamin E (12.5%), magnesium (11%), coenzyme Q10 (8%) and evening primrose oil (6%).

A survey of people living in a rural region of New South Wales found 70% of people reported using one or more CM therapy with 63% having consulted a CM practitioner. Vitamin/mineral therapy (69%), chiropractic (26%) and massage therapy (25%) were the most frequently used therapies, with the most commonly visited practitioners being chiropractors (55%) and those trained in vitamin/mineral therapy (48%). Of the vitamins, vitamin C and multivitamins were used most often, with garlic and Echinacea being the most used herbal products.

In 2007 Stankiewicz et al. reported additional details for their population of women attending a fertility clinic in Adelaide. They found 78% of CM users had taken multivitamins, 22% vitamin C, 21% vitamin B, 11% vitamin E, 64% folate, 27% zinc. Of the total sample, 29% used herbal medicines. These were chamomile (13%), Echinacea (8%), peppermint (7%), vitex agnus castus (5%), astragalus (5%), Korean ginseng (5%) and horseradish (4%).

Xue et al. report on the use of specific complementary therapies in their national population based survey. The five most commonly used CM therapies used by the sample were (starting with most popular): clinical nutrition, massage, meditation, western herbalism and aromatherapy. MacLennan’s surveys of South Australians report that in 2000, vitamin therapy, aromatherapy, herbal medicine, mineral therapy and homeopathy were the 5 most commonly used complementary therapies. In 2002 this changed slightly and was: vitamin therapy, herbal medicine, mineral therapy, aromatherapy and traditional Chinese medicine.

**Reasons for use of CM**

Several studies reported people’s reasons for using CM. The 2002 MacLennan et al. study found people reported using CM in general: to prevent disease (34.6%), to cure sickness (17.8%), both reasons (31.3%) or they didn’t know (16.3%). More recently, a study reported that the majority of people using CMs did so to maintain general health (70%).

A study of women with breast cancer identified their most common reasons for use included improving physical (86.3%) and emotional (83.2%) wellbeing and boosting the immune system (68.8%). According to Thomas et al., most people with HIV/AIDS use complementary therapies to improve wellbeing (93%), help with areas not covered by conventional medicine (69%) and because it gives them a sense of control (53%).

Victorian surgical patients reported using CMs to maximise health and wellbeing (71%), treat (30%) or prevent (20%) disease.
Many people use CMs to enhance health, support the performance of everyday tasks and enhance their capacity to cope with unusual tasks or stressors. Some people use them to treat or manage a health condition or address a deficiency. They use them for general health and wellbeing, to gain more energy and feel less fatigued.

Attitudes and perceptions about CMs and their regulation

People generally believe CMs are ‘safer’ than pharmaceutical medicines, and whilst this is true, some appear unaware that use can be associated with safety issues such as side effects or drug interactions. In general, they feel confident about using CMs and feel satisfied with their use although they may be uncertain about the actual benefits of CMs.

Perceptions about how CMs are regulated are varied. One study reported that most people thought CMs were, or should be, subject to the same standards as prescribed medicines and a later study reported that some people assumed CMs were independently tested by a government agency for quality and safety, claims made and efficacy.

Discussing use of CMs with doctors and pharmacists and information sources

The few Australian studies that have reported whether patients tell their medical practitioner about use of CMs have indicated that patient disclosure is not routine. In regards to pharmacists, one study of surgical inpatients reported that few disclosed use of CMs to hospital pharmacists, primarily because they were not asked.

Friends and/or family are often cited in the literature as the main sources of recommendation or information about CMs. Health care professionals are less commonly reported as a source of information about complementary medicines.

Where it has been studied, pharmacists rank poorly as a source of information about CMs. One study reported that the main sources of advice people receive about CMs are: self (28%), family/friends (26%), medical doctor (21.2%), media (15.1%), health food store (14%), CM practitioner (13.4%), chemist (9.7%). Another report confirmed family and friends (55%) as major sources of information followed by the internet (51%), health food store (38%), pharmacists (37%), magazines (37%), medical practitioners (34%) and package inserts/labels/pamphlets (30%).

Conclusion

Complementary medicine has become a widely used form of healthcare in Australia. It is used to prevent and treat specific diseases and generally viewed as safe. Pharmacists should expect that many of their customers are using CMs and/or CM therapies or are interested in using them. Pharmacists are not generally used as an information source about CMs despite retail pharmacies being major outlets for these products. Whether customers are comfortable to openly disclose their use of CMs with pharmacists when discussing their health and medication needs remains poorly investigated. Australians are unclear about the regulation of CMs and make assumptions about the role of government which are inaccurate.

There is a paucity of information about pharmacy customers specifically; their attitudes and usage of CMs, expectation of pharmacy practice and whether pharmacy is meeting those expectations.
Aims
The primary aim of this project is to investigate the integration of CMs into community pharmacy practice, taking into account the behaviours and perceptions of customers, pharmacists and pharmacy assistants.

Specific aims of the customer survey are:

- To identify customer beliefs and attitudes about CMs and areas where pharmacy practice in relation to CMs does not adequately meet customer needs.
- To determine customer use and purchasing patterns of CMs, information sources, disclosure to pharmacists about use of CMs, perceived efficacy of CMs used, prevalence of adverse reactions to CMs and customers’ behavioural responses.

Methodology

Questionnaire development

An anonymous, self-administered questionnaire was developed for the purposes of meeting the study aims (Appendix B). The questionnaire was adapted from other Australian consumer CM questionnaires, and further informed by the results of a literature review, advice from the research group and advisory group. The questionnaire was pre-tested with 40 randomly selected pharmacy customers. It was found to be clearly understood and effective at collecting the required information. It took less than 20 minutes to complete.

Pharmacy site selection

Three project sites were selected to provide information from metropolitan and regional areas of Australia. Melbourne (Vic) and the Gold Coast (Qld) were the metropolitan sites; Wagga Wagga (NSW) was the regional site.

Pharmacy sites for customer data collection were chosen randomly using pharmacies listed in the Yellow Pages directories. The Advisory Group suggested it would be important to get representation from different pharmacies based on location and/or business type. To achieve this, each pharmacy from Melbourne or the Gold coast was assigned into one of 3 types of business (independent, affiliated with a banner group or warehouse style), and one of 3 types of location (shopping strip, shopping centre, or attached to a medical clinic). The total number of pharmacies of each type, as reported in the Yellow pages, was used as a guide to enable proportional sampling.

Written consent was obtained from each participating pharmacy (Appendix C). A representative population sample of 1000 customers was sought to provide sufficient data to enable meaningful interpretation.

Melbourne

It was expected that participation of 30 pharmacies would be sufficient to allow ample customer recruitment.

On 07/08/08, the online Yellow Pages listed 1505 pharmacies in metropolitan Melbourne. Of these, 61% were independent pharmacies (non-banner group), 37% were listed as belonging to a banner group and 2% as warehouse style pharmacies.

To sample proportionally, this would mean 1 warehouse-style pharmacy, 11 affiliated with a banner group and 18 independently owned (non-banner). Further divided by location, we developed a matrix to enable a cross-section of pharmacies to be sampled (Table 1).
Table 1 Matrix for proportional customer data collection sites - Melbourne

<table>
<thead>
<tr>
<th></th>
<th>Warehouse-style pharmacy n=1</th>
<th>Banner group pharmacy n=11</th>
<th>Independent pharmacy (non-banner) n=18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinic</td>
<td>N/A</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Shopping strip</td>
<td>1</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Shopping centre</td>
<td>N/A</td>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>

Gold Coast

A similar methodology was used to recruit 16 pharmacies in the Gold Coast area of different styles and locations (Table 2).

Table 2 Matrix for proportional customer data collection sites - Gold Coast

<table>
<thead>
<tr>
<th></th>
<th>Warehouse-style pharmacy n=1</th>
<th>Banner group pharmacy n=5</th>
<th>Independent pharmacy (non-banner) n=10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinic</td>
<td>N/A</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Shopping strip</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Shopping centre</td>
<td>N/A</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

Wagga Wagga

In this area, all pharmacies were invited to participate in the program as there were insufficient numbers to enable the same sampling method to be used.

Data collection

Data collection occurred between August and December 2008 in Metropolitan Melbourne and the Gold Coast area and between December 2008 and February 2009 in Wagga Wagga. Written consent was obtained from each participating pharmacy. The pharmacist in charge was given written information about the project and a copy of the customer questionnaire.

In each state, a dedicated research assistant (RA) randomly selected pharmacy customers for recruitment. The RA described the project and invited the customer to participate. The questionnaire was provided with a cover letter from the research group explaining the aims of the questionnaire and encouraging participation. A reply-paid envelope was provided to customers who wanted to take a hard copy of the questionnaire with them as they exited the pharmacy. Others completed the questionnaire whilst in the pharmacy and returned it to research assistants onsite. Consent to participate was implied when customers completed and returned the questionnaire.

The questionnaire took approximately 5 - 15 minutes to complete and was generally completed within a private area of the pharmacy. As questionnaires were returned anonymously, no additional contact was made with questionnaire recipients.
Results

Response Rate and Demographics

A total of 1,121 pharmacy customers completed questionnaires (response rate 62%), of which 65% (n = 728) were from metropolitan Melbourne, 8% (n = 86) from Wagga Wagga, and 27% (n = 307) from the Gold Coast region (Table 3). More women participated in the survey than men (74% vs. 25%) and participants ranged in age from 18 years to over 70 with a broad range in between. Data was collected in 60 retail pharmacies as detailed in Figure 2.

Table 3 Response rate of pharmacy customers

<table>
<thead>
<tr>
<th>Region</th>
<th>No. customers approached</th>
<th>No. survey participants</th>
<th>Response rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melbourne</td>
<td>1280</td>
<td>728</td>
<td>56.9%</td>
</tr>
<tr>
<td>Gold Coast</td>
<td>425</td>
<td>307</td>
<td>72.2%</td>
</tr>
<tr>
<td>Wagga Wagga</td>
<td>119</td>
<td>86</td>
<td>72.3%</td>
</tr>
<tr>
<td>Totals</td>
<td>1824</td>
<td>1121</td>
<td>61.5%</td>
</tr>
</tbody>
</table>

When the genders are compared, men were significantly more likely to report they had hypertension (30% vs. 22%; p=0.005), high cholesterol (21% vs. 14%; p=0.007) or diabetes (10% vs. 4%; p<0.0001) and take at least one prescription medication daily (25% vs. 16%; p= 0.0009) compared to women. Additionally, people over 50 years of age were more likely to report having hypertension (41% vs. 8%; p<0.0001), osteoarthritis 38% vs. 5%; p<0.0001), asthma (26% vs. 7%; p<0.0001) and take medication daily (73% vs. 43%; p<0.0001) than younger people. Further demographic and baseline data is presented in Table 4.
### Table 4 Characteristics of respondents in customer survey

<table>
<thead>
<tr>
<th></th>
<th>N (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>275 (25)</td>
</tr>
<tr>
<td>Women</td>
<td>805 (74)</td>
</tr>
<tr>
<td>Not reported</td>
<td>41 (4)</td>
</tr>
<tr>
<td>Total number of respondents</td>
<td>1121</td>
</tr>
<tr>
<td><strong>Highest level of education attained</strong></td>
<td></td>
</tr>
<tr>
<td>Did not go to school</td>
<td>6 (0.5)</td>
</tr>
<tr>
<td>Secondary education</td>
<td>343 (31)</td>
</tr>
<tr>
<td>Certificate level</td>
<td>218 (20)</td>
</tr>
<tr>
<td>Diploma and advanced diploma level</td>
<td>137 (12.5)</td>
</tr>
<tr>
<td>Bachelor degree</td>
<td>187 (17)</td>
</tr>
<tr>
<td>Graduate diploma or certificate</td>
<td>67 (6)</td>
</tr>
<tr>
<td>Postgraduate degree</td>
<td>110 (10)</td>
</tr>
<tr>
<td>Not reported</td>
<td>24 (2)</td>
</tr>
<tr>
<td>Separated/divorced</td>
<td>114 (10)</td>
</tr>
<tr>
<td>Never married</td>
<td>209 (19)</td>
</tr>
<tr>
<td>Widowed</td>
<td>76 (7)</td>
</tr>
<tr>
<td>Not reported</td>
<td>19 (2)</td>
</tr>
<tr>
<td><strong>Current work status</strong></td>
<td></td>
</tr>
<tr>
<td>Employed full time</td>
<td>327 (30)</td>
</tr>
<tr>
<td>Self employed</td>
<td>108 (10)</td>
</tr>
<tr>
<td>Not in the labour force</td>
<td>330 (30)</td>
</tr>
<tr>
<td>Employed part time</td>
<td>241 (22)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>60 (6)</td>
</tr>
<tr>
<td>Not reported</td>
<td>26 (2)</td>
</tr>
<tr>
<td><strong>Current age (years)</strong></td>
<td></td>
</tr>
<tr>
<td>15-19</td>
<td>23 (2)</td>
</tr>
<tr>
<td>20-29</td>
<td>162 (15)</td>
</tr>
<tr>
<td>30-39</td>
<td>184 (17)</td>
</tr>
<tr>
<td>40-49</td>
<td>187 (17)</td>
</tr>
<tr>
<td>50-59</td>
<td>208 (19)</td>
</tr>
<tr>
<td>60-69</td>
<td>177 (16)</td>
</tr>
<tr>
<td>Over 70</td>
<td>142 (13)</td>
</tr>
<tr>
<td>Not reported</td>
<td>9 (1)</td>
</tr>
<tr>
<td><strong>Taking prescription medication on a daily basis</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>672 (61)</td>
</tr>
<tr>
<td>No</td>
<td>421 (38)</td>
</tr>
<tr>
<td>Not reported</td>
<td>14 (1)</td>
</tr>
</tbody>
</table>
Consultations with medical doctors and CM practitioners

There was no significant difference between the number of men and women that had consulted a medical doctor in the previous 12 months (93% for both) or the proportion of people living in the Wagga Wagga area consulting a medical doctor compared to people living in metropolitan Melbourne (88% vs. 92%). In contrast, significantly more people older than 50 years reported seeing a medical practitioner than people younger than 50 years (96% vs. 91%; p= 0.0007).

Of the total sample, 39% reported that they had visited a CM practitioner in the previous 12 months. Of these, 38% had seen a massage therapist, 33% a naturopath/natural medicine practitioner, 31% a chiropractor, 16% an acupuncturist, 12% an osteopath, 9% a Chinese medicine practitioner, 4% a herbalist and 3% a homeopath (Figure 3). More women reported that they had consulted a CM practitioner than men during the previous 12 months (43% vs. 27%; p<0.0001) and more women reported visiting a massage therapist than men (17% vs. 10%; p=0.004). CM practitioners were also more widely consulted by people younger than 50 years compared to people over 50 years old (48% vs. 30%; p<0.0001). Comparisons between customers living in metropolitan areas and rural areas revealed no significant differences in regards to the proportion of people consulting a CM practitioner (33% vs. 36%).

<table>
<thead>
<tr>
<th>Taking the following medications</th>
<th>Warfarin</th>
<th>25 (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Oral contraceptive</td>
<td>99 (14)</td>
</tr>
<tr>
<td></td>
<td>Digoxin</td>
<td>6 (1)</td>
</tr>
<tr>
<td></td>
<td>None of these</td>
<td>521 (76)</td>
</tr>
<tr>
<td></td>
<td>Not reported</td>
<td>37 (5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Self-reported pre-existing medical conditions</th>
<th>Hypertension</th>
<th>269 (24)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Asthma</td>
<td>127 (12)</td>
</tr>
<tr>
<td></td>
<td>Arthritis</td>
<td>229 (21)</td>
</tr>
<tr>
<td></td>
<td>High cholesterol levels</td>
<td>180 (16)</td>
</tr>
<tr>
<td></td>
<td>Diabetes</td>
<td>60 (5)</td>
</tr>
<tr>
<td></td>
<td>None of the above</td>
<td>530 (48)</td>
</tr>
<tr>
<td></td>
<td>Not reported</td>
<td>39 (4)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Self-described overall health</th>
<th>Excellent</th>
<th>124 (11)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very good</td>
<td>394 (36)</td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>521 (47)</td>
</tr>
<tr>
<td></td>
<td>Poor</td>
<td>58 (5)</td>
</tr>
<tr>
<td></td>
<td>Not answered</td>
<td>10 (1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Consulted a medical doctor in previous 12 months</th>
<th>Yes</th>
<th>1028 (93)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>69 (6)</td>
</tr>
<tr>
<td></td>
<td>Not reported</td>
<td>6 (0.5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Consulted a CM practitioner in the previous 12 months</th>
<th>Yes</th>
<th>433 (39)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>662 (60)</td>
</tr>
<tr>
<td></td>
<td>Not reported</td>
<td>8 (1)</td>
</tr>
</tbody>
</table>

*% of total respondents
Patterns of use of CMs

CMs had been used by 72% (n=787) of pharmacy customers in the previous 12 months. Significantly more women reported having taken a CM product in the previous 12 months than men (76% vs. 58%; p<0.0001). Age comparisons reveal that a greater proportion on people over 50 years reported taking glucosamine (33% vs. 10%; p<0.0001) or fish oil supplements (41% vs. 28%; p<0.0001) compared to people under 50 years of age. There were no significant differences in frequency of CMs use between customers living in metropolitan Melbourne compared to Wagga Wagga and surrounds and no significant association between use and income or marital status. Table 5 lists the distribution of CMs used.
Table 5 CMs used by pharmacy customers in the previous 12 months

<table>
<thead>
<tr>
<th>List of CMs</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multivitamins</td>
<td>392 (49)</td>
</tr>
<tr>
<td>Fish oil supplements</td>
<td>379 (47)</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>244 (31)</td>
</tr>
<tr>
<td>Glucosamine</td>
<td>234 (29)</td>
</tr>
<tr>
<td>Vitamin B complex</td>
<td>197 (25)</td>
</tr>
<tr>
<td>Probiotics</td>
<td>134 (17)</td>
</tr>
<tr>
<td>Echinacea</td>
<td>94 (12)</td>
</tr>
<tr>
<td>Coenzyme Q10</td>
<td>57 (7)</td>
</tr>
<tr>
<td>Ginkgo biloba</td>
<td>41 (5)</td>
</tr>
<tr>
<td>St Johns wort</td>
<td>37 (5)</td>
</tr>
<tr>
<td>Valerian</td>
<td>29 (4)</td>
</tr>
<tr>
<td>A natural weight loss product</td>
<td>21 (3)</td>
</tr>
<tr>
<td>Saw palmetto</td>
<td>8 (1)</td>
</tr>
<tr>
<td>Unsure</td>
<td>4 (1)</td>
</tr>
<tr>
<td>Other</td>
<td>223 (28)</td>
</tr>
<tr>
<td>Not reported</td>
<td>9 (1)</td>
</tr>
<tr>
<td><strong>Total customers responding</strong></td>
<td>787</td>
</tr>
</tbody>
</table>

*% of total respondents taking CMs

In free text, customers also reported that they took the following CM products:

- Chinese herbal medicines
- Minerals: calcium, magnesium, iron, selenium, zinc
- Vitamins: folate, vitamin E, vitamin D, vitamin B12
- Amino acids: lysine
- Specific herbal medicines: olive leaf extract, slippery elm, Korean ginseng, hawthorn, bacopa monnieri, grapeseed, pinebark extract, garlic, curcumin, milk thistle, cranberry, guarana, pennywort, vitex agnus castus
- Food supplements: flaxseed, evening primrose oil, cod liver oil
- Homeopathic remedies: rescue remedy, tissue salts, general homeopathics
- Others: colloidal silver, MSM, natural progesterone cream, lactoferrin, policosanol, shark cartilage

The most common reason customers reported for using CMs was ‘it keeps me healthy and gives me a sense of wellbeing’ (57%). Other reasons were ‘to treat a specific disease or symptom’ (41%), ‘to prevent disease’ (32%), ‘they were recommended to me’ (27%), ‘because they have few side effects’ (15%), ‘it gives me a sense of control over my health’ (15%), ‘it fits into my way of life’ (13%), ‘they work better or just as well as other medicines’ (11%), ‘my health problem is not serious enough to take prescription medicines’ (10%). Customers aged over 50 years were more likely to be taking CMs to treat a specific disease than younger people (34% vs. 27%; p= 0.009).

Sources of recommendation

Table 6 lists those people prescribing CMs to pharmacy customers. A greater number of customers aged over 50 years reported their CMs were recommended by a medical doctor than younger people (27% vs. 20%; p=0.007). More women reported being recommended CMs by a naturopath or herbalist than men (17% vs. 7%; p<0.0001) and no significant differences were found for customers in rural vs. metropolitan areas.
Table 6 Sources of recommendation of CMs to pharmacy customers

<table>
<thead>
<tr>
<th>Prescriber</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Myself</td>
<td>335 (42)</td>
</tr>
<tr>
<td>Medical doctor</td>
<td>255 (32)</td>
</tr>
<tr>
<td>Family/friends</td>
<td>162 (20)</td>
</tr>
<tr>
<td>Naturopath/herbalist</td>
<td>160 (20)</td>
</tr>
<tr>
<td>Pharmacy assistant</td>
<td>100 (13)</td>
</tr>
<tr>
<td>Health food store staff</td>
<td>50 (7)</td>
</tr>
<tr>
<td>Pharmacist</td>
<td>81 (10)</td>
</tr>
<tr>
<td>Other</td>
<td>48 (6)</td>
</tr>
<tr>
<td><strong>Total responses</strong></td>
<td><strong>801</strong></td>
</tr>
</tbody>
</table>

*% of total respondents answering question (multiple answers possible)

Sources of information about CMs

Few customers using CMs (18%) referred to pharmacists as a source of information (see Figure 4). Customers aged over 50 years were more likely to receive information about CMs from their medical doctor than those younger than 50 years (24% vs. 17%; p=0.003).

Free text comments were received from 105 customers overall indicating that the internet was an important source of information. Other healthcare professionals, besides those listed, were also cited as providing information about CMs. These were: dietician, nurse, midwife, chiropractor, nutritionist, and homeopath. One person commented that their trainer provided information and another that a Herbalife doctors did.

![Figure 4](image-url) Sources of CM information used by pharmacy customers (multiple responses possible)

Customers’ purchasing behaviours and expenditure

CMs users were asked for the location where they generally purchased their products with 60% stating it was pharmacy. For those purchasing CMs from pharmacy, 37% explained it was because of convenience, 21% the product desired was stocked, 18% stated they get better advice from the pharmacy about the product than
elsewhere, 13% it is cheaper than elsewhere, and 7% because advice is available from a natural therapist in the pharmacy. Customers were allowed multiple responses.

For those people stating that pharmacy was not their primary place of purchase for CMs, the reasons given were: a perception that pharmacy was too expensive (23%), the product desired was not stocked (17%), 10% stated they get better advice about these products elsewhere, 9% stated it is not convenient and 7% stated ‘I don’t need pharmacist advice about these products’.

Of those pharmacy customers having taken CM products in the previous 12 months, 44% reported spending up to $20 per month on CMs, 35% spent $21-50, 14% spent $51-100 and 6% spent over $100 (see Figure 5).

![Figure 5 Customers' monthly spend on CM products](image)

**Reasons for use**

The most common reason customers reported for using CMs was because ‘it keeps me healthy and gives me a sense of wellbeing’ (57%). Other reasons were ‘to treat a specific disease or symptom’ (41%), ‘to prevent disease’ (32.2%), ‘they were recommended to me’ (27%), ‘because they have few side effects’ (15%), ‘it gives me a sense of control over my health’ (15%), ‘it fits into my way of life’ (13%), ‘they work better or just as well as other medicines’ (11%), ‘my health problem is not serious enough to take prescription medicines’ (10%).

A greater number of customers aged over 50 years reported taking CMs to treat a specific disease than younger people (34% vs. 27%; p= 0.009).

**Perceptions of effectiveness of CMs**

Most consumers taking CMs thought they were very effective or effective enough with very few reporting the CM product as useless (see Table 7).
### Table 7 Customer perceptions about CM product effectiveness

<table>
<thead>
<tr>
<th>Perception of CM effectiveness</th>
<th>N (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very effective</td>
<td>239 (30)</td>
</tr>
<tr>
<td>Effective enough</td>
<td>334 (42)</td>
</tr>
<tr>
<td>Somewhat effective</td>
<td>79 (10)</td>
</tr>
<tr>
<td>Not effective/ useless</td>
<td>4 (0.5)</td>
</tr>
<tr>
<td>Unsure</td>
<td>130 (16)</td>
</tr>
<tr>
<td>Not reported</td>
<td>15 (2)</td>
</tr>
<tr>
<td><strong>Total responses</strong></td>
<td><strong>801</strong></td>
</tr>
</tbody>
</table>

*% of total respondents answering question (multiple answers possible)

### AUST L on CM products lacks recognition and meaning for customers

The majority (88%) of customers taking CMs had never noticed the term ‘AUST L’ on a CM product label. Of those that had, 33% thought it meant the product was tested by a government agency for safety, 26% thought the product had been tested by a government agency for quality, and 24% thought it denoted an Australian made product. Fifteen percent thought it meant the product was tested by a government agency for effectiveness and 13% stated they did not know what it meant.

### Incidence of adverse reactions to CMs and customer responses

People that had taken CMs within the last 12 months were asked if they had ever experienced an adverse reaction to a CM product; 7% (n=55) reported they had. The only health parameter with a significant association to reporting an adverse reaction was poorer health (p=0.0002) compared with CMs users not reporting an adverse reaction. There was no significant association between experiencing an adverse reaction and age, gender, education, income, use of warfarin, digoxin or the oral contraceptive pill. People experiencing an adverse reaction were asked to describe its severity. Results are presented in Figure 6.
The majority (78%) of people reporting to have had an adverse reaction decided to stop using the product, 13% sought advice from a healthcare professional, 13% changed products and 7% reduced their dose. Twenty two percent of respondents told a pharmacist about the reaction, 24% told family and/or friends and 36% told their doctor.

**Attitudes of CMs users**

All statements where over 80% of customers strongly agreed or agreed are listed below:

- ‘It is important for pharmacists to be aware of the CMs people use’
- ‘It is important for pharmacists to be knowledgeable about CMs’
- ‘I have confidence in prescription medicine prescribed by my doctor’

Full results of responses to attitudinal statements are presented in Table 8.
<table>
<thead>
<tr>
<th>Response</th>
<th>SA N (%)*</th>
<th>A N (%)</th>
<th>NAD N (%)</th>
<th>D N (%)</th>
<th>SD N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>My pharmacist is fully aware of any CMs I use</td>
<td>79 (11)</td>
<td>164 (22)</td>
<td>193 (26)</td>
<td>182 (25)</td>
<td>120 (16)</td>
</tr>
<tr>
<td>I feel comfortable telling my pharmacist about my use of CMs</td>
<td>165 (22)</td>
<td>372 (50)</td>
<td>140 (19)</td>
<td>46 (6)</td>
<td>19 (3)</td>
</tr>
<tr>
<td>It is important for pharmacists to be aware of the CMs people use</td>
<td>290 (39)</td>
<td>337 (46)</td>
<td>91 (12)</td>
<td>21 (3)</td>
<td>3 (0)</td>
</tr>
<tr>
<td>My pharmacist encourages questions about CMs</td>
<td>88 (12)</td>
<td>201 (27)</td>
<td>295 (40)</td>
<td>112 (15)</td>
<td>37 (5)</td>
</tr>
<tr>
<td>My pharmacist provides useful information about CMs</td>
<td>103 (14)</td>
<td>250 (34)</td>
<td>261 (36)</td>
<td>91 (12)</td>
<td>27 (4)</td>
</tr>
<tr>
<td>I think it is important for a natural medicine practitioner to be located in a pharmacy where they sell CMs</td>
<td>179 (24)</td>
<td>300 (41)</td>
<td>185 (25)</td>
<td>63 (9)</td>
<td>11 (1)</td>
</tr>
<tr>
<td>I trust my pharmacists’ advice about CMs</td>
<td>156 (21)</td>
<td>348 (47)</td>
<td>160 (22)</td>
<td>57 (8)</td>
<td>17 (2)</td>
</tr>
<tr>
<td>It is important for pharmacists to be knowledgeable about CMs</td>
<td>299 (41)</td>
<td>383 (52)</td>
<td>44 (6)</td>
<td>10 (1)</td>
<td>2 (02)</td>
</tr>
<tr>
<td>Pharmacy assistants give me more advice about CMs than my pharmacist</td>
<td>61 (8)</td>
<td>204 (28)</td>
<td>332 (25)</td>
<td>111 (15)</td>
<td>26 (4)</td>
</tr>
<tr>
<td>My pharmacist does not give me information about CMs</td>
<td>40 (5)</td>
<td>145 (20)*</td>
<td>281 (39)</td>
<td>197 (27)</td>
<td>66 (9)</td>
</tr>
<tr>
<td>I have confidence in CMs</td>
<td>172 (23)</td>
<td>376 (51)</td>
<td>163 (22)</td>
<td>22 (3)</td>
<td>1 (0)</td>
</tr>
<tr>
<td>I have confidence in non-prescription medicines (eg cold and flu tablets)</td>
<td>91 (12)</td>
<td>400 (54)</td>
<td>160 (22)</td>
<td>65 (9)</td>
<td>19 (3)</td>
</tr>
<tr>
<td>I have confidence in prescription medicines prescribed by my doctor</td>
<td>221 (30)</td>
<td>380 (52)</td>
<td>81 (11)</td>
<td>41 (6)</td>
<td>10 (1)</td>
</tr>
</tbody>
</table>

SA= strongly agree; A=agree; NAD=neither agree or disagree; D=disagree; SD=strongly disagree

*% of the total number of respondents for that statement

Attitudes of all surveyed customers to CMs and integration

The majority of customers (87%; n=950) believe that pharmacists should recommend CMs if they are effective. In particular, 92% thought pharmacists should provide safety information about CMs and 90% thought they should routinely check whether CMs taken by customers interact with prescription medicines. Additionally, 78% of customers thought pharmacists should record CM products taken by patients in their medication profile. In regards to information provided, only 55% of customers thought their regular pharmacy provided enough information about CMs. Despite this, only 33% thought pharmacy services should improve the way they manage CMs.

Approximately half (58%) survey respondents thought pharmacies which stock CM products should also employ a CM practitioner.
In regards to CMs specifically, 87% of customers thought effective CMs should have a ‘tick of approval’ from a recognised government body with CM expertise and 82% wanted more detailed product information similar to script medicine, for all CMs.

**Discussion**

**CM use**

While it is difficult to provide exact data on the use of complementary medicine in Australia it is clear that a significant proportion (up to 75%) of the Australian public have used complementary medicine in a number of different forms. Further, data from the Australian Bureau of Statistics shows an 80% increase in people employed as CM practitioners in the 10 years to 2006; in the same time period the number of people visiting CM practitioners within a 2 week period rose from approximately 500,000 to 750,000. Together with data from Xue et al. (2007) who estimates out-of-pocket expenditure for complementary medicine products at $1.86 billion dollars, there is little doubt about the impact of CMs in Australian health care.

The present study demonstrates that CMs remain popular amongst pharmacy customers and this data is consistent with that from previous surveys on use of CMs by the general public. This study identified 72% of pharmacy customers had used at least one CM product in the previous 12 months and 39% had visited a CM practitioner. Whilst it is possible to attribute this to the fact that data collection was conducted in retail pharmacies, a location which attracts CM buyers, it is more consistent with recent industry figures indicating 75% of Australians used CMs in 2008.

Similar to other studies of the general public and specific Australian sub-populations, vitamin supplements feature most prominently, in particular multivitamins, vitamin C and vitamin B complex. Of the food supplements, fish oils and probiotics were most commonly used. Herbal medicines were less commonly used than vitamin supplements. Of these, echinacea, ginkgo biloba, St Johns wort and valerian were most popular. This pattern of use (popularity of vitamin C, multivitamins and fish oil supplements) is consistent to that reported for CM product use in other studies.

In 2007, results from the Health and Medical Research Opinion Poll indicated that just over half of Australian adults surveyed reported they have confidence in CMs. The survey asked 630 adults Australia wide about their attitudes. Our study of pharmacy customers found the majority of people using CMs are confident using CMs and most think they are very effective or effective enough. Possibly due to this confidence, spending on CMs remains high despite the global economic downturn which is reported as starting mid-2008. The study also found no association between the use of CMs and income. This suggests that customers don’t see spending on CMs as discretionary but rather a routine part of their approach to self care.

**Purchasing behaviours**

Recent industry statistics reveal that pharmacy is the preferred place for CM sales and now accounts for 48% of all CM purchases. Pharmacy was also confirmed as the main site of purchase for CMs in the 2008 NPS report and was reconfirmed in this study.

In our study both pharmacists and pharmacy assistants felt that CMs are an important part of the financial business of retail pharmacy. Our study further indicates that 60% of pharmacy customers using CMs generally purchase them from pharmacies, chiefly because of convenience and product availability not necessarily because of the service they receive. Those customers choosing to purchase CMs elsewhere tend to do so because they believe that pharmacies are not price competitive and cheaper outlets exist. Whether this is an accurate assumption remains to be tested.

**Customers open to discuss CMs with pharmacists**

It is often reported that people using CMs do not routinely disclose use to their medical practitioner. According to a review of 12 studies, the rate of non-disclosure of those using CM is as high as 77% in some studies. The main reasons patients provide for not disclosing their use of CM to their medical practitioners are concerns about a negative response by the practitioners, the belief that the practitioner does not need to know about their CM use, and the fact that the practitioner does not ask.

The current study reveals that pharmacy customers do not have the same concerns about discussing their use of CMs with pharmacists as less than 10% of customers using CMs reported being uncomfortable about disclosure.
Furthermore, most customers thought it was important for pharmacists to be aware of the CMs people are taking. However, the problem of the practitioner not asking about use of CMs also exists in pharmacy, particularly in the retail setting where significantly fewer pharmacists ask customers presenting with prescriptions about CMs than hospital pharmacists. When probed further, the main reason community pharmacists gave for not routinely asking was forgetting to ask followed by a perceived lack of opportunity and for some, thinking it was not always relevant. Based on these findings, it appears that strategies to include CM in medication discussions with patients is more effective in the hospital setting and clear guidelines are required for community pharmacists about interviewing customers and counselling them to promote safe and appropriate use of CMs as per QUM principles.

Sources of recommendation and information

Community pharmacy is a major supplier of CMs yet pharmacists are not widely utilised as a source of advice about these products. In this study, as in other Australian and international studies, friends and family are consistently reported as the primary source of CM information used by consumers.\(^{24,36-39}\) Once again this is an unrealised opportunity for pharmacists who could play a greater role as information providers. In particular, we found customers are expecting more information from their pharmacist than five years ago, in particular they expect safety information about CMs from pharmacists.

The ‘new consumer’ wants more

Market research, and more recently health services and social science research, has adopted the concept of the ‘new consumer’ to describe customers/patients who are becoming more demanding.\(^{40,41}\) They tend to be information strong (well-informed) and information seeking (inquisitive); ask critical questions; show a desire to initiate dialogue; seek counselling and in general no longer blindly accepted the authority of the pharmacy staff.

Given the consumer-driven development towards holistic and integrative healthcare\(^{42}\) it was not surprising to find that customers have accepted the integration of CM into pharmacy and are expecting more interaction with pharmacists in this regard. Nearly all customers expect pharmacists to be knowledgeable about CMs and recommend CMs which are effective, to provide safety information, screen for drug-CM interactions and record patients’ use of CMs in their medication profile. They also want effective CMs to have a ‘tick of approval’ and be accompanied by more detailed product information similar to prescription medicines.

Customers have also expressed an interest in pharmacies employing naturopaths in store. This is a unique finding and suggests that for some customers, integration of CM services would be considered the next step.

When considering the positive feedback from pharmacists and pharmacy assistants that have worked with naturopaths in community pharmacy and the generally positive feedback from naturopaths themselves, it appears that this arrangement provides benefits for pharmacists and their staff, as well as meeting the needs of customers. Further research should be conducted to determine how this model is currently working, what benefits pharmacy staff and customers actually receive and whether QUM is achieved with this arrangement. Pitfalls and challenges also need to be identified so that customer health, wellbeing and safety is promoted effectively.

Self care and CMs

Self-care plays an important role in enhancing and restoring health, preventing disease and limiting the effects of chronic illness. It consists of routine health maintenance activities such as healthy eating and personal hygiene, preventative health activities such as exercising and self-examination, initiation of symptom-relieving behaviours and complying with professionally prescribed treatments.

Although the phenomenon is not new, self care emerged most strongly during the 1970’s primarily as a response to the limitations of the healthcare system and has continued to grow since that time. It is now the dominant form of primary healthcare in developed and developing nations and promotes self-reliance and individualism.\(^{43}\) People practice self care because it is easy, may be more cost or time efficient, because they do not feel their circumstance requires an appointment with a healthcare provider or because they have few other options.

One important aspect of self-care involves the use of non-prescription medicines. According to the World Health organisation (WHO), responsible self medication with non-prescription products can help prevent and treat symptoms that don’t require medical consultation thereby reducing pressure on medical services, increasing availability of healthcare and providing consumers with increased opportunities to control their own chronic conditions.

Many pharmacy customers use CMs as part of their self care, in particular women. They use them for disease prevention, to treat specific diseases and symptoms and to enhance general wellbeing. This is often done without
formal consultation with a health care professional and instead, consultation with family and friends and information gleaned from the media and internet. This study has further revealed that many customers experiencing adverse events as a result of CMs decide to discontinue use of the suspected product or change products without the guidance of their pharmacist, medical practitioner or CM practitioner. Whilst prudent self care can offer numerous benefits to the individual, society and the healthcare system, access to quality services, products and information is required to guide self-care with CMs. Government has a major role in ensuring this occurs by developing a responsible framework for self-care.

In Australia, CM products are regulated by the Therapeutic Goods Administration and evaluated by the Office of Complementary Medicine. The Office is advised by the Complementary Medicine Evaluation Committee to make certain a range of CM expertise is available to aid in the process of listing and registering new products, reviewing pre-existing CM ingredients for safety and claim substantiation.

Previous studies have indicated that the Australian public do not fully understand the regulatory process for CMs in this country.\textsuperscript{24,25} The current study has confirmed that most pharmacy customers taking CMs have not seen the term AUST L on a product label and of those that have, few understand its significance. Public education is required so they better understand how CM products are regulated, what they can reasonably expect from regulation and what it does not guarantee.

As many more Australians grow older and start experiencing chronic disease, safe and effective self care will become even more important to maintaining good quality of life and reducing the burden on health care services. This study has identified that a substantial proportion of people over 50 years of age are already using CMs (in particular glucosamine and fish oil supplements), mainly to treat a specific disease. Medical recommendation for CMs is also more common to this age group than to younger adults.

Pharmacists play an important role in promoting effective and safe self-care by being accessible, providing an informed opinion and helping individuals weigh up the probabilities of benefit and harm, particularly in cases where there is an increased risk of adverse events. To do this they require adequate opportunity, knowledge and resources.

Safety of CMs

According to the Australian Commission on Safety and Quality in Health Care (ACSQHC), “medicines are the most common treatment used in health care”.\textsuperscript{44} In any given two week period, nine out of ten older Australians have taken at least one medicine with around seven out of ten Australians in general having taken at least one medicine.\textsuperscript{45} This study further identified that 6 out of 10 pharmacy customers take prescription medicines on a daily basis and 5% describe their health as poor.

Roughead and Lexchin reported in 2006 that over 1.5 million people suffer an adverse event from medicines each year in Australia.\textsuperscript{46} Importantly, adverse events result in approximately 180,000 hospital admissions, of which 30%-50% are preventable.\textsuperscript{47} Pharmacists and their staff play a major role in promoting medication safety and are responsible for Australians avoiding days in hospital, visits to medical practitioners and sick days.

Our results suggest that although many pharmacy customers taking CMs do not receive professional advice about their use, the incidence of serious adverse events is relatively low as only 4 people out of the 1121 surveyed reported an adverse event which required hospitalisation. This represents 0.35% of the total sample. Whilst this low figure is reassuring, it only provides an estimate as causality cannot be determined from the limited information collected. Furthermore, it remains unknown how well patients experiencing adverse effects to CMs recognise them as such, whether proposed adverse events were due to misuse or overuse of products, intrinsic or extrinsic product factors.

Under-reporting of adverse reactions

The public plays an important role in ensuring their care is effective and assuring their own safety. In regards to patient safety, they have a role in identifying side effects quickly and taking appropriate action.

A study conducted in the U.K. identified that consumers of herbal medicines were less inclined to inform their healthcare professionals of adverse effects than if the reaction was due to a conventional drug.\textsuperscript{48} As a result, many adverse effects to CMs are likely to remain under-reported. This study confirms the finding that many customers experiencing an adverse reaction to a CM product are not inclined to tell their pharmacist. The study has gone one step further and identified actual reporting behaviours of customers and found approximately one-third of customers experiencing an adverse reaction told their medical practitioner, 22% informed their pharmacist and 18% their CM practitioner. Adverse reactions to CMs are likely to remain under-reported to pharmacists until customers are encouraged to openly discuss their use.
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(19) Welch S. The Use of Complementary Medicines by Inpatients at St Vincent's Hospital Sydney [abstract]Welch S. The Australian Journal of Hospital Pharmacy 2001;31:111-113


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Chapter Two
Phases 2 and 3: Pharmacist focus groups and Pharmacist questionnaire

Background
Many Australians use CMs at the same time as conventional medicines. CMs are known to provide beneficial effects, but can also have adverse effects or bear the risks of interactions. As primary healthcare providers pharmacists have the professional obligation to provide information and guidance about the safe and effective use of all medicines including CMs.

This chapter explores how pharmacists manage CMs in their daily pharmacy practice. It describes the aims and objectives of the pharmacist focus group and pharmacist surveys, the research design and methodology used, as well as the main results of focus group and survey followed by discussion of the key findings.

Aims
The main aim of conducting pharmacist focus groups and the national pharmacist questionnaire was to investigate the integration of CM into pharmacy practice and to identify unmet needs and obligations of pharmacists with regards to counselling on the quality use of CM.

The primary goal was to identify pharmacists’ ability to meet the CM information needs of customers and lead QUM practices in regards to CMs within the pharmacy setting.

Secondary aims were:

- To describe information sources used by pharmacists for CM information
- To investigate pharmacists’ confidence in dealing with customer enquires
- To investigate pharmacist’s knowledge about the evidence-base of commonly used CMs
- To describe pharmacists’ attitudes to CMs and CM integration
- To identify the frequency of employing CM practitioners, as well as their role in the pharmacy setting
- To recognise previous training and further education needs.
Methodology

Pharmacist Focus Groups

Focus group recruitment

Based on the published literature and results from Phase 1 of the study, a discussion guide was developed (Appendix D). A focus group discussion was held at each project site. Recruitment for the focus groups was through convenience sampling and using snowballing technique. Participants were recruited from different types of community pharmacies to ensure a range of practices and business styles were accounted for.

Focus group data collection

With the exception of the Wagga Wagga site, the focus group discussions were held in the evenings over a meal in a private room at a restaurant. There were some communication problems associated with the organization of the Wagga Wagga focus group and only 2 pharmacists were able to attend. This small focus group discussion was held in a private room at the Charles Sturt University over a light meal and still provided useful information. Demographic characteristics of the focus groups are given in Table 9.

Table 9 Selected demographic characteristics of pharmacist focus groups

<table>
<thead>
<tr>
<th>Location</th>
<th>Melbourne</th>
<th>Gold Coast</th>
<th>Wagga Wagga</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location description</td>
<td>Metropolitan</td>
<td>Metropolitan</td>
<td>Regional</td>
</tr>
<tr>
<td>Date</td>
<td>19/11/08</td>
<td>24/11/08</td>
<td>26/11/08</td>
</tr>
<tr>
<td>No. of participants</td>
<td>8</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>Gender balance</td>
<td>2 men, 6 women</td>
<td>6 men, 5 women</td>
<td>2 men</td>
</tr>
<tr>
<td>Type of pharmacy</td>
<td>1 independent 7 banner</td>
<td>7 independent 3 banner 1 warehouse</td>
<td>2 independent</td>
</tr>
</tbody>
</table>

The semi-structured discussion took between 40 and 80 minutes and was facilitated by one of the researchers. The project investigators at each of the sites welcomed the participants and introduced the study then left the room before the discussion commenced. This was to avoid any bias or conflict of interest that may have arisen from the possibility that the project investigators were known to the participants. The Melbourne research assistant attended and took written notes in Melbourne and Wagga Wagga. The project officer attended and took notes for the Gold Coast focus group.

Focus group data analysis

Audio taped discussions were later transcribed and identifying features removed. The project's investigators and research assistants were asked to comment on the audio taped discussion. Data from the transcriptions, the research assistants’ notes, the facilitator’s log, and the project's site investigators’ reflections were all considered as useful data for analysis of this phase of the study. A summary of responses to the questions was used to inform the construction of the pharmacist survey.

Pharmacist questionnaire

Questionnaire development

An anonymous, self-administered questionnaire was developed (Appendix E). The questionnaire was adapted from three previously published studies and a report published by the National Prescribing Service. Additional questions were included to explore themes arising from Phase 1 of the study, relating to customers’ perceptions and attitudes.
The 41 item questionnaire consisted of seven sections: 1) demographic information, 2) pharmacists’ recommending behaviour towards CMs, 3) pharmacists communication about CMs with customers, 4) general attitudes towards CMs and the role of the pharmacist, 5) CM knowledge, 6) CM information sources and 7) perceived CM education needs.

Section four (12 items on attitude and role of the pharmacist) used a 5-point Likert rating scale (strongly agree to strongly disagree). Four of the knowledge questions in section five had possible responses of yes, no and unsure. Other items were either multiple choice answers or lists where multiple options could be ticked.

One part of the knowledge section assessed respondents’ knowledge of the clinically proven uses of common OTC CM products. Participants were asked whether the listed CMs had a clinically proven use for a given list of indications and were given three possible responses: yes, no, unsure. The questions in this section were included in the Pharmacy assistant (Phase 5) and Naturopath/Western Herbalist (Phase 6) questionnaires. The second part of the knowledge section assessed respondents’ knowledge of common CM-drug interactions. Participants were asked whether an interaction existed between the listed CMs and a list of commonly used medications, they were given three possible responses: yes, no, unsure. The questions in this section were included in the Naturopath/Western Herbalist (Phase 6) questionnaire. Correct answers to the two knowledge sections were defined from material contained within two CM texts: Herbs and natural supplements – an evidence based guide (2nd edition) and Herb, nutrient and drug interactions.

The 41 item questionnaire was pre-tested by members of the pharmacist focus groups (Phase 2) and a convenience sample of pharmacists at the Alfred Hospital, Melbourne.

Recruitment for questionnaire participation

The project aimed to collect responses from 660 pharmacists. It was decided to expand on the original proposal by recruiting nationally to capture data from a broader range of pharmacists. Inclusion of pharmacists registered in all states strengthens the survey results, ensuring national representation and a larger sample size, and funding for this expansion was within budget.

Based on the expectation that 95% of pharmacists receive CM enquires from customers, with a 95% CI and +/-3% variation, and 34% response rate, a sample size of 4376 was required. Each State and Territory’s Pharmacy Board was approached to provide a list of registered pharmacists. These were directed to an independent mailing house which applied proportional random sampling techniques in the following proportion (See Table 10):
Table 10 Proportional distribution sampling for pharmacist questionnaire

<table>
<thead>
<tr>
<th>State</th>
<th>Total no. of registered pharmacists in state</th>
<th>% of total registered pharmacists</th>
<th>No. of pharmacists in each state to be sent questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qld</td>
<td>4683</td>
<td>22.3%</td>
<td>892</td>
</tr>
<tr>
<td>Vic</td>
<td>5570</td>
<td>26.6%</td>
<td>1064</td>
</tr>
<tr>
<td>NSW</td>
<td>8000</td>
<td>38.2%</td>
<td>1528</td>
</tr>
<tr>
<td>WA</td>
<td>2075</td>
<td>9.9%</td>
<td>396</td>
</tr>
<tr>
<td>SA</td>
<td>1617</td>
<td>7.7%</td>
<td>308</td>
</tr>
<tr>
<td>TAS</td>
<td>546</td>
<td>2.6%</td>
<td>104</td>
</tr>
<tr>
<td>ACT</td>
<td>458</td>
<td>2.1%</td>
<td>84</td>
</tr>
<tr>
<td>Total</td>
<td>20,939</td>
<td></td>
<td>4,376</td>
</tr>
</tbody>
</table>

Selected pharmacists were mailed an introductory letter in February 2009 directing them to the on-line questionnaire, as well as a hard copy of the questionnaire and a reply-paid envelope. This gave participants the option of completing the questionnaire either on paper or directly online. A reminder letter was mailed to pharmacists two weeks later. Consent was implied by completion of the questionnaire. Data were manually entered into SurveyMonkey™, either directly by the respondent or from paper copies returned by mail.

Questionnaire data collection

Data collection took place from mid-February until end of March 2009. Data were manually entered into another SurveyMonkey™ online survey, either directly by the respondents themselves or from paper copies returned by mail. Data entry was completed in April 2009. Consent was implied upon agreement to complete the survey questionnaire.

Results

Focus Group Results

Definition of CM and current integration into pharmacy practice

Mostly, CMs were defined as ‘alternative’ or ‘complementary’ or ‘natural’, with some reference to ‘non-drug’, ‘non-dispensary item’, ‘vitamins and herbal supplements’ and remedies from a CM provider.

Consensus was reached that the evidence for CMs is a major issue, either that it is not available, hard to find or of poor quality. No consensus was reached on the need of CM integration into patient care, nor customers’ expectation towards the pharmacist’s ability/responsibility to counsel on CMs. Barriers to integrating CM were only discussed in the Melbourne focus group. There, pharmacists thought that the main barriers to integration of CM were the lack of evidence, time and money. The Wagga Wagga group was more strongly oriented toward conventional medicines.

The role of the pharmacist and interaction with customers

Participants in all groups agreed that there is a role for pharmacists to play in providing CMs, however opinions differed on what this role should be. Overwhelmingly participants agreed that they have an ethical obligation to know about CMs, however they felt that they lacked sufficient knowledge. As such most participants agreed they need to recognise the limitations of their CM expertise. Many suggested that the same knowledge is needed about CMs as it is for other medicines, however some felt that attaining this level was an impossible task and a few were convinced that there is no evidence for CMs. It was suggested that pharmacists’ obligation to counsel and have
knowledge of CMs is not great because of the availability of CM products in other settings where no professional advice was available.

Some pharmacists said they always ask customers about CMs, others said they ask selectively and some recognised that customers do not necessarily think of CMs as medicines and may need to be prompted more specifically about their CM use. Further discussion revealed that although some pharmacists felt it was important to know about all medicines each customer was taking, many felt conflicted about asking customers about their CM use, because they don’t know what to do with the information obtained, they are not convinced CM products work, and they are concerned about interactions and/or how to get information about interactions.

The issue was raised whether pharmacists should record customers’ CM use. This issue lead to considerable debate. Arguments in favour of recording CM use included recording use takes CMs seriously, pharmacists can ‘get the whole picture’ about customers’ medication use, and this would help track customer response and successes of CMs. Arguments against recording CM use included time constraints (and ‘time is money’), customer may be impatient, it is not meaningful to record use, and recording use could make pharmacists more accountable and open them up to legal challenge if something went wrong e.g. adverse event to CM.

Recommendation of CM products

The majority of focus group participants recommended CMs to customers, although they weren’t necessarily confident or comfortable recommending CMs. It was agreed that often pharmacists would pass on this task to their shop assistants and that often customers that come to the pharmacy ask about/for specific CMs so may not want/need pharmacist advice.

The answer to the question “Have you noticed that the number or type of queries about CMs from customers have changed in the last few years?” varied from site to site. On the Gold Coast pharmacists agreed that more customers are asking about CMs, in Melbourne, the pharmacists suggested that the type of people asking has changed, and in Wagga Wagga it was suggested that pharmacists are now asked less often, perhaps because their shop assistants have become more experienced in their CM knowledge and answer queries.

Similarly, the opinions differed at the three sites with regards to recommending certain brands or products. Some of the Gold Coast pharmacists wanted proof of evidence for efficacy, or were sceptical that such evidence exists mainly because sales representatives did not provide sufficient, good quality evidence; the Melbourne pharmacists chose products according to ingredients, cost, or individual need; and the Wagga Wagga pharmacists tended to recommend the more popular brands.

Naturopaths working in pharmacy

The presence of naturopaths in the pharmacy was mostly seen as a positive development as naturopaths can support and reassure customers and pharmacy staff, they can free up other pharmacy staff, they can provide integrative care, and they can increase business. Some concerns raised included the possibility that naturopaths could endorse dubious products, the variability of naturopath training, knowledge and quality of practice, and the legal implications this would have for the pharmacist.

Pharmacists rarely referred customers to a naturopath off-site, although a few suggested they might refer customers to a naturopath if they were available in the pharmacy.

CM information sources and CM education

Many participants suggested they needed more CM knowledge and training. Some preferred to work with naturopaths or refer CM queries onto naturopaths, others preferred to refer complex customers back to their doctor and in general, mixed feelings existed about relying on pharmacy assistants to specialise in CM knowledge.

Participants in all groups discussed the lack of reliable information sources and consistent information. Overall, there was uncertainty about where to find information on CMs and about the quality of that information. Each group mentioned different information sources ranging from pharmacy professional information sources (i.e. eMIMS, APF, AMH, Micromedex, NPS, pharmacy journals), general medical databases and websites (i.e. Medline, Cochrane Reviews) to naturopath hotlines, the Natural Pharmacist website, the Journal of Complementary Medicine, some books and naturopaths. In addition, general websites such as Google, as well as manufacturers’ information were mentioned as information sources.

A variety of suggestions were made about the way forward, including increasing the number of CM articles in professional pharmacy journals, making changes to current undergraduate pharmacy courses to include more education about CM, offering additional training in CMs for pharmacists and pharmacy assistants, improving the
interaction between pharmacists and CM practitioners, identifying and having access to reliable information sources, and encouraging greater research on CMs.

**Questionnaire Results**

A total of 4,376 pharmacist questionnaires were distributed and 736 were returned. Although the response rate (17%) was lower than anticipated, we received more than the minimum requirement of 660 surveys.

**Sample characteristics**

Overall, 62% of the respondents were women and the average age of respondents was 45 years. Significantly more women were working in hospital pharmacies than in community pharmacies (78% vs. 57%; p<0.0001).

The majority of respondents (54%) had worked as a pharmacist for more than 20 years. Most of the respondents (76%) were community pharmacists. Of the 514 pharmacists working in retail, 54% worked in an independent and 46% in a banner group pharmacy (Table 11).

**Table 11 Demographic data of pharmacist respondents**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Overall n (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td>443 (62)</td>
</tr>
<tr>
<td>Age</td>
<td>22-86 years</td>
</tr>
<tr>
<td>Years having worked as a pharmacist</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 year</td>
<td>15 (2)</td>
</tr>
<tr>
<td>1-5 years</td>
<td>125 (18)</td>
</tr>
<tr>
<td>6-10 years</td>
<td>73 (10)</td>
</tr>
<tr>
<td>11-20 years</td>
<td>119 (17)</td>
</tr>
<tr>
<td>&gt; 20 years</td>
<td>384 (54)</td>
</tr>
<tr>
<td>Main site of practice</td>
<td></td>
</tr>
<tr>
<td>Community/Retail</td>
<td>514 (76)</td>
</tr>
<tr>
<td>Hospital</td>
<td>129 (19)</td>
</tr>
<tr>
<td>Consultant/ Accredited Pharmacist</td>
<td>36 (5)</td>
</tr>
<tr>
<td>Other (e.g. Industry, Academia, Public Service, Army, Retired)</td>
<td>46 (7)</td>
</tr>
</tbody>
</table>

*% of total respondents

The demographic differences which existed between participants of different states is presented in Table 12.

**Table 12 Demographic differences between States**

<table>
<thead>
<tr>
<th>States</th>
<th>NSW</th>
<th>NT</th>
<th>QLD</th>
<th>SA</th>
<th>TAS</th>
<th>VIC</th>
<th>WA</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=247</td>
<td>N=6</td>
<td>N=120</td>
<td>N=37</td>
<td>N=22</td>
<td>N=188</td>
<td>N=40</td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.0011</td>
</tr>
<tr>
<td></td>
<td>61 ± 3</td>
<td>33 ± 21</td>
<td>52 ± 5</td>
<td>73 ± 7</td>
<td>41 ± 11</td>
<td>65 ± 4</td>
<td>85 ± 6</td>
<td></td>
</tr>
<tr>
<td>Years working as a pharmacy assistant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 1 year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.0953</td>
</tr>
<tr>
<td></td>
<td>3 ± 1</td>
<td>0 ± 0</td>
<td>2 ± 1</td>
<td>8 ± 4</td>
<td>0 ± 0</td>
<td>0 ± 0</td>
<td>5 ± 4</td>
<td></td>
</tr>
<tr>
<td>1-5 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.0017</td>
</tr>
<tr>
<td></td>
<td>18 ± 2</td>
<td>50 ± 22</td>
<td>9 ± 3</td>
<td>27 ± 7</td>
<td>41 ± 11</td>
<td>16 ± 3</td>
<td>18 ± 6</td>
<td></td>
</tr>
<tr>
<td>6-10 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.0000</td>
</tr>
<tr>
<td></td>
<td>10 ± 2</td>
<td>0 ± 0</td>
<td>6 ± 2</td>
<td>14 ± 6</td>
<td>0 ± 0</td>
<td>8 ± 2</td>
<td>38 ± 8</td>
<td></td>
</tr>
</tbody>
</table>
Overall, most of the respondents (94%) had completed their undergraduate degree in Australia (Table 13). Significantly more hospital than community pharmacists conducted their undergraduate education in the UK (10% vs. 3%; p=0.0007). The mean year of graduation was 1984 with most respondents graduated from Sydney University (n=191) and the Victorian College of Pharmacy in Melbourne (n=151).

**Personal use of a complementary medicine**

Use of CMs by pharmacists was common with 76% reporting use in the last 12 months. When hospital and community pharmacists were compared, significantly fewer hospital pharmacists used CMs compared with community pharmacists (58% vs. 80%; p<0.0001).

**Stocking CM products in the pharmacy**

Nearly all respondents’ workplaces stocked CM products with a small number carrying the specialised ‘practitioner only’ CM products and liquid herbal medicines (see Table 14).

---

### Table 13 Education / training of pharmacists

<table>
<thead>
<tr>
<th>Undergraduate Pharmacy Training received in:</th>
<th>N = total sample of pharmacists (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>612 (94)</td>
</tr>
<tr>
<td>UK</td>
<td>34 (5)</td>
</tr>
<tr>
<td>South-East Asia</td>
<td>6 (1)</td>
</tr>
<tr>
<td>Other (e.g. NZ, South Africa, India, Pakistan)</td>
<td>58 (9)</td>
</tr>
</tbody>
</table>

* % of total respondents

---

### Table 14 Range of CM products stocked in pharmacies

<table>
<thead>
<tr>
<th>Does your place of work stock CM products?</th>
<th>N = total sample of pharmacists (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes - a large variety</td>
<td>241 (46)</td>
</tr>
<tr>
<td>Yes – a limited range</td>
<td>212 (40)</td>
</tr>
<tr>
<td>Yes – including practitioner only CM products</td>
<td>32 (6)</td>
</tr>
<tr>
<td>Yes – including liquid herbal medicines</td>
<td>21 (4)</td>
</tr>
<tr>
<td>No</td>
<td>17 (3)</td>
</tr>
</tbody>
</table>

* % of total respondents (multiple responses possible)
Pharmacies that employed a CM practitioner were significantly more likely to stock a large variety of CM products (68% vs. 41%; p<0.0001) and to stock ‘practitioner only’ CM products (15% vs. 4%; p=0.0001), whereas they were significantly less likely to stock a limited range of CM products (6% vs. 47%; p<0.0001).

Utilising naturopaths/natural therapists in the pharmacy setting

Overall, 18% (n=95) of the 525 community pharmacists reported that their pharmacy currently employs a store naturopath/natural therapist. Of these pharmacists, 64% (n=63) described the service provided by naturopaths/natural therapists as valuable, whereas 3% (n=3) reported it was not valuable. Approximately half of the community pharmacist sample (51%, n=261) stated they would consider employing a naturopath/natural therapist. Pharmacists were also asked what factors they would consider important if contemplating employing a naturopath. Most (84%, n=427) of the total sample stated that having the appropriate tertiary qualifications was important. All responses to this question are presented in Figure 7.

![Figure 7 Factors pharmacists consider when deciding whether to employ a natural therapist (multiple answers possible)](image)

Pharmacists reported that the average number of hours per week a naturopath/natural therapist worked in the pharmacy ranged from 1 to 60 hours, with an overall average of 18.7 hours. In most cases naturopaths were utilised to provide advice to customers about CM products on the shop floor (87%, n=93), to conduct consultations for customers in a private room (73%, n=68) and act as a source of information (61%, n=57) (Figure 8). Less commonly, naturopaths fulfilled other tasks (5%, n=5) such as stock control and sales, and some pharmacists reported that they were also a naturopath/herbalist.
They provide advice to customers about CM products on the shop floor

Of the 95 pharmacists that reported working in stores which employed a naturopath/natural therapist, 69 (73%) stated that they referred customers to the naturopath. They also personally referred to the in-store naturopaths for general information about CMs, specific questions about weight loss products, product brands and herb-drug interactions.

Of the pharmacists who reported working with pharmacy naturopaths, 64% described the service provided by naturopaths/natural therapists as valuable, whereas 3% thought that the service was not valuable (Figure 9).

Approximately half of the 100 respondents that answered this question (52%, n=52) reported that insufficient knowledge was a barrier to recommending CM products as standard practice. Similarly 46% (n=46) indicated that lack of sufficient information sources was the preventing them from integrating appropriate recommendations for CM products into standard practice. Other reasons are listed in Figure 10.
Advising customers about CM products

Thirty-nine percent of pharmacists (n=204) reported that mainly pharmacy assistants recommended CMs in-store with a further 34% (n=179) stating they personally recommended CMs (Figure 11).

In pharmacies employing a naturopath/natural therapist, significantly less pharmacy assistants (20% vs. 43%; p<0.0001) and pharmacists (14% vs. 38%; p<0.0001) recommended CM products.

Overall, pharmacists personally recommended multivitamins (88%, n=427), glucosamine supplements (83%, n=401), fish oil supplements (82%, n=397) and probiotics (73%, n=254). The least recommended product was kava kava (0.6%, n=3). Patterns of recommendation amongst pharmacists in pharmacies employing a naturopath/natural therapist differed in some respects. Significantly more pharmacists in stores where there was also a naturopath/natural therapist recommended coenzyme Q10 (52% vs. 34%; p=0.001), weight loss products (24% vs. 12%; p=0.002) and kava kava (3% vs. 0%; p=0.006) compared to other stores.

When advising customers, the majority of pharmacists (80%, n=397) used information from their own knowledge. They also used pharmacy textbooks, internet and journals (69%, n=343), label information (43%, n=212) and product information leaflets (39%, n=193). A smaller proportion, (26%; n=126) of pharmacists also used feedback stories from customers as an information source. No significant differences were observed between pharmacists who worked in pharmacies with or without naturopaths.
A difference was found between pharmacists with and without prior CM knowledge. Significantly more pharmacists who had undertaken self-directed training on CM products used information from their own knowledge or from textbooks, internet and journals compared to those without self-directed training (57% vs. 46%; p=0.004 and 54% vs. 31%; p<0.0001). A greater proportion of pharmacists who had attended PSA or manufacturer seminars used information from their own knowledge or from textbooks, internet and journals compared to those that had not attended these seminars (67% vs. 40%; p<0.0001 and 57% vs. 36%; p<0.0001).

Overall, one third of pharmacists sometimes asked customers presenting with prescriptions if they take CM products, another third reported asking customers often and 24% stated they always asked. Only 3% of pharmacists reported that they never asked customers presenting with a prescription whether they were taking CM products. Significantly more hospital than community pharmacists reported that they always asked customers presenting with prescriptions if they take CM products (33% vs. 18%; p=0.0002).

Reasons for not asking all customers with prescriptions about CM products are listed in Figure 12.

![Figure 12 Reasons for not asking all customers with prescriptions about their CM use (multiple answers possible)](image)

Significantly more pharmacists who work in a pharmacy that does not employ a CM practitioner do not ask customers with prescriptions about CM because they assume that customers will tell them (22% vs. 9%; p=0.005). There was also a significant difference between pharmacists with and without prior CM knowledge. Pharmacists who indicated that they had undertaken self-directed training on CM products were more likely than those without training to ask customers with prescriptions about their CM use (32% vs. 19%; p=0.0003).

On a day-to-day basis the most frequent interactions with customers with respect to CM products relate to requests for advice from customers and recommendations for CM products provided by the pharmacists (Figure 13). In contrast referral of customers’ queries about CM products to other staff and customers presenting with medical recommendations for a CM were less frequent.
A difference existed between pharmacists with and without prior CM knowledge. Pharmacists who indicated that they had undertaken self-directed training on CM products were more likely then those without training to be asked by customers for advice on CMs 1-4 times/day (26% vs. 14%; p=0.0001).

Knowledge of commonly used CMs

The knowledge component of the questionnaire comprised two sections: In the first section pharmacists were asked to report “Which of the following complementary medicines have clinically proven benefits for the listed indications?” They were presented with a grid and could respond Yes, No or Unsure for four indications and five CM products. The maximum correct score for this section was 23. In the second section they were asked “Which of the following complementary medicines induce a clinically significant interaction with the listed medications?” They were presented with a grid and could respond Yes, No or Unsure for four drugs and four CM products. The maximum correct score for this section was 16.

Responses were received from 91% of pharmacists. The mean correct score obtained by pharmacists for Section 1 (clinically proven benefit) was 15.2 (66%). The mean correct score for Section 2 (CM-drug interactions) was 5.0 (32%). Overall, the mean aggregate score for both knowledge sections was 20.5 (53%).

Pharmacists that reported having undertaken self-directed learning achieved a significantly higher mean aggregate score of 20.6 than pharmacists who had not undertaken self-directed learning about CMs (mean correct score 15.2, p<0.0001). Those pharmacists having attended undergraduate lectures pertaining to CM also attained a significantly higher mean aggregate score of 22.1 compared with 17.8 (p<0.0001) for others that did not receive such education. Additionally, those pharmacists that had attended manufacturer seminars or PSA lectures also achieved significantly higher knowledge scores compared to others (20.5 vs. 17.3, p<0.0001).

More recent graduates also performed significantly better in the knowledge section than other graduates. Those having graduated within the last 1-5 years achieved a mean score 2.3 points higher than people who graduated later (p=0.006). Additionally, pharmacists that graduated more than 20 years earlier had a mean score 1.9 points lower than the mean for other pharmacists (p=0.003).

Community pharmacists attained a significantly higher median score about the proven benefits and potential interactions of popular OTC CMs than hospital pharmacists (score: 23 vs. score: 21; p=0.006). For example, significantly more hospital than community pharmacists were unsure about interactions between fish oil and digoxin (31% vs. 18%; p=0.001), fish oil and oral contraceptives (26% vs. 12%; p<0.0001), fish oil and oral hypoglycaemias (34% vs. 16%; p=0.0001), coenzyme Q10 and digoxin (6% vs. 1%; p<0.0001), coenzyme Q10 and oral contraceptives (5% vs. 0%; p=0.0003), coenzyme Q10 and oral hypoglycaemias (5% vs. 0%; p=0.001),
ginkgo biloba and oral contraceptives (36% vs. 19%; p<0.0001), echinacea and oral contraceptives (40% vs. 18%; p<0.0001), and Echinacea and hypoglycaemics (43% vs. 21%; p<0.0001).

No differences in knowledge score were seen between those pharmacists working in pharmacies employing CM practitioners and pharmacies without.

Adverse reactions

In the last 12 months 23% (n=160) of pharmacists had been notified of an adverse reaction to CM product by a customer. Significantly fewer hospital pharmacists were told of an adverse reaction to a CM product by a patient/customer than community pharmacists (14% vs. 25%; p=0.009).

Of those pharmacists reporting that a customer had told them of an adverse reaction, 73% (n=109) stated they had noted the information in the patient’s profile/notes, 37% (n=56) referred the customer to a medical practitioner, 18% (n=27) notified ADRAC, 16% (n=24) notified the manufacturer, 2% (n=3) referred them to a hospital and 14% (n=21) did nothing. Hospital and community pharmacists’ responses did not differ significantly except that significantly more community pharmacists notified the product manufacturer of an adverse reaction to their product compared with no hospital pharmacists (5% vs. 0%; p=0.007).

There was also a difference between pharmacists with and without prior CM knowledge. Pharmacists who indicated that they had undertaken self–directed training on CM products were more likely than those without training to mark an adverse drug reaction in the patient file (17% vs. 10%; p=0.008).

Attitudes of pharmacists regarding CMs

Overall, pharmacists generally agreed with the attitudinal statements in the questionnaire relating to CM products within pharmacies, except for the statement that the advertising of CM products in Australia is sufficiently well regulated (Table 15).

More than 80% of pharmacists strongly agreed or agreed with the following statements:

- Customers are now expecting more information about CMs from their pharmacist than 5 years ago;
- Pharmacists have a professional responsibility to counsel customers about CMs;
- Pharmacists should play a greater role in providing customers with safety and drug interaction information about CMs;
- CMs should be accompanied by more detailed product information;
- Clinically proven CMs should have a ‘tick of approval’ from a recognized government body with expertise in complementary medicine;
- Naturopaths and herbalists should be formally registered to safeguard the public.

Additionally, more pharmacists who work in pharmacies employing a naturopath strongly agreed with the statement that community pharmacies would benefit by employing a natural therapist to provide customer information (40% vs. 12%; p<0.0001).

Hospital and community pharmacists had different opinions about several facets of CM integration. Fewer hospital pharmacists strongly agreed or agreed with the following statements compared to community pharmacists:

- Pharmacists should play a greater role in recommending CMs
  - strongly agreed: 13% vs. 23% (p =0.019); agreed: 26% vs. 47% (p <0.0001)
- Community pharmacies would benefit by employing a natural therapist to provide customer information
  - strongly agreed: 9% vs. 17% (p=0.032); agreed: 26% vs. 41% (p=0.001)
- I am confident about the quality of Australian made CMs
  - strongly agreed: 5% vs. 15% (p=0.003) ; agreed: 25% vs. 52% (p<0.0001)

However significantly more hospital than community pharmacists strongly agreed with the statement that ‘Pharmacists should record customers’ use of CMs in their medication profile/ patient notes’ 43% vs. 18% (p<0.0001).
Table 15 Pharmacist responses to attitudinal statements about CMs and pharmacy practice

<table>
<thead>
<tr>
<th>Statements</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM products are an important part of the financial business of retail pharmacy</td>
<td>SA N (%)</td>
</tr>
<tr>
<td>Customers are now expecting more information about CM products from their pharmacist than 5 years ago</td>
<td>168 (24)</td>
</tr>
<tr>
<td>Pharmacists have a professional responsibility to counsel customers about CM products</td>
<td>260 (37)</td>
</tr>
<tr>
<td>Pharmacists should play a greater role in providing customers with safety and drug interaction information about CM products</td>
<td>264 (38)</td>
</tr>
<tr>
<td>Pharmacists should play a greater role in recommending CM products</td>
<td>306 (44)</td>
</tr>
<tr>
<td>I am confident about the quality of Australian made CM products</td>
<td>95 (14)</td>
</tr>
<tr>
<td>The advertising of CM products in Australia is sufficiently well regulated</td>
<td>24 (3)</td>
</tr>
<tr>
<td>CM products should be accompanied by more detailed product information</td>
<td>278 (40)</td>
</tr>
<tr>
<td>Clinically proven CM products should have a ‘tick of approval’ from a recognized government body with expertise in complementary medicine</td>
<td>359 (51)</td>
</tr>
<tr>
<td>Community pharmacies would benefit by employing a natural therapist to provide customer information</td>
<td>106 (15)</td>
</tr>
<tr>
<td>Pharmacists should record customers use of CMs in their medication profile/ patient notes</td>
<td>176 (26)</td>
</tr>
<tr>
<td>Naturopaths and herbalists should be formally registered to safeguard the public</td>
<td>360 (51)</td>
</tr>
</tbody>
</table>

SA= strongly agree; A=agree; U=unsure; D=disagree; SD=strongly disagree

*% of the total number of respondents for that statement
Additionally, more pharmacists who work in pharmacies employing a naturopath strongly agreed with the statement that ‘community pharmacies would benefit by employing a natural therapist to provide customer information’ than pharmacists not working in pharmacies where a naturopath/natural therapist was employed (40% vs. 12%; p<0.0001).

Sources of information about CMs

Professional reference texts such as MIMS, APP and the APF were used as sources of CM information by 56% of pharmacists, followed by CM textbooks (48%) and the internet (43%). All information sources are listed below (Figure 14). In comparison to Australian trained pharmacists, significantly more overseas trained pharmacists reported using online databases such as PubMed as an information source (36% vs. 19%; p=0.0001).

![Figure 14: Sources of CM information for pharmacists](#)

Pharmacists who worked in a pharmacy that employed a naturopath/natural therapist used different CM resources to other pharmacists. Significantly more of these pharmacists reported using a CM specific textbook (61% vs. 44%; p=0.002) or a CM practitioner as an information source (44% vs. 6%; p<0.0001) compared to pharmacists working in locations without CM practitioners. In addition, significantly fewer of these pharmacists used standard reference texts such as MIMs, AP and APP (43% vs. 60%; p=0.002), pharmacy specific journals (26% vs. 41%; p=0.009) or the World Wide Web in general (e.g. Google) (28% vs. 44%; p=0.004) for CM information.

Differences were again found between hospital and community pharmacists. More hospital pharmacists reported using databases such as PubMed/MEDLINE (36% vs. 14%; p<0.0001) and specific websites (22% vs. 11%; p=0.0005) as CM information sources compared to their community based counterparts and significantly fewer hospital pharmacists used reference texts such as MIMs, AP and APP (43% vs. 60%; p=0.002), pharmacy specific journals (26% vs. 41%; p=0.009) or the World Wide Web in general (e.g. Google) (28% vs. 44%; p=0.004) for CM information.

Additionally, significantly fewer hospital pharmacists used CM journals (6% vs. 24%; p<0.0001) and manufacturer literature, seminars and/or representatives (13% vs. 34%; p<0.0001) as a source of CM information compared to community pharmacists.
There was also a difference between pharmacists with and without prior CM knowledge. Pharmacists who indicated that they had undertaken self-directed training on CM products were more likely then those without training to use CM textbooks (49% vs. 36%; p=0.001), CM practitioners (13% vs. 6%; p=0.008) and pharmacy specific journals (38% vs. 24%; p=0.0002) as an information source.

When asked what factors they considered most important when assessing a CM information resources the majority of the pharmacists (70%) said that the information on CMs had a scientific basis. Other important factors considered by pharmacists when assessing CM products are listed below (Figure 15).

![Figure 15](image)

Community and hospital pharmacists differed in the sources of information they considered important regarding CMs. Significantly more community pharmacists reported that information gained from colleague recommendation, personal experience and customer feedback was important compared to hospital pharmacists (43% vs. 22%; p<0.0001; 59% vs. 39%; p<0.0001: 64% vs. 43%; p<0.0001). More hospital pharmacists reported that it was important that CM information was not produced by manufacturing companies compared with community pharmacists (32% vs. 17%; p=0.0003).

Randomised controlled clinical trials were considered ‘essential’ or ‘important’ by most pharmacists. From all other sources/levels of evidence listed published case studies, traditional use or epidemiological studies were also considered by the majority of the pharmacists to be ‘essential’ and ‘important’ (Table 16).
Table 16 Important source of evidence about CMs for pharmacists

<table>
<thead>
<tr>
<th>Source of Evidence</th>
<th>Essential</th>
<th>Important</th>
<th>Unsure</th>
<th>Not Important</th>
<th>Of no value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Randomised controlled clinical trials with humans</td>
<td>364 (54)</td>
<td>292 (43)</td>
<td>19 (3)</td>
<td>4 (1)</td>
<td>1 (0)</td>
</tr>
<tr>
<td>Animal studies</td>
<td>26 (9)</td>
<td>277 (42)</td>
<td>192 (29)</td>
<td>106 (16)</td>
<td>30 (5)</td>
</tr>
<tr>
<td>Traditional/ historical use well documented</td>
<td>110 (16)</td>
<td>415 (62)</td>
<td>86 (13)</td>
<td>46 (7)</td>
<td>14 (2)</td>
</tr>
<tr>
<td>Epidemiological (population) studies</td>
<td>108 (16)</td>
<td>432 (65)</td>
<td>109 (16)</td>
<td>16 (2)</td>
<td>2 (0)</td>
</tr>
<tr>
<td>Published case studies</td>
<td>134 (20)</td>
<td>402 (60)</td>
<td>90 (14)</td>
<td>39 (6)</td>
<td>2 (0)</td>
</tr>
<tr>
<td>Colleague recommendation</td>
<td>20 (3)</td>
<td>264 (41)</td>
<td>201 (31)</td>
<td>140 (22)</td>
<td>25 (4)</td>
</tr>
<tr>
<td>Personal experience</td>
<td>29 (4)</td>
<td>379 (57)</td>
<td>119 (18)</td>
<td>110 (17)</td>
<td>26 (4)</td>
</tr>
<tr>
<td>Customer feedback</td>
<td>34 (5)</td>
<td>408 (62)</td>
<td>132 (20)</td>
<td>62 (92)</td>
<td>24 (4)</td>
</tr>
</tbody>
</table>

* % of total respondents

Training and future education

Overall the majority of pharmacists (73%) gained CM product knowledge through self directed learning. Moreover, 42% obtained their knowledge from manufacturer seminars, whereas 30% of the respondents gained CM knowledge in professional seminars (e.g. PSA). Lectures in undergraduate courses were the CM training source for 28% of pharmacists and 76% of the respondents thought that it was very important for undergraduate pharmacy students to learn about evidence based CMs. Overall, only 10% of the respondents had a formal degree, certificate or diploma in CM, however, pharmacists working in pharmacies that employ a CAM practitioner are more likely to have a formal degree in CM (20% vs. 8%; p=0.0008).

Hospital pharmacists were less likely to have had CM product training through a seminar by a product manufacturer (21% vs. 48%; p<0.0001) or the PSA (17% vs. 32%; p=0.0008), and were significantly more likely to have no CM product knowledge (19% vs. 6%; p=0.0001).

Overall, the majority of respondents (85%) were interested in additional CM training. As a delivery method 53% of the pharmacists preferred short online courses, face-to-face seminars (45%) and self directed learning through journals (43%). Other delivery methods were endorsed by a third of respondents or fewer: electronic newsletters (34%), weekend workshops (23%) and online postgraduate courses (22%). Overall, a post graduate course was preferred by 8% of respondents.

However, pharmacists who had prior knowledge due to self-directed learning, undergraduate training or seminars from the PSA or manufacturers preferred an online postgraduate course by 21% vs. 8%; p<0.0001, 27% vs. 14%; p<0.0001 and 23% vs. 11%; p<0.0001, respectively.

Similarly, pharmacists educated overseas preferred a postgraduate course (16% vs. 5%; p<0.0001) in comparison to Australian trained pharmacists.

The ideal amount of time for the training was seen by the majority of respondents (40%) to be 1-2 hours per month. Overall, most pharmacists favoured this training to be offered by the Pharmaceutical Society/Pharmacy Guild (60%) followed by the NPS (46%), a CM training college (24%), or an Australian university (22%).
Hospital pharmacists preferred the training to be offered by the NPS (48% vs. 35%; p=0.005), a significant difference to community pharmacists, who preferred the PSA to conduct such training.

Discussion

In our study the use of CMs by community pharmacists (80%) mirrors that of the general Australian population, whereas hospital pharmacists reported a much lower use (58%) in the past 12 months. This confirms findings from a previous study which suggested that pharmacists working in community/out-patient settings and pharmacists living in non-urban areas were more likely to report use of CMs than others. Nevertheless, the study did not directly explore reasons for these differences, it is possible that having less knowledge of CMs and relatively limited access to these products in the hospital setting compared with community pharmacists, are influences on frequency of use.

As primary care providers pharmacists have a professional obligation to provide information and guidance to patients about the quality use of all medicines, which, according to the Australian National Medicines Policy, includes CMs. However, this does not seem to be the case in current Australian pharmacy practice. In our study 72% of pharmacy customers stated that they had used at least one CM product in the previous 12 months, however only 18% of customers used pharmacists as an information source. We also found that only 50% of pharmacists ask customers presenting with prescriptions ‘always’ or ‘often’ whether they are using any CMs, mainly because they forget to ask. Our results confirm previous national and international findings. Interestingly, our study highlighted that significantly more hospital than community pharmacists ask customers about their CM use indicating that specific strategies for CM documentation in the hospital setting are effective. Clear guidelines about CM interviewing and counselling need to be introduced in the community pharmacy setting.

A Canadian study found that 47% of community pharmacists had identified a potential interaction between a natural health product and a drug; however only 2% of these reported it to Health Canada. Under-reporting also appears to be a problem amongst pharmacists in Australia. In our study 25% of community pharmacists describe that a customer reported an adverse reaction to a CM product, with only 3% reporting it to ADRAC. Our study showed a slight trend that more hospital pharmacists (7%) reported CM adverse reactions to ADRAC however this is still less than ideal. Pharmacists’ professional obligation to notify ADRAC about adverse reactions should be emphasised again to both hospital and community pharmacists.

Given the growing amount of evidence for certain CMs and the consumer driven development towards holistic and integrative healthcare, pharmacists have an obligation to include CM counselling into their routine practice. Limiting the pharmacists’ CM knowledge and practice to adverse effects and interactions, could restrict the pharmacist’s future role in health care. We have found that pharmacists are aware that their customers are expecting more CM information from them compared with 5 years ago. The majority of pharmacists also believe they have a professional responsibility to counsel patients about CMs and should play a greater role in providing safety and drug interaction information. However, our study also shows that half the pharmacists surveyed recommended a CM product only a few times a week or less. Moreover, there was a stronger agreement among pharmacists to counsel customers on safety aspects of CMs than directly recommending CM products. Nevertheless, about half of the respondents considered their practice of pharmacy as integrative care. This poses the question on what is generally understood by Australian pharmacists as integrative care.

Pharmacists were not averse to the idea of employing naturopaths in-stores as approximately half of respondents stated they would consider employing a naturopath/natural therapist, in particular if they had appropriate tertiary qualifications. Moreover, pharmacists who worked with in-store naturopaths strongly agreed that community pharmacies would benefit by employing a natural therapist to provide CM information to customers. No research has been undertaken on how naturopaths are best placed in a community pharmacy setting for the benefit of the customer, pharmacist and naturopath. However, some successful integrative medical centres exist which could give some indication of the benefits and pitfalls of inter-professional practice and communication.

A former study reported that pharmacists had a generally positive attitude to CM. Nearly three-quarters (74%) thought herbal medicine was useful, 77% thought CM is a useful adjunct to conventional medicine; 73% thought CM included ideas from which conventional medicine could benefit. Although the majority of pharmacists in our study strongly agreed they had a professional obligation to counsel on CMs, the majority of issues which pharmacists agreed or strongly agreed about were related to safety aspects of CMs (tick of approval, pharmacist’s ability to counsel on interactions, formal registration of naturopaths to safeguard the public, more detailed product information). Moreover we found a difference in attitudes and perceptions towards CMs between community and hospital pharmacists. Hospital pharmacists seemed to be more unsure of their role regarding CM counselling, the quality of Australian CM products and the role of natural therapists in pharmacy practice. Similarly, a former study
conducted among hospital pharmacists showed that the majority (87%) thought CMs were unsafe and required monitoring and they were cautious about CMs and concerned about safety, efficacy, cost and regulatory issues.\textsuperscript{1}

Despite these findings amongst pharmacists, we found that in many cases pharmacy assistants were the primary sources of advice to customers about CMs in the pharmacy. Moreover, in pharmacies employing a CM practitioner even fewer pharmacists were involved in advising on CM products. Once again this is an unrealised opportunity for pharmacists who could play a greater role as information providers. Moreover, referring customers to pharmacy assistants for CM counselling could be seen as a neglect of the pharmacists’ professional obligation given that the 2007 PDL Report in its article on “Risk management strategies for selling CMs” which stated that “the information should also come from a pharmacist rather than other pharmacy staff”. It is therefore important that the role of the pharmacist regarding CM counselling is more clearly defined and endorsed by the relevant professional bodies (i.e. Guild, PSA and SHPA). Thus, CM should be included into health care plans as standard practice.

Previous studies suggested pharmacists had received herbal and CM education either as formal or informal training during their practices.\textsuperscript{1,3} In our study the majority of the pharmacists (73%) reported that they gained CM product knowledge through self directed learning and only 30% had attended seminars made available by professional organisations and 28% had received relevant undergraduate education.

Sociological research suggests that CM education may lead to practitioners with higher self awareness, improved core competencies such as evidence based practice, enhanced cultural competency and patient centred care.\textsuperscript{12,20} Our research confirms this finding as pharmacists reporting to have undertaken self-directed learning had a different experience with CMs compared to other pharmacists. They more frequently asked customers about use of CMs and in turn were more frequently asked about CMs by customers; more of these pharmacists marked an ADR to a CM in the patient profile and they achieved a higher knowledge score. These are desired behaviours which promote QUM and suggest that education has a number of positive flow-on effects.

Several studies have evaluated pharmacists’ actual knowledge about CMs and indicating that knowledge test scores were only low to moderate\textsuperscript{1,16-18} and that pharmacists with previous continuing education scored significantly higher than those without prior continuing education.\textsuperscript{16} Similarly, in our study the knowledge score achieved was relatively low, but was significantly higher for pharmacists who had undertaken undergraduate lectures, self-directed learning or attended CM seminars. A previous study found no significant differences in knowledge between those who sold or did not sell herbal medicines, or community versus non-community settings.\textsuperscript{16} In contrast, we also found that Australian community pharmacists achieved higher scores in the CM knowledge section than hospital pharmacists. This may be due to the fact that hospital pharmacies do not stock a large variety of CMs and hospital pharmacists have less engagement with CM demanding customers.

Overall, many pharmacists recognise that their knowledge of CMs could be improved and lack confidence in their ability to recommend CMs. Similar findings were reported in past surveys of Australian community and hospital pharmacy professionals which revealed that pharmacists generally rate their knowledge relating to CMs as inadequate and are not confident in answering patient enquiries.\textsuperscript{1,3} These findings are not unique to Australia and have been reported for overseas pharmacists who are generally not comfortable answering CM enquiries and are dissatisfied with their level of knowledge.\textsuperscript{18,19} Based on pharmacists feelings of inadequacy in this area and the observation in our survey that less than half of pharmacy customers taking CMs were convinced their pharmacist provided useful information about CMs, further education is urgently required.

Additional CM training for pharmacists would be endorsed by the majority of pharmacists. This study found 85% of pharmacists would be interested in future education, a similar figure reported to a previous Australian study which found that 80% of pharmacists supported CM training at undergraduate and post-graduate level.\textsuperscript{2}

Various delivery models would be acceptable, however more than half of the pharmacists’ preferred short online courses as a delivery method. As to whom should deliver the education, significantly more community pharmacists preferred the PSA to conduct CM training whereas hospital pharmacists preferred the training to be offered by the NPS.

Moreover, given the high demand for undergraduate CM education (76% of respondents thought that it was very important for undergraduate pharmacy students to learn about evidence based CMs) CM education is a high pharmaceutical education priority 21 that might be essential for future registration as a pharmacist. Thus, firm recommendations and required competencies from professional and educational bodies to assist CM curriculum development are urgently needed.

Pharmacists also felt that the lack of sufficient information sources would prevent them from recommending CM products. Most pharmacists identify reference texts such as MIMS, APF and eAPP, as well as medical and pharmacy journals as CM information sources, although those information sources are not specialised in CM information. It would therefore be important that pharmacists become familiarised with the NPS recommended CM information list.
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Chapter Three

Phases 4 and 5: Pharmacy assistant focus group and Pharmacy assistant questionnaire

Background

This chapter describes the aims and objectives of the pharmacy assistant questionnaires, the research design and methodology, results and discussion.

Aims

The aim was to investigate the integration of complementary medicines (CMs) into community pharmacy practice, taking into account the behaviours and perceptions of consumers, pharmacists and pharmacy assistants.

The specific objectives in relation to pharmacy assistants were to:

- identify their ability to meet the CM information needs of customers,
- describe their knowledge about the evidence-base of commonly used CMs and their confidence in dealing with customer enquiries, and
- describe their further education needs in relation to CM.

Methods

Pharmacy assistant focus group

Aims

A focus group of pharmacy assistants was held in Melbourne in November 2008 to trial questions for the questionnaire and to establish if any areas of questioning had been overlooked.

Recruitment

A discussion guide was developed based on the published literature, results from Phase 1 of the study and communication with the National Prescribing Service. Pharmacy assistants with a known interest in complementary medicine were recruited as they would be more able to contribute to the discussion than a random sample might. A CM product manufacturer was asked to suggest some pharmacy assistants to approach who had attended at least one of their educational seminars. Snowballing from these initial contacts led to participation by 8 pharmacy assistants. All participants were women, 5 from independent pharmacies, 1 from a banner affiliated pharmacy and 2 from a large format warehouse pharmacy. Many of the participants knew each other from either the workplace or from shared participation in educational seminars. In focus group methodology this is seen to enhance discussion as participants are likely to be more relaxed and to speak their minds.
Data collection

The focus group was held in the evening over a meal in a private room at a restaurant. Written consent was obtained from all participants and the discussion was audio taped and later transcribed. Only first names were used during the discussions and in the written transcript participants were given pseudonyms. The project’s research officer facilitated the focus group and asked open questions (Appendix D) and the Melbourne research assistant took written notes.

Data analysis

Data from the written transcript, the research assistant’s notes and the facilitator’s log were all considered useful for analysis of this phase of the study. A summary of responses to the questions was used to inform the construction of the pharmacy assistant questionnaire.

Pharmacy assistant questionnaire

Aims

Pharmacy assistants were surveyed about their attitude to and knowledge of complementary medicines and their perception of pharmacists’ attitudes and knowledge of complementary medicines.

Recruitment

The pharmacy assistants were recruited from those pharmacies where customer questionnaires had been conducted. This was for convenience as there is no formal association to approach that represents pharmacy assistants, and advertising through appropriate journals would have required too long a lead time.

Data collection

The questionnaire tool was developed based on that used for Phases 1 & 2 of this project with modifications made following the focus group discussions. The questionnaire (Appendix F) comprised 6 sections covering the following areas:

- Information about respondents and their pharmacy
- Recommending complementary medicine products
- Communication about complementary medicine products
- Complementary medicine product knowledge
- Information sources, and
- Opinions about complementary medicine products

Each questionnaire also contained a statement defining complementary medicines and instructing respondents not to consider complementary therapies (e.g. massage, acupuncture, chiropractic) in their responses.

In March 2009 the data collectors returned to the pharmacies where they had conducted customer questionnaires and gave the pharmacy staff a summary report of the findings of the customer questionnaire. Pharmacy assistants that were in attendance, and who worked at least 10 hours per week, were invited to complete the questionnaire. Copies of the questionnaires were supplied together with reply paid envelopes for those that weren’t available at the time. Written consent was obtained from all participants and no identifying information was collected from participants (Appendix G).

Results

Focus group results

The following is a summary of the key themes arising from this focus group:

- It was generally agreed that they are more confident discussing CMs when they get more training from manufacturers
• It was agreed that apart from any training they receive from manufacturers, they refer to / learn from naturopath hotlines or on-staff naturopaths, but also from family / friends’ / colleagues and their own experiences with CMs
• They tend to rely on information from manufacturers, on product labels, and from manufacturer hotlines
• They either viewed pharmacists as the appropriate referral / source of knowledge about CMs or were sceptical of pharmacists’ attitudes to CMs
• They suggested that customers know what they want and don’t need to discuss it
• They felt they bore the brunt of customers’ impatience at being questioned about CMs
• They suggested that CMs are more widely used as part of health treatment and that customers want to know more about the evidence of effectiveness, safety, and interactions. They suggested that people ask more questions now because of the increased availability and acceptance of CMs

Questionnaire results

Responses were received from 112 pharmacy assistants; 68 from the Melbourne site, 38 from the Gold Coast and 5 from Wagga Wagga (one respondent did not report postcode). Response rates were 80%, 100% and 27% respectively. All respondents were women (mean age 36 years) with most (37%) having working in the position for 1-5 years.

Respondents at the Wagga Wagga site were more likely to have worked as a pharmacy assistant for greater than 20 years, and to be older that respondents from the other sites however the small sample size prevents drawing any conclusions from this data. Full demographic details are shown in Table 17.

Table 17 Characteristics of pharmacy assistants

<table>
<thead>
<tr>
<th></th>
<th>Melbourne site n (%)</th>
<th>Gold Coast site n (%)</th>
<th>Wagga Wagga site n (%)</th>
<th>Total n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>36 ± 13</td>
<td>36 ±13</td>
<td>41 ±15</td>
<td></td>
</tr>
<tr>
<td>Years having worked as a pharmacy assistant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 1 year</td>
<td>5 (5)</td>
<td>1 (3)</td>
<td>0</td>
<td>7 (6)</td>
</tr>
<tr>
<td>1-5 years</td>
<td>21 (31)</td>
<td>19 (49)</td>
<td>1 (20)</td>
<td>41 (37)</td>
</tr>
<tr>
<td>6-10 years</td>
<td>17 (25)</td>
<td>5 (13)</td>
<td>0</td>
<td>22 (20)</td>
</tr>
<tr>
<td>11-20 years</td>
<td>10 (9)</td>
<td>7 (18)</td>
<td>1 (20)</td>
<td>18 (16)</td>
</tr>
<tr>
<td>&gt; 20 years</td>
<td>13 (12)</td>
<td>7 (18)</td>
<td>3 (60)</td>
<td>23 (21)</td>
</tr>
</tbody>
</table>

*% are rounded to the nearest whole number

Personal use of a complementary medicine

Overall 97% of respondents had used a complementary medicine within the past 12 months with most (60%) indicating frequent use, 24% indicating use ‘sometimes’, 13% ‘occasionally’ and 3% ‘never’. More respondents from the Melbourne site used complementary medicines ‘sometimes’ than respondents from the other sites (32% Vic, 7% Qld, 0% NSW; p=0.0178) (see Figure 16)
The majority of pharmacy assistants (86%) in this study had received some form of training in CM. The most frequently cited training opportunity was attendance at seminar by product manufacturers (Figure 17) and approximately half the respondents (51%) indicated receiving two or more different forms of training about CMs. Among the ‘other’ items listed by respondents were in-store personal training from a manufacturer’s representative (n=2), online therapeutics training (n=2), certificates from vitamin companies (n=2) and school biology (n=2). There were no differences based on study site in terms of training in CMs (see figure 17).

Customer enquiries regarding CMs

All pharmacies where respondents worked stocked CM products, with most stocking a wide range of products (71%). A quarter (25%) stocked a limited range, 10% included ‘practitioner only’ CM products and 10% included liquid herbal medicines.

Respondents described themselves as confident in discussing CM with customers and those with prior training in CM were more confident than those without training Figure 19 Confidence of pharmacy assistants, with and without prior training, to discuss CMs with customers. Most pharmacy assistants indicated they received at least 5-9 enquires/week about CMs during the past month (5-9 enquiries/week (28%); 10-19 enquiries/week (34%); >20 enquiries/week (22%). Only one person indicated not recalling any CM enquires in the past month. There was no statistically significant relationship between confidence and the number of enquires/week.
Interactions with pharmacist about customer CM enquiries

Pharmacy assistants were most likely to refer customer queries about CMs to the pharmacist (67%), followed by the in-store naturopath (20%), manufacturer help-line (16%) or off-site naturopath (6%). Approximately a quarter (28%) did not feel the need to refer to other individuals as they were confident in answering the questions themselves (all but 1 of these individuals had prior training in CM). Among the other individuals pharmacy assistants would refer to were senior or more experience staff or vitamin consultants.

The data on the types of enquires that pharmacy assistant receive and those that they would refer to the pharmacist are shown in figure 20. In general those enquiries about medication interactions, CM side-effects and safety were referred to the pharmacist while questions about dose and product recommendations were handled by the pharmacy assistant. Included in the ‘other’ category were questions about price, combinations of CM products and time taken for a product to be effective. Those with CM training were more likely to refer questions on
medication interactions to the pharmacist (90% vs. 69%; p=0.04) but were less likely to look for information on side-effects (43% vs. 77%; p=0.02) compared with those not having received training (see Chapter Five for further information).

Pharmacy assistants were asked for their opinion about the usefulness of information given by pharmacists regarding CMs. The information for pharmacists on CMs was generally seen as useful with only 4 individuals indicating they don’t receive any information from the pharmacist. Usefulness of information ranged from somewhat or moderately useful (23%) to mostly or very useful (73%).

![Type of questions about CM](image)

**Figure 20** Types of enquiries received by pharmacy assistants referred on to pharmacists

Looking for information about CMs

Pharmacy assistants were asked a series of questions about their information seeking behaviours with respect to CMs with the data shown in Figures 21 and 22 and Table 18. These individuals were frequently looking for information on CM (67% several times per month or more frequently), the information sought was primarily in relation to CM uses and drug interactions (both cited by 69% of respondents). The pharmacist (64%), shelf labels and product information brochures (55%) were the main sources of information. While almost all (93%) respondents felt the information sources were adequate, a greater percentage of those with prior training agreed with this statement (95% vs. 77%; p=0.02). There were few other differences in information seeking behaviour between those with prior training and those without. A higher percentage of those without training indicated that they had not looked for CM information in the past 12 months (23% vs. 4%; p=0.036) and that they were seeking information about side effects (77% vs. 43%; p=0.02).
Figure 21  Frequency of need to look for information on CMs during the last 12 months

Table 18  Types of information about CMs pharmacy assistants are generally looking for

<table>
<thead>
<tr>
<th>Information</th>
<th>N = respondents (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>What it is used for</td>
<td>77 (69)</td>
</tr>
<tr>
<td>Drug interactions</td>
<td>77 (69)</td>
</tr>
<tr>
<td>Dosage</td>
<td>59 (53)</td>
</tr>
<tr>
<td>Precautions &amp; safety information</td>
<td>58 (52)</td>
</tr>
<tr>
<td>Side effects</td>
<td>52 (46)</td>
</tr>
<tr>
<td>Evidence of effectiveness</td>
<td>44 (39)</td>
</tr>
<tr>
<td>Does not look for information</td>
<td>1 (1)</td>
</tr>
</tbody>
</table>

Figure 22  Sources of CM information
When considering information sources about CM products the most important factors were that they were updated frequently and that they contained both traditional and scientific information (table 19).

Table 19 Factors pharmacy assistants consider important to assess CM information (maximum 3 responses possible)

<table>
<thead>
<tr>
<th>Factor</th>
<th>N (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Updated frequently</td>
<td>49 (47)</td>
</tr>
<tr>
<td>Contains both traditional and scientific information</td>
<td>45 (43)</td>
</tr>
<tr>
<td>Information has a scientific basis</td>
<td>38 (37)</td>
</tr>
<tr>
<td>Endorsed by the PSA or other educational organisation</td>
<td>34 (33)</td>
</tr>
<tr>
<td>Contains information about a wide range of CMs – those with evidence as well as those without</td>
<td>33 (32)</td>
</tr>
<tr>
<td>Available online or on desktop computer</td>
<td>29 (28)</td>
</tr>
<tr>
<td>Available as a textbook or hardcopy</td>
<td>22 (21)</td>
</tr>
<tr>
<td>Is an Australian information source</td>
<td>21 (20)</td>
</tr>
<tr>
<td>Available at no cost</td>
<td>19 (18)</td>
</tr>
<tr>
<td>Produced by an Australian manufacturer</td>
<td>15 (14)</td>
</tr>
<tr>
<td>Not produced by manufacturing companies</td>
<td>7 (7)</td>
</tr>
</tbody>
</table>

* % of total respondents

RecommendCM products in the pharmacy

Based on the experience of pharmacy assistant respondents it was pharmacy assistants who most frequently recommended CM products in the pharmacy (69%), followed by pharmacists (58%), specially trained CM assistants (21%), an in-store natural medicine practitioner (13%) or a combination of all of these (19%). One person indicated that no-one recommended products and customers self-served with respect to purchase of CM products.

Just over half (56%) of respondents indicated that they had frequently recommended a CM product in the past 12 months. One person had not recommended a CM product with the remainder either sometimes (30%) or occasionally (11%) recommended a CM product.

Pharmacy assistants were also asked to indicate the factors that influenced (figure 23) or prevented them recommending CM products (figure 24). The greatest influence was reputation for quality and brand familiarity while lack of knowledge was the most cited reason for not recommending CM products. Among the ‘other’ reasons given which prevented them recommending CMs were presence of an in-store naturopath or other qualified staff, cost of product and limited range of products available in store.
Figure 23  Percentage of pharmacy assistants citing each of the listed influences on recommendation of CM products

- Other reasons
- The quality of products is substandard
- I have limited opportunity to discuss them with customers
- Other pharmacy staff recommend them
- I lack sufficient information sources to recommend them
- I lack sufficient knowledge to recommend them
- I don’t believe these products are effective

Figure 24  Factors that prevent pharmacy assistants from recommending CM products

In terms of the types of information that pharmacy assistants provided to customers about CM products, most provided information from their own knowledge followed by information from product labels and information leaflets/books (Table 20). Those with prior training more frequently cited relying on their own knowledge (78% vs. 31%; p=0.0003).
Table 20 Information about CM products provided by pharmacy assistants to customers (maximum 3 responses possible)

<table>
<thead>
<tr>
<th>Information</th>
<th>N (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information from own knowledge</td>
<td>82 (75)</td>
</tr>
<tr>
<td>I rely on product information leaflets/books</td>
<td>60 (55)</td>
</tr>
<tr>
<td>I rely on label information</td>
<td>56 (51)</td>
</tr>
<tr>
<td>Feedback stories from other customers</td>
<td>48 (44)</td>
</tr>
<tr>
<td>Information of textbooks, internet &amp; journals</td>
<td>46 (42)</td>
</tr>
<tr>
<td>I rely on shelf talker information</td>
<td>12 (11)</td>
</tr>
<tr>
<td>Do not provide additional information</td>
<td>2 (2)</td>
</tr>
</tbody>
</table>

* % of total respondents

Pharmacy integration with complementary medicine

Most respondents agreed that the main pharmacy where they were employed was either fully (50%) or partly (38%) engaged in providing integrative care (i.e. where recommending CM products together with conventional medicine is standard practice). Four respondents (4%) didn’t know and 7% felt that their pharmacy did not provide integrative care.

Two thirds (68%) of pharmacies where pharmacy assistants worked did not employ a naturopath. For those pharmacies where naturopaths were employed, their main role was thought to be quick consultations on the shop floor (84%), specialist CM product sales (71%), and general shopfloor sales of all pharmacy products (65%). Other roles were long consultations in a private room (48%) or providing staff education (36%). All pharmacy assistants working in pharmacies which employed a naturopath felt that this was a useful service for both the pharmacy and customers.

CM products, prescribed medicines and adverse reactions

On a day-to-day basis the most frequent interactions with customers with respect to CM products relate to requests for advice from customers and recommendations for CM products provided by the pharmacy assistants (Figure 25). In contrast referral of customers’ queries about CM products to pharmacists and customers presenting with medical recommendations for a CM were less frequent.
Only 18% of pharmacy assistants indicated that they always ask customers about concurrent use of prescribed medications and CM products; 19% ‘often’ ask, most (40%) ‘sometimes’ ask, 18% ‘rarely’ ask and 4% ‘never’ ask about this concurrent use. There was no statistically significant difference between those with or without prior CM training.

Of those who do not always ask about prescribed and CM product use, the most frequently cited reasons for not asking were a lack of opportunity to ask (36%), forgetting (30%) and not thinking it was relevant (23%). Other reasons included assuming customers would disclose this information (21%), lack of confidence in discussing CMs (17%) and it being too time consuming (16%).

Only 17% of pharmacy assistants in this study indicated that a customer had reported an adverse drug reaction to them; and the most frequent response to receiving this information was to refer the customer to the pharmacist (63%). A third (31%) would notify the product manufacturer, 26% would refer the customer to a medical doctor while 11% would do nothing.

### Awareness and knowledge of commonly used CMs

Respondents were asked to rate their own knowledge of a range of common CM products and indicate whether these products had proven clinical benefits for four nominated conditions (i.e. osteoarthritis, upper respiratory tract infections, diarrhoea, cardiovascular diseases). Pharmacy assistants with previous training had higher self-rated knowledge (Figure 26).

Knowledge of the clinically proven benefit of five common over-the-counter CMs and four specific therapeutic outcomes were assessed. Pharmacy assistants scored a mean of 12 out of a possible maximum score of 23 (53%).

The greatest uncertainty with respect to clinical benefits was reported for the use of probiotics, echinacea and coenzyme Q10 in most conditions.
Pharmacy assistants in this study generally agreed with the attitudinal statements provided relating to CM products within pharmacies (Table 21). CM products are an important part of the financial business of the pharmacy, pharmacists and pharmacy assistants have a place in advising customers about CM products and there is confidence about the quality of available products. Respondents were less certain about the level of CM product regulation in Australia and whether pharmacists or pharmacy assistants gave better advice about CM products.

**Table 21 Responses to attitudinal statements about CMs and pharmacy practice**

<table>
<thead>
<tr>
<th>N (%)</th>
<th>SA</th>
<th>A</th>
<th>U</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM products are an important part of the financial business of retail pharmacy</td>
<td>58 (54)</td>
<td>45 (42)</td>
<td>5 (5)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Customers are now expecting more information about CM products from pharmacy staff than 5 years ago</td>
<td>64 (59)</td>
<td>37 (34)</td>
<td>6 (6)</td>
<td>1 (1)</td>
<td>0</td>
</tr>
<tr>
<td>Pharmacists have a professional responsibility to counsel customers about CM products</td>
<td>41 (38)</td>
<td>54 (50)</td>
<td>12 (11)</td>
<td>1 (1)</td>
<td>0</td>
</tr>
<tr>
<td>Pharmacy assistants have a professional responsibility to counsel customers about CM products</td>
<td>42 (39)</td>
<td>53 (50)</td>
<td>10 (9)</td>
<td>2 (2)</td>
<td>0</td>
</tr>
<tr>
<td>Pharmacists should play a greater role in proving customers with safety and drug interaction information about CM products</td>
<td>49 (45)</td>
<td>49 (45)</td>
<td>8 (7)</td>
<td>2 (2)</td>
<td>0</td>
</tr>
<tr>
<td>Pharmacists should play a greater role in recommending CM products</td>
<td>35 (33)</td>
<td>50 (47)</td>
<td>15 (14)</td>
<td>6 (6)</td>
<td>0</td>
</tr>
<tr>
<td>I am confident about the quality of Australian made CM products</td>
<td>34 (32)</td>
<td>54 (51)</td>
<td>17 (16)</td>
<td>2 (2)</td>
<td>0</td>
</tr>
</tbody>
</table>
Training and future education

Almost all (90%) respondents were interested in more CM training and would prefer face-to-face seminars (65%) as the delivery method. Other delivery methods were endorsed by a third of respondents or fewer: online short courses (35%), self-directed learning through journals (26%) and weekend workshops (10%). The group most favoured to offer this training were CM manufacturers (55%) followed by the Pharmaceutical Society/Pharmacy Guild (38%), a CM training college (26%) and Australian universities (12%).

Discussion

In this phase of the study we found that almost all (97%) of pharmacy assistants has used a CM in the past 12 months, many had undergone some form of training in CM and 90% were interested in further training. While the Australian National Training Packages (certificate level) for pharmacy assistants include an elective option on provision of information, products and services in relation to complementary medicines there is little other explicit discussion about the role of pharmacy assistants with respect to CMs. Indeed there is very little published literature on the role of pharmacy assistants generally and to our knowledge this is the first study to examine the use and attitudes towards CMs by pharmacy assistants.

A strong theme from this group was the involvement of CM product manufacturers in both the provision of past training as a source of current CM information and as a favoured source of future training. Whether this involvement strengthens the overall CM knowledge base of pharmacy assistants generally or whether it results in promotion of specific manufacturers products is unknown and an area which may require further attention to ensure that customers are receiving both balanced and high quality CM information.

Although the sample size in this study of pharmacy assistants is small there is little doubt that this group see themselves as confident and capable of providing CM information with 76% completely or very confident in discussing CM with customers and 76% indicating that the information they provide to customers about CM products is from their own knowledge. These individuals were also most frequently asked about, and provided, CM product recommendations; this is consistent with two other studies which also noted the role of pharmacy assistants in recommending CM products. The 2004 Pharmacy Guild of Australia Workforce and Career Options for Pharmacy Assistants report reported that both pharmacists/pharmacy managers and pharmacy assistants saw a major role of assistants in providing advice on CMs such as vitamins. Further, pharmacists/pharmacy managers reported that there was capacity for this role to be extended past the current level. Wright and Emmerton (2003) also reported that 22% of supplement purchases involved a pharmacy assistant; this was greater than for pharmacists (4%) and similar to that for in-store naturopaths (26%). In addition involvement of pharmacy assistants was greater when customers were purchasing products for another person rather than themselves (32% vs. 19%).
Despite this frequent role as CM product recommenders data from the self-rated-knowledge and proven knowledge component of the survey suggest that while confident, pharmacy assistants’ knowledge may not be strong enough to support the role they play in product recommendation. This is an opportunity for educative strategies which will strengthen and perhaps extend the role of pharmacy assistants.

While the apparent mismatch between the frequency of customer interaction with pharmacy assistants about CMs and levels of knowledge it is perhaps reassuring that the respondents in this survey also reported referral of CM questions to pharmacists and/or naturopaths. Question related to safety in pregnancy & breast feeding, use in children, side-effects and medication interactions were the types of enquires most frequently referred to pharmacists rather than addressed by the pharmacy assistant themselves. Whether this is due to a self-acknowledged lack of knowledge about CMs or simply a reflection of the normal pattern of enquiry referral within pharmacies is unknown. Pharmacists were also the main source of information on CM products and the main site of referral about adverse reactions for pharmacy assistants, further highlighting the need for pharmacist to be well informed on all aspects of CM products.

At a more macro level pharmacy assistants saw that CMs were an important part of the financial business of the pharmacy. Pharmacists and pharmacy assistant were both perceived to have professional responsibilities to provide customers with information and advice about CM products. Interestingly although pharmacy assistants reported being confident and knowledgeable about CM, that they have a prime role in recommending CMs, they also saw a need for a greater role in recommending CM products by pharmacists. This perhaps also reflects the general uncertain response to the question about whether pharmacists or pharmacy assistants gave better advice on CMs (27% thought pharmacy assistants gave better advice, 37% unsure, and 36% felt pharmacists gave better advice).

There is little doubt that pharmacy assistants are open to use of CMs themselves, they are also confident about their CM knowledge and a main source of CM information for pharmacy customers. However we have also shown that this knowledge comes primarily from, and is sought from, product manufacturers and that pharmacy assistants’ knowledge may not be sufficiently strong to warrant their central role in CM recommendations. To ensure customers have access to the best CM information pharmacy assistants require access to impartial and appropriate CM product training. The pivotal role of pharmacists as a referral and information source about CMs for pharmacy assistants emphasises also the importance of pharmacists having a high level of knowledge about these products. This data suggest that training and education programs of pharmacy assistants should be reviewed to enhance coverage of CM products and CM information sources.

References

(2) Pharmacy Guild of Australia Workforce and Career Options for Pharmacy Assistants (2004)
Chapter Four

Phase 6: Naturopath and Western herbalist questionnaire

This chapter provides background information about the naturopathic workforce in Australia and then describes the aims of the naturopath/herbalist survey, methodology used, survey results and discussion.

A brief literature review is presented in the first section of this chapter to provide background information and an introduction to the key issues explored in the naturopath study phase of the ‘Investigating the Integration of CMs Into Community Pharmacy’ study.

The subsequent sections describe the aims and objectives of the customer survey, the methodology used, main results obtained and a discussion of the findings.

Background

Naturopathy emerged in Australia early in the twentieth century, beginning with a few key individuals who trained in Britain before bringing their skills to Australia. The National Herbalists Association of Australia was founded in 1920 and a number of private training colleges were established from the 1950s onwards. The rapid growth of the practice and professions of naturopathy and WHM from the 1970s onwards was part of the holistic health movement which initiated in California.¹

Educational courses in naturopathy and WHM were formally recognised by the federal government in 1992 with the implementation of National Health Training Packages and authorisation of some private colleges to offer Advanced Diploma and Degree courses in naturopathy and WHM.¹

Whereas naturopathic physicians have either "licensure" or state-mandated "registration" in 13 US states and four Canadian provinces, naturopaths in Australia have thus far failed to obtain "statutory registration" in any political jurisdiction, despite the fact that chiropractors and osteopaths have done so in all Australian states and territories, and acupuncturists and Traditional Chinese Medicine practitioners have done so in the state of Victoria. Ironically, naturopathy and various other complementary medical systems are taught in many public tertiary institutions.¹

Although naturopathy and WHM are not registered professions in Australia, there are some self regulatory mechanisms in place that encourage practitioners to gain formal qualifications with higher degrees. In particular, appropriately qualified practitioners are accepted into professional associations which entitle members to access a full range of CM products (especially good quality herbal tinctures and ‘practitioner only’ lines of nutritional supplements) through provision of a TGA exemption certificate, to acquire professional indemnity insurance, and to register with private health insurance companies which enables clients to receive rebates on consultation fees. Professional associations do not have uniform requirements for membership but tend to encourage diploma level qualification as a minimum standard.²

Naturopaths and Western herbalists are not necessarily the same

Whilst these two professions are not exactly the same, the differences in training and practice approach between naturopathy and Western herbal medicine (WHM) may not be overtly apparent to the wider community or pharmacy profession. Both professions receive similar training in philosophy, principles and practice of naturopathy. Guiding this practice is an underlying belief in the body’s inherent healing capacity. Diagnosis and treatment is individualised and holistic. Training in naturopathy always includes the study of Western herbal medicine, whereas Western herbalists’ education may not incorporate studies in other modalities such as nutritional medicine. However there are enough similarities and overlap between these two professions to enable meaningful discussion of them together. Indeed self identification as both a naturopath and WHM practitioner is likely to occur.³,⁴
Characteristics of the workforce

According to a workforce survey, the practices of naturopathy and Western herbal medicine make up a sizeable component of the Australian healthcare sector, with approximately 1.9 million consultations annually and an estimated turnover of $AUD 85 million in consultations (excluding the cost of the medicines). A large proportion of patients seen in this setting are referred by word of mouth and up to one-third work in multi-disciplinary clinics with other registered sectors of the healthcare community. The Australian Bureau of Statistics found that in 2006, 2982 Australians identified themselves as a naturopath however the number of herbalists was not reported.

Acceptance and confidence in naturopaths and herbalists

Consumer confidence in naturopath/herbalists’ professionalism is not necessarily shared by conventional health care professionals such as pharmacists and medical practitioners as few report having personally utilised their services. This may be partly due to the variable level and quality of training practitioners receive. Certainly courses in naturopathy or WHM vary in content and contact hours, although nearly all undergraduate courses are government accredited. Most formally qualified practitioners have either an advanced diploma or bachelor degree from either private or public tertiary colleges.

The interface between pharmacy practice and naturopathic practitioners

Over the last decade there appears to be a trend for some CM manufacturers to utilise naturopathic practitioners in their pharmacy education courses and as ‘visiting’ practitioners consulting patients at different pharmacies. In some cases, naturopaths are employed directly by the pharmacy and provide services on a regular basis.

To date there has been little investigation into the interface that is developing between naturopaths and pharmacy practice, the extent of naturopathic employment in pharmacy or a description of the services they provide. There has also been little exploration about the potential value of this form of integration and pharmacist attitudes to this model of practice.

During phase one of this project, it was revealed that 65% of pharmacy customers using CMs thought it important for a natural therapist to be located in pharmacy. Similarly when the total sample was asked a similar question, 58% of pharmacy customers thought pharmacies which stock CMs should also employ a CM practitioner.

Similar interest was expressed by several pharmacists during the pharmacist focus groups. Of note, pharmacists that had worked in stores where naturopaths were present gave positive reports about this arrangement stating that naturopaths could field customer queries about CMs when they could not because of lack of knowledge or time.

As a result, several questions about working collaboratively with naturopaths were included in the national pharmacist study to determine what the overall response was from a larger group of pharmacists. Once again, those pharmacists that had worked with naturopaths gave positive feedback and approximately half of the entire pharmacist sample indicated they would consider employing a naturopath in future.

Based on these combined findings and the paucity of information available describing the interface between naturopathy and pharmacy practice in Australia, it was decided to expand this project to incorporate a national survey of Australian naturopaths and Western herbalists.

Aims

The primary aim of this survey was to identify the prevalence of naturopaths and Western herbalists working within the pharmacy setting and their role within this setting. Secondary aims included investigating naturopaths/Western herbalists’ knowledge about the evidence base of CMs commonly used by pharmacy customers, the information sources used by this group, their attitudes to integration within the pharmacy setting, and the incidence of referrals to pharmacists and medical practitioners.

Methodology

Survey development

An anonymous, self-administered questionnaire was developed, modified from the questionnaire used in Phase 4 and adapted elements from the NPS 2008 report. It included demographic information, information about training and education, current work practice, attitudes to working in retail pharmacy, referral between naturopaths /
Western herbalists and pharmacists, knowledge of CMs, information sources, and attitudes to registration of the professions. The questionnaire was pre-tested by a convenience sample of naturopaths/Western herbalists from the Board of the National Herbalist Association of Australia (NHAA). Based on this feedback, the questionnaire was modified to form the final version (Appendix H).

Sampling and data collection

Unlike pharmacists, there is no single registration board for naturopaths or Western herbalists so there is no centralised database available for sampling. A sample size of 400 was required to enable statistically valid data interpretation. In order to access as many practitioners as possible, the four major professional associations widely accepted to have the majority of naturopaths and Western herbalists as members were contacted. These were the National Herbalists Association of Australia (NHAA), the Australia Naturopathic Practitioner Association (ANPA), the Australian Traditional Medicine Society (ATMS) and the Australia Natural Therapist Association (ANTA). Researchers discussed the project in full with the Presidents or Secretaries of these four associations and asked whether their organisations would distribute the ‘invitation to participate’ letter to their members so they would be aware of the online survey. Within 3 weeks of the initial conversations, researchers made follow up contact with associations for confirmation of their support. Two associations agreed to recruit members for the project (NHAA and ANPA). Recruitment networks were then expanded to include account holders of major CM product wholesalers and distributors. Each of these organisations sent emails to the naturopaths/herbalists on their mailing lists inviting them to participate in the survey. The email contained an introductory letter explaining the project and directions to an online survey via a link to the homepage of the Alfred Hospital’s website.

Data collection took place over 5 weeks in March and April 2009. The questionnaire took approximately 15 minutes to complete and participants entered data directly and anonymously into an online survey. Consent was assumed upon agreement to complete the survey questionnaire. No additional contact was made with survey recipients.

Results

Response rate and demographics

A total of 479 naturopaths and/or Western herbalists completed the survey. A response rate could not be calculated because a denominator is not known. Based on ABS statistics, 2,982 Australian identified themselves as a naturopath in 2006 \(^8\) however the number of herbalists was not reported.

More women participated in the survey than men (84% vs. 16%) and participants ranged in age from 21 years to over 70 with 77% between the ages of 30-59 years. Further demographic data is presented in Table 22.

<table>
<thead>
<tr>
<th>Table 22 Demographic data on naturopaths/herbalists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>Men</td>
</tr>
<tr>
<td>Women</td>
</tr>
<tr>
<td>Not reported</td>
</tr>
<tr>
<td><strong>Total number of respondents</strong></td>
</tr>
<tr>
<td>Age (years)</td>
</tr>
<tr>
<td>20-29</td>
</tr>
<tr>
<td>30-39</td>
</tr>
<tr>
<td>40-49</td>
</tr>
<tr>
<td>50-59</td>
</tr>
<tr>
<td>60+</td>
</tr>
</tbody>
</table>

*% of total respondents
Education

When asked for their highest level of qualification in naturopathy/herbal medicine, 37% reported having obtained an advanced diploma, 42% an undergraduate degree, 15% a postgraduate diploma, 4% a master’s degree and 1% a PhD qualification. Sixty-two percent of participants had graduated within the last decade.

Data about training and years since graduation are presented in Table 23.
Table 23 Qualification levels and graduation data for naturopaths/herbalists

<table>
<thead>
<tr>
<th>Highest level of qualification in naturopathy / herbal medicine</th>
<th>N (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate</td>
<td>1 (0)</td>
</tr>
<tr>
<td>Advanced diploma</td>
<td>172 (36)</td>
</tr>
<tr>
<td>Undergraduate degree</td>
<td>191 (40)</td>
</tr>
<tr>
<td>Graduate diploma</td>
<td>71 (15)</td>
</tr>
<tr>
<td>Masters degree</td>
<td>19 (4)</td>
</tr>
<tr>
<td>PhD</td>
<td>6 (1)</td>
</tr>
<tr>
<td>Not reported</td>
<td>19 (4)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year of graduation</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005 – 2009</td>
<td>156 (33)</td>
</tr>
<tr>
<td>2000 - 2004</td>
<td>139 (29)</td>
</tr>
<tr>
<td>1995 - 1999</td>
<td>65 (14)</td>
</tr>
<tr>
<td>1990 - 1994</td>
<td>64 (13)</td>
</tr>
<tr>
<td>1980 - 1989</td>
<td>50 (10)</td>
</tr>
<tr>
<td>Before 1980</td>
<td>5 (1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Graduating institution (6 most common)</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endeavour College / Australian College Natural Medicine / Melbourne College Natural Medicine, multi-sites</td>
<td>113 (24)</td>
</tr>
<tr>
<td>Southern School of Natural Therapies, Vic</td>
<td>62 (13)</td>
</tr>
<tr>
<td>Nature Care College, NSW</td>
<td>47 (10)</td>
</tr>
<tr>
<td>Southern Cross University, NSW</td>
<td>36 (8)</td>
</tr>
<tr>
<td>Australasian College of Natural Therapies / University New England, NSW</td>
<td>36 (8)</td>
</tr>
<tr>
<td>Charles Sturt University, multi-sites, NSW</td>
<td>30 (6)</td>
</tr>
<tr>
<td>Other</td>
<td>155 (31)</td>
</tr>
</tbody>
</table>

*% of total respondents

Recent graduates (less than 5 years since graduation) were more likely to have attained an undergraduate degree qualification rather than a lesser qualification (54% vs. 28%; p<0.0001). Practitioners that graduated 5 years ago or more were significantly more likely to have a graduate diploma compared to more recent graduates (22% vs. 7%; p<0.0001).

Information about current practice

Nearly all survey participants (95%) were currently in practice, 69% either working alone or with other CM providers and 7% (n= 31) listed pharmacy as their main place of practice. Table 24 provides further information about place of practice and Figure 27 lists practitioner’s years in practice.
Table 24 Main place of practice for naturopaths/herbalists

<table>
<thead>
<tr>
<th>Main place of practice</th>
<th>N (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multidisciplinary clinic with other CM practitioners</td>
<td>137 (30)</td>
</tr>
<tr>
<td>Naturopathy / herbal medicine clinic as solo practitioner</td>
<td>103 (22)</td>
</tr>
<tr>
<td>Home-based clinic</td>
<td>79 (17)</td>
</tr>
<tr>
<td>In industry (e.g. sales representative)</td>
<td>36 (8)</td>
</tr>
<tr>
<td>In a pharmacy</td>
<td>31 (7)</td>
</tr>
<tr>
<td>Not currently in practice</td>
<td>26 (6)</td>
</tr>
<tr>
<td>Multidisciplinary clinic with medical practitioners</td>
<td>20 (4)</td>
</tr>
<tr>
<td>Other</td>
<td>31 (7)</td>
</tr>
<tr>
<td>Not reported</td>
<td>16 (3)</td>
</tr>
</tbody>
</table>

*% of total respondents

Figure 27  Naturopath/herbalist respondents’ years in practice

Working in community pharmacy

Of the total sample, 24% (n=111) reported that they had at some time worked in community pharmacy, the majority (75%) for less than 5 years. Of those that have ever worked in pharmacy one third (33%, n=37) were currently working in pharmacy. When the whole sample was asked if they would consider working as a naturopath/herbalist in a retail pharmacy, 38% said they would. More than two-thirds of naturopaths / herbalists viewed their in-store service in pharmacies as valuable (Table 25).

Table 25 Self-perception of value of service provided by in-store naturopaths/herbalists

<table>
<thead>
<tr>
<th>Perception of value of service naturopath provided in-store</th>
<th>N (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valuable</td>
<td>66 (68)</td>
</tr>
<tr>
<td>Somewhat valuable</td>
<td>19 (20)</td>
</tr>
<tr>
<td>Not sure how valuable</td>
<td>7 (7)</td>
</tr>
<tr>
<td>Not valuable</td>
<td>2 (2)</td>
</tr>
</tbody>
</table>

*% of total respondents
Pharmacy work - hours and salaries

Forty-six percent of participants employed in pharmacies were paid an hourly rate and 42% received a regular wage as a casual or permanent staff member. Table 26 provides further information about remuneration and average number of hours practitioners were employed in pharmacies.

### Table 26 Salary and hours in pharmacy work for naturopaths/herbalists

<table>
<thead>
<tr>
<th>Average hours / week worked in pharmacy</th>
<th>N (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 5</td>
<td>5 (5)</td>
</tr>
<tr>
<td>5-15</td>
<td>24 (24)</td>
</tr>
<tr>
<td>16-24</td>
<td>25 (25)</td>
</tr>
<tr>
<td>25-34</td>
<td>17 (17)</td>
</tr>
<tr>
<td>35+</td>
<td>28 (28)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wage / hour for pharmacy work</th>
<th>N (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>$10-14</td>
<td>11 (12)</td>
</tr>
<tr>
<td>$15-19</td>
<td>26 (29)</td>
</tr>
<tr>
<td>$20-24</td>
<td>24 (27)</td>
</tr>
<tr>
<td>$25-29</td>
<td>14 (16)</td>
</tr>
<tr>
<td>$30-34</td>
<td>9 (10)</td>
</tr>
<tr>
<td>$35-39</td>
<td>2 (2)</td>
</tr>
<tr>
<td>$40+</td>
<td>3 (3)</td>
</tr>
</tbody>
</table>

*% of total respondents

It is unclear whether these hourly rates correspond to net or gross salaries, or to after hours work schedules.

Two thirds (66%) of respondents found their pay structure unsatisfactory, with the majority wanting a more regular or predictable weekly income and an hourly rate commensurate with other professionals with their level of qualification, i.e. greater than $25 per hour.

### Inter-referrals between pharmacists and naturopaths/herbalists in the pharmacy setting

In-store naturopaths reported that pharmacists were most likely to refer to them for CM product information (76%), other CM information such as therapies or dietary information (68%) and to provide customer service (68%).

In-store naturopaths themselves referred to pharmacists mainly for drug information (80%) and safety and drug interaction information (62%). Those naturopaths/herbalists who reported ever having worked in pharmacy were more likely to contact a pharmacist for drug or medical information (Figure 28).
Roles of naturopaths/Western herbalists in pharmacy

Naturopaths/Western herbalists reported having a variety of roles in pharmacies particularly conducting specialist CM product sales (74%) and quick consultations on the shop floor (62%) and 52% conducted long consultations in a private room, 51% provided staff education. Other roles included CM stock control, weight loss advice, dispensing of medicines (both CM and OTC drugs) and community education (including public talks, writing fact sheets, presenting on radio).

Experience of working in pharmacy

Naturopaths/herbalists' experiences of working in retail pharmacy were generally positive and associated with a positive learning experience. Free text comments further revealed that naturopaths with positive experiences of working in pharmacy generally appreciated the opportunity to utilise their specialist knowledge in the service of both customers and pharmacy staff. See Table 27 for more data.
**Table 27 Naturopath/herbalists’ experience of working in pharmacy**

<table>
<thead>
<tr>
<th>Description of experience of working in retail pharmacy</th>
<th>N (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learnt how to provide advice quickly</td>
<td>59 (59)</td>
</tr>
<tr>
<td>Learnt more about over-the-counter CM products</td>
<td>59 (59)</td>
</tr>
<tr>
<td>Learnt more about pharmaceutical medicines</td>
<td>58 (58)</td>
</tr>
<tr>
<td>Enjoyed being part of health team</td>
<td>47 (47)</td>
</tr>
<tr>
<td>Enjoyed working with pharmacist</td>
<td>46 (46)</td>
</tr>
<tr>
<td>Focus on sales was problematic</td>
<td>38 (38)</td>
</tr>
<tr>
<td>Work was not interesting enough</td>
<td>27 (27)</td>
</tr>
<tr>
<td>Did not enjoy it at all</td>
<td>16 (16)</td>
</tr>
</tbody>
</table>

*% of total respondents

Critical comments about their experiences of working in pharmacy were also received and themed around:

- Pharmacists - lack respect or support for CM practitioners, under-utilisation of CM practitioners’ skills and knowledge (18 comments)
- Pharmacy customers - naturopaths’ frustration at customers’ reluctance to follow recommendations for products or dietary/lifestyle advice, their occasional preference for cheap rather than good quality CM products (10 comments)
- Limitation of working within the retail setting – quick, on-floor consultations may be incompatible with provision of best practice naturopathic care (e.g. superficial symptomatic prescribing), lack of availability of ‘practitioner only’ CMs in store (14 comments)

**Integration of naturopaths/herbalists into pharmacy – opinions of the total sample**

Forty-four percent of participants (n=211) took the opportunity to comment in free text about the issue of integration of CMs and naturopaths / herbalists into pharmacy practice, indicating great interest in the area. The main concern raised by many respondents was how to integrate different paradigms of health care within pharmacy and the main solution offered was to employ suitably qualified natural therapists (naturopaths, herbalists) to guide this.

The key issues raised by naturopaths about integration were:

- Pharmacists and pharmacy assistants’ poor knowledge of CMs (35 comments)
- Qualified professionals should be available on staff to adequately and safely recommend CM products to pharmacy customers (49 comments)
- Symptomatic prescribing, which characterises much of pharmacy practice, was seen as incompatible with the naturopathic paradigm of individualised diagnosis and treatment plans focussing on identifying and treating causes and thereby requiring long consultations and follow-up (35 comments)

Suggestions were also made as to how these concerns could be addresses, including:

- Employing existing CM experts to safely recommend CM products to pharmacy customers, in partnership with pharmacists (62 comments)
- Offering respect, suitable remuneration, adequate time and space to conduct private consultations as needed, and customer referral to in-store naturopaths (32 comments)

Potential positive outcomes of further integration were commented upon:

- Communication and cross education between healthcare professionals (pharmacists and CM practitioners) would improve (21 comments)
- Integration would enable the provision of better health care for customers, i.e. more individualised, holistic, effective and safer use of CMs (14 comments)
Employment opportunities would open up for CM practitioners, either within pharmacy or as a point of referral (13 comments).

Fifty-seven percent of the whole sample stated they would not ever consider working as a naturopath/herbalist in a retail pharmacy. The reasons given to support this view included: perceived poor financial rewards, incongruence between naturopathy and pharmacy practice styles, poor quality CM products in pharmacy, pressure to sell CM products, feeling overqualified for shopfloor work, and lack of respect from pharmacists.

Attitudes to registration of the professions

When asked their opinion about whether naturopaths/herbalists should be formally registered to safeguard the public, the vast majority either agreed (27%, n=100) or strongly agreed (58%, n=213).

This question attracted a further 113 free text comments, indicating strong interest in the issue. A number of respondents were unclear about why registration was linked with the issue of public safety.

Knowledge of popular CMs

Naturopaths/herbalists were asked to provide responses to question about the proven clinical benefits of a select number of CMs for a select number of conditions. These questions were identical to those used in the national pharmacist survey.

Naturopaths/herbalists scored a mean of 24.0 out of a possible maximum correct score of 39 for the combined knowledge questions, including all responses to “clinically proven benefit” and “clinically significant interaction” questions. * Comparisons between pharmacists and naturopaths scores are presented in Chapter Five.

Sources of information about CMs

Naturopaths favoured CM-specific information sources over general medical or medicine resources. Further information is presented in Table 28.
Table 28 Sources of CM information for naturopaths/herbalists

<table>
<thead>
<tr>
<th>Sources of information</th>
<th>N (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM textbooks</td>
<td>280 (74)</td>
</tr>
<tr>
<td>Professional seminars, conferences, or lectures</td>
<td>253 (67)</td>
</tr>
<tr>
<td>CM journals</td>
<td>213 (57)</td>
</tr>
<tr>
<td>Databases (e.g. Pubmed/Medline)</td>
<td>182 (48)</td>
</tr>
<tr>
<td>Manufacturer literature, seminars, and/or representatives</td>
<td>163 (43)</td>
</tr>
<tr>
<td>Drug reference texts (e.g. MIMs)</td>
<td>124 (33)</td>
</tr>
<tr>
<td>Peer-reviewed medical journals</td>
<td>110 (29)</td>
</tr>
<tr>
<td>Naturopath / herbalist colleagues</td>
<td>96 (26)</td>
</tr>
<tr>
<td>Specific website/s</td>
<td>90 (24)</td>
</tr>
<tr>
<td>Medical reference texts</td>
<td>77 (20)</td>
</tr>
<tr>
<td>World Wide Web (e.g. Google)</td>
<td>63 (17)</td>
</tr>
<tr>
<td>Other</td>
<td>13 (3)</td>
</tr>
</tbody>
</table>

*% of total respondents (multiple answers possible)

Free text comments were received by 135 respondents about their favourite resources. The most popular sources of information are listed in Table 29.

Table 29 Popular sources of CM information

<table>
<thead>
<tr>
<th>CM texts</th>
<th>Herbs and Natural Supplements – an evidence based guide by Braun &amp; Cohen (n=31)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Various herbal medicine texts by K. Bone (n=21)</td>
</tr>
<tr>
<td></td>
<td>The Textbook of Natural Medicine by Pizzorno &amp; Murray (also online) (n=9)</td>
</tr>
<tr>
<td>Peer-reviewed journals</td>
<td>Journal of Complementary Medicine (n=11)</td>
</tr>
<tr>
<td></td>
<td>Other (n=7)</td>
</tr>
<tr>
<td>Manufacturer literature, websites and hotlines</td>
<td>Metagenics (Healthworld) (n=9)</td>
</tr>
<tr>
<td></td>
<td>Mediherb (n=6)</td>
</tr>
<tr>
<td></td>
<td>Others (n=11)</td>
</tr>
<tr>
<td>Databases</td>
<td>PubMed/Medline (n=20)</td>
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<tr>
<td></td>
<td>Hyperhealth (n=9)</td>
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<tr>
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<td>MIMs (n=7)</td>
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<tr>
<td>Websites</td>
<td>12 different ones (n=16)</td>
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The main factor considered important when assessing information about CM products was that the source contains both traditional and scientific information (82%). Other important factors included that it is updated frequently (52%), that the information has a scientific basis (50%), and that the source contains information about a wide range of CMs, those with evidence and those without (39%).
Evidence about CMs

Naturopaths/herbalists consider a number of sources of evidence to be essential or important: well documented traditional / historical use (99%), patient reports and feedback (97%), personal experience (97%), randomised controlled clinical trials (RCTs) with humans (94%), published case studies (89%), and epidemiological studies (84%).

Discussion

That recent graduates in naturopathy or WHM are more likely to have an undergraduate degree is a reflection of the changes in formal education opportunities for naturopaths/herbalists in the last 5 years. It is possible that one factor affecting pharmacists’ acceptance of naturopaths is a general lack of awareness of the educational standards they have attained. In this study approximately half of the community pharmacist sample (n=262) stated they would consider employing a naturopath/natural therapist if they had an appropriate tertiary qualification. This survey of naturopaths/herbalists demonstrates that a 62% hold a bachelor degree level or higher qualification. Whether this is considered sufficient training for pharmacists remains to be investigated.

Compared to the workforce survey of naturopaths/Western herbalists published in 2004, the results from this survey suggests that the number of naturopaths/herbalists with an undergraduate degree or higher qualification has grown. A 2008 study of education standards in naturopathy/Western herbalism demonstrated that both advanced diploma and bachelor degree courses in naturopathy/herbal medicine average 3 years full time study. We also found that 68% of respondents felt that their undergraduate training adequately prepared them for ‘real life’ practice.

It is uncertain, however, whether their education necessarily equips naturopaths/herbalists to work in pharmacy. This study shows that many (in this case 93%) of pharmacy customers had seen a medical practitioner within the previous 12 months and 61% were taking prescription medicines on a daily basis. Combined use of CMs and prescription medicines raises the potential risk of drug interactions. Naturopath/herbalist respondents scored a mean of 62% correct responses in the knowledge section of the survey which was significantly higher than pharmacists but may still be insufficient to provide a quality interaction-screening service to pharmacy customers. These findings require confirmation in future research.

There has been no previous research about the experiences of naturopaths/herbalists working in pharmacy. This study found that those naturopaths/herbalists with some history of working in pharmacy described the experience diversely, commonly commenting that the attitude of the pharmacists (owners or managers) was the most significant factor in whether the experience was a positive or negative one for them. For example,

“The experience] heavily depends on [the] philosophy of [the] pharmacy owner, [whether they are] supportive of CM or not; purely money motivated to move retail lines; willing or not to use best practise e.g. staff training, appropriate referral, forward-looking] dispensing practices with customer consultations and thorough case history prior to OTC sale if appropriate, [etc.]”.

Of the 24% participants who have ever worked in pharmacy most felt that their service was valuable or somewhat valuable and only 16% said they do/did not enjoy the experience at all. These results contradict the common perception within some of the professional associations of naturopaths/herbalists that the experience of working in pharmacy is largely negative.

This is the first study to estimate the prevalence of naturopaths/herbalists working in pharmacy and their role/s within this setting. The sample may, however, be skewed as those with a particular interest in pharmacy would perhaps have been more likely to participate in the survey at all.

Overall naturopaths/herbalists are uncomfortable with integration of CM into pharmacy although those that have worked in pharmacy generally found the experience positive. The two primary areas of contention that were raised by survey participants related to loss of individualised and holistic prescribing within a private, consultative setting and under-utilisation and acknowledgment of the specialist training and skills naturopaths have attained through their education and experience. Other issues raised related to naturopaths’ concerns about customer safety, appropriate prescribing by untrained pharmacy staff and limited availability of CMs perceived to be of higher quality than the general OTC CMs sold in pharmacies.

Based on these results the integration of a naturopathic service into pharmacy will be most successful if there is:

• mutual regard between naturopaths/herbalists and pharmacists as peer professionals
• adequate remuneration for naturopath/herbalist professional
• mediation / good communication between all parties
• adequate time and privacy to conduct long consultations
• referral of patients / customers from pharmacists
• integration of medical records

As the state registration boards of the pharmacy and medical professions amalgamate to form their own national boards, the discussion of registration is currently a major topic within the CM industry. Overwhelmingly the study participants were in favour of registration, suggesting that naturopaths have a desire to move towards greater professionalism.
References


(6) Braun L. Complementary medicines and hospitals - a focus on surgical patients and safety [ RMIT University; 2007.


(9) Coleman, B. Personal communication; 16/02/09
Chapter Five

Selected comparisons between pharmacists, pharmacy assistants and naturopaths/herbalists

Introduction

This study has given the investigators a rare opportunity to compare many common themes about CMs among the participant groups of this project. The questionnaires for the various professional groups were developed using similar and often identical questions, thereby allowing the investigators to compare and contrast attitudes, opinions and knowledge regarding CM within and between the pharmacy and naturopath/herbalist healthcare sector. In some instances findings from the consumer survey are included in the comparison.

Aims

The aim is to compare and contrast the responses to selected questions from within the study questionnaires to allow further understanding of similarities and differences between health professionals (pharmacists, pharmacy assistants and naturopath/herbalist) and consumers regarding CMs.

Analyses focused on key themes such as CM use, CM knowledge, sources of CM information, CM evidence, recommending CMs in pharmacies, in-store naturopath/herbalists, quality use of medicines, and further training in CMs.

The findings from the comparative analyses help to establish specific inter-professional guidelines taking into account each professional's group area of expertise and consumer expectation, thus ensuring best use of resources and optimal patient care.

Methodology

The responses to selected questions from within the study questionnaires were compared using appropriate statistical tests to identify similarities and differences between health professionals and consumers regarding CMs.
Results

Personal use of complementary medicines

The Pharmacy customer, Pharmacy assistant and Pharmacist questionnaires each contained the question “In the last 12 months, have you personally used a complementary medicine?” Personal use of CMs was higher among community pharmacists and pharmacy assistants than pharmacy customers (p<0.0001) and significantly lower for hospital pharmacists than all other groups (p<0.0001). (Figure 29).

![Figure 29 Recent use of CM products (%)](image)

**CM Knowledge**

**CM Knowledge: clinically proven benefit**

One part of the knowledge section in each of the Pharmacist, Pharmacy Assistant and Naturopath/Herbalist questionnaires, assessed respondents’ knowledge of the clinically proven benefit of common OTC CM products. Participants were asked whether the listed CMs had a clinically proven benefit for a given list of indications. Three possible responses: ‘yes’, ‘no’ and ‘unsure’ were given.

The correct knowledge scores (out of a potential maximum score of 23) for pharmacists and naturopaths/herbalists were not significantly different from each other, however, both pharmacists and naturopaths/herbalists were significantly higher than the pharmacy assistant scores (mean 15.2 (66%), 15.0 (65%) and 12.2 (53%) respectively; p<0.0001), see the ‘box and whisper’ plot presented as Figure 30. The upper and lower limits of the box represent 25 and 75 percentile (interquartile range) outliers are shown as dots: and ‘+’ represents the mean.
Figure 30  Knowledge of clinically proven benefit of common CM products

CM Knowledge: clinically significant interactions between specific CMs and other medications

The second part of the knowledge section, included in the Pharmacists and Naturopath questionnaires, assessed the respondents’ knowledge of common CM-drug interactions. Participants were asked whether an interaction existed between the listed CMs and a list of commonly used medications. Three possible responses: ‘yes’, ‘no’ and ‘unsure’ were given.

The correct total knowledge score (clinically proven benefit plus interactions questions, out of a potential maximum score of 39) for naturopaths/herbalists was significantly higher than pharmacists (mean 23.9 (61%) vs. 20.5 (53%); p<0.0001), see the ‘box and whisper’ plot represented by Figure 31. The upper and lower limits of the box represent 25 and 75 percentile (interquartile range) outliers are shown as dots; and ‘+’ represents the mean.

Figure 31  Knowledge of common CM-drug interactions plus clinically proven benefit of common CM products

These results should be interpreted cautiously, as there is scope for responder bias. Eight percent of pharmacists and 20% of naturopaths/herbalists did not answer these questions; it is possible that those with little knowledge of these questions were less likely to respond.

Sources and assessment of value of CM information

Overall, the majority of pharmacists (70%) considered it most important that the information about CMs have a scientific basis. More hospital than community pharmacists reported that it was important that CM information not be produced by CM product manufacturers (32% vs. 17%; p=0.0003). In addition, significantly fewer hospital
pharmacists found colleague recommendation, personal experience and customer feedback important compared with community pharmacists (22% vs. 43%; \( p<0.0001 \); 39% vs. 59%; \( p<0.0001 \); 43% vs. 64%; \( p<0.0001 \), respectively).

Professional reference texts such as MIMS, APP and the APF were used as sources of CM information by 56% of pharmacists, followed by CM textbooks (48%) and the internet (43%). In comparison to Australian trained pharmacists, significantly more overseas trained pharmacists relied on databases such as PubMed as an information source (36% vs. 19%; \( p=0.0001 \)). There was also more widespread use of online databases such as PubMed and Medline amongst naturopaths/herbalists compared to pharmacists (48% vs. 22%; \( p<0.001 \)). Conversely, fewer naturopaths/herbalists relied on the World Wide Web for CM information compared to either pharmacists or pharmacy assistants (17% vs. 43% vs. 29%, \( p<0.005 \)). Overall, the use of CM-specific information resources was more widespread amongst naturopaths/herbalists than pharmacists as more reported using CM textbooks (74% vs. 48%; \( p<0.001 \)) and/or CM journals (57% vs. 20%; \( p<0.001 \)) (see Figure 32).

![Figure 32 Main sources of CM information (% response per option)](image)

Compared with pharmacists, significantly more naturopaths/herbalists reported that information sources containing both scientific and traditional evidence about CMs (82% vs. 33%; \( p<0.0001 \)) and frequently updated resources (52% vs. 30%; \( p<0.0001 \)) were important to them.

Most pharmacists and pharmacy assistants gave customers information about CMs based on their own knowledge (80% and 75%, \( p=0.245 \)), however more pharmacists gave customers information about CMs from textbooks, journals or the internet (69% vs. 43%; \( p<0.0001 \)) compared to pharmacy assistants. A greater proportion of pharmacy assistants used feedback stories from other customers as information sources compared with pharmacists (44% vs. 25%; \( p=0.0001 \)).
Levels of evidence for CM information

Whilst most pharmacists and naturopaths/herbalists agreed that randomised controlled trials (RCTs) (96% vs. 93%; p=0.02) and epidemiological (population) studies (81% vs. 84%; p=0.19) were either essential or important sources of evidence for CMs; considerably more naturopaths/herbalists also valued personal experience (97% vs. 61%; p<0.001), patient/customer feedback (97% vs. 67%; p<0.001), and/or colleague recommendation (74% vs. 44%; p<0.001), see Figure 33.

![Figure 33](image-url)  'Essential' or 'important' sources of evidence about CMs (%response per option)

Recommending CMs in pharmacies

CMs are frequently recommended by both pharmacists and pharmacy assistants who also frequently receive customer queries about CMs.
Pharmacy assistants reported that they recommend CMs to customers more frequently than pharmacists (39% vs. 24%; p=0.001 for ≥1 recommendation/day), see Figure 34. Pharmacy assistants also reported that customers more frequently sought advice from them regarding CMs than was reported by pharmacists (45% vs. 31%; p=0.005 for ≥1 query/day).

![Figure 34 Frequency with which CMs are recommended](image)

### Barriers to recommending CMs in pharmacies

The most commonly reported barrier preventing pharmacists and pharmacy assistants from integrating appropriate recommendations for CM products into standard practice was having insufficient personal knowledge (52% and 54%, p=0.82). Perceived lack of effectiveness was a barrier for more pharmacists than pharmacy assistants (36% vs. 10%; p<0.001) and having insufficient information sources to recommend CMs (46% vs. 14%; p<0.001), see Figure 35.

![Figure 35 Barriers to recommending CMs](image)

### The utilisation and roles of in-pharmacy naturopath/herbalists

Pharmacists, pharmacy assistants and naturopaths each had similar perspectives on the many of the roles performed by in-store CM specialists (i.e. naturopaths/herbalists), including general shopfloor sales (p=0.06),
specialist CM product sales and advice (p=0.11), quick consultations (p=0.09) long consultations in a private room (p=0.016) and staff education/information (p=0.04) (see Figure 36). (Note: multiple responses were possible; the pharmacist questionnaire did not contain the same options as the pharmacy assistant and naturopath questionnaires).

Pharmacists who had experience working with a naturopath in pharmacy generally reported their service as valuable or somewhat valuable. Naturopaths themselves who had worked in pharmacies had a similar opinion about the value of their service in stores. Only a very small proportion of both professional groups found the service of no value to the pharmacy, see Figure 37.
Quality Use of Medicines

Drug Interactions
Pharmacists more frequently asked customers taking prescribed medicines if they also took CM products, than did pharmacy assistants (54% vs. 37%; p=0.001 for ‘always’ and ‘often’). The most common reasons for both pharmacists and pharmacy assistants not asking all customers with prescriptions about the concurrent use of CMs were that they ‘forget to ask’ (41% vs. 30%; p=0.04), have ‘no opportunity to ask’ (33% vs. 37%; p=0.50), or ‘don’t think it is relevant’ (26% vs. 23%; p=0.56).

Adverse reactions
Adverse reactions to a CM product had been experienced by 7% of pharmacy customers who reported that they used CMs. In regards to customers notifying pharmacy staff, 23% of pharmacists and 17% of pharmacy assistants stated that customers had told them about adverse reactions to CMs in the past. Pharmacy assistants most frequently referred these customers onto the pharmacist (in 63% of cases), who in turn most frequently made a notation in the patient’s notes/profile (in 73% of cases). Few pharmacists notified ADRAC (18%), a similar proportion to those who notified the product manufacturer (16%), p=0.64. about the adverse reaction.

Further training in CMs
Very few pharmacists had formal training about CMs and most had acquired knowledge about CMs through self directed learning (73%). Two thirds of pharmacy assistants, on the other hand, had acquired their knowledge of CMs through attendance at product manufacturers’ seminars.

The majority of both pharmacists (85%) and pharmacy assistants (92%) were interested in obtaining more CM training. Pharmacists would prefer professional organisations such as the Pharmacy Guild or PSA (60%) or the NPS (46%) to offer the training, whereas pharmacy assistants would prefer either CM manufacturers (61%) or professional associations (43%) to do the training. Only 4% of pharmacists were interested in CM manufacturers offering training in CMs. The preferred method of training for pharmacists was online short courses (53%), face-to-face seminars (45%) and self directed learning through journals (43%). In contrast, the majority of pharmacy assistants preferred face to face seminars or lectures (74%), and a lesser 39% was interested in online short courses, see Figure 38.
Discussion

CM use

The present study demonstrates that CMs remain popular amongst pharmacy customers with 72% of pharmacy customers having used at least one CM product in the previous 12 months.

When pharmacists, pharmacy assistants and customers were compared for personal use of CMs, a significant difference was observed between the three groups (76%, 96%, 72% respectively; p<0.0001) with the lowest usage reported for pharmacy customers.

We found pharmacy assistants reported the highest frequency of use (97%) compared to pharmacy customers and pharmacists. It is not clear why usage amongst this group is higher than for community pharmacists as both have ready access to the products. Possibly, the greater frequency of customer discussion about CMs and higher prevalence of manufacturer training are influences.

Knowledge of common OTC CM products

The knowledge sections of the questionnaire provided a unique opportunity to ascertain an objective measure of the pharmacy and naturopath/herbalist knowledge of established proven indications for common CMs (fish oils, glucosamine sulphate, probiotics, echinacea and coenzyme Q10 for the indications osteoarthritis, upper respiratory tract infections, diarrhoea and cardiovascular disease) and possible drug-CM interactions (warfarin, digoxin, oral contraceptives and oral hypoglaemics with ginkgo biloba, magnesium, echinacea and fish oils).

Pharmacists and naturopaths/herbalists performed similarly and better than pharmacy assistants in the ‘proven benefit’ section. In regards to total knowledge scores, a composite from the ‘proven use’ and ‘interaction’ sections, naturopaths/herbalists achieved significantly higher scores than pharmacists. However, overall means scores could be considered as suboptimal for professionals providing CMs. All questions were based on well known CMs frequently used within the community. The mean correct responses for all practitioners, pharmacists, pharmacy assistants and naturopaths/herbalists were less than 66% correct.
These results confirm the need and desire for additional training of pharmacy staff regarding CM. They also provide some validation to the sense of inadequacy that many pharmacists and pharmacy assistant expressed regarding their ability to adequately respond to customers’ queries about CMs.

Information sources and level of evidence

Naturopaths are much more likely than pharmacists to value info sources that contain both scientific and traditional evidence; although 62% of pharmacists thought that well documented traditional and historical use was important evidence. This may be a reflection of the systematic approach to teaching and educating pharmacists and the lack of professional awareness that the TGA acknowledges ‘traditional evidence’ as one of the accepted levels of evidence for CMs.

Naturopaths seem to value frequently updated information more than pharmacists and used more evidence based, specialised online resources than pharmacists (PubMed and Medline as compared to the World Wide Web). This raises questions about the possibility that pharmacists’ training and practice focus too much on adhering to specific guidelines and directions for disease management (such as the Australian Medicines handbook and Therapeutic Guidelines) and whether this focus has discouraged pharmacy professionals from seeking other sources of evidence-based information. Given that very little CM information is included in standard pharmacy reference text and guidelines, pharmacists may be somewhat perplexed as to how to otherwise obtain direction for their professional practice.

CM recommendation made by pharmacy assistants rather than pharmacists

Our study reveals that the adoption of QUM into Australian pharmacy practice does not routinely extend to include CMs.

Despite the widespread use of CMs by pharmacy customers, the growing amount of evidence available for many OTC CMs and pharmacists’ obligation to include CM counselling into their routine practice, we found that pharmacy assistants more frequently than pharmacists advised customers about CM products in the retail pharmacy setting.

The naturopaths’ perspective of working in pharmacy

Based on the combined findings from the all surveyed groups, it appears there may be greater employment opportunities for suitably qualified naturopaths in the community pharmacy setting than has been previously recognised. (For further discussion see Chapter 6 about the integration of CMs into community pharmacy.)

Education and training

In order to overcome the knowledge deficit of both pharmacists and pharmacy assistants, additional CM training is required. Those developing this training, however, need to recognise that each professional group has quite different educational needs and expectations.

Various delivery models would be acceptable to pharmacists, however more than half of those surveyed preferred short online courses as a delivery method. Consensus would have to be reached on the organisation providing the training given that our study found that significantly more community pharmacists preferred the PSA to conduct such education, whereas hospital pharmacists preferred the training to be offered by the NPS.
Chapter Six

The integration of CMs into community pharmacy: implications for the future

This chapter draws information from the results and discussion sections of all the chapters in this report and discusses the key issues surrounding integration, with reference to the broader medical and pharmacy literature and with a particular focus on the Australian context.

The integration of CMs into community pharmacy

For decades, the concept of integration has transformed innovation and change in healthcare and consisted of forging links between providers, caregivers and patients. Integration reduces fragmentation and aims to improve efficiency and effectiveness in healthcare. Integrated, multidisciplinary teams have developed in mainstream medicine and become the norm in the treatment of conditions such as cardiovascular disease and diabetes. Increasingly community pharmacists are being incorporated into these teams, adding their medication expertise to the mix. As these efforts towards building integrated health care services continue in mainstream medicine, another form of integration is taking place which involves complementary medicine.

What is integrative medicine?

The term ‘integrative medicine’ as applied in the area of complementary medicine (CM) is a relatively recent development and has been defined by NCCAM as health care that “combines mainstream medical therapies and CM therapies for which there is some high-quality scientific evidence of safety and effectiveness.”

Three levels of integration have been defined by the WHO to describe the extent of CM integration into pre-existing health care systems. These are: tolerant, inclusive and integrative situations. A tolerant situation is said to occur when the dominant conventional healthcare system is autocratic and CM may be practiced in parallel but is not officially recognised. An inclusive situation arises when CM is recognised but not fully integrated into delivery of healthcare. An integrative situation is when CM is officially recognised and incorporated into all aspects of health care, such as national medicines policies, utilisation in hospitals and reimbursed under insurance schemes, e.g. in China.

It has further been suggested that integration occurs on two levels: the individual patient and at a broader policy level. Surveys have consistently shown that Australians use CM, often as an adjunct to conventional care suggesting that integration is already happening at an individual patient level. At a broader policy level, the incorporation of CM has been slower and incorporation into clinical guidelines almost non-existent.

Integrative medicine in medical practice

The integration of CM into medical practice has attracted much interest in recent years with several studies exploring this development. For example, studies conducted in the United States and United Kingdom indicate that large numbers of medical practitioners are either referring to or practising some of the more prominent and well-known forms of CM and that many believe these therapies are useful or efficacious.

A review published in 1998 of 25 surveys found that in the United States, acupuncture had the highest rate of physician referral (43%), followed by chiropractic (40%) and massage (21%). Practice of CM varied from 9% for homeopathy to 19% for chiropractic and massage therapy. A study of 2875 Members and Fellows of the Royal College of Physicians found 32% of respondents practised complementary medicine themselves and 41% referred patients to complementary therapies.
The trend is similar in Australia. A paper published in 2000 of the attitudes and usage of complementary therapies by 488 general practitioners (GPs) revealed that between 30-40% practiced a complementary therapy. The same year a study by Easthope et al. (2000) found that 55% of GPs in Tasmania referred patients to complementary practitioners, primarily for chiropractic, massage, and osteopathy. In Victoria the referral rate was 93%. Several years later Cohen et al. (2005) reported on a national survey of 636 Australian GPs in which they found that 21% reported using various complementary therapies, particularly acupuncture or electroacupuncture, laser, and ultrasound in their practices.

The acceptance of several complementary therapies is not limited to GPs but has also been observed for hospital based medical practitioners.

Largely in response to the widespread use of CM and its growing evidence base, both the Royal Australian College of General Practitioners (RACGP) together with the Australasian Integrative Medicine association (AIMA) and the Australian Medical Association (AMA) have released position statements regarding CMs and general practice.

The RACGP/AIMA joint working party developed a comprehensive position paper regarding CM which contains multiple statements encouraging general practitioners to become more informed about the potential benefits and adverse effects of CMs and therapies. The following quote provides an example of this sentiment:

‘General practitioners require a basic understanding of CM and should receive sufficient training in their undergraduate, vocational and further education to enable them to include natural/complementary medicine with proven safety and efficacy into their practice and to discuss issues with their patients on an informed basis’.

The Australian Medical Association (AMA) has also released a position statement about CM in the last few years which similarly endorses education of GPs so they can provide informed advice to patients about CM and include those with proven safety and efficacy into their practice.

Integrative medicine in pharmacy

Pharmacists have not been immune to the influence of CM on healthcare in Australia. Naidu et al. (2005) identified that most Australian community pharmacists felt selling CMs in a pharmacy would enhance the image of the pharmacy and increase their number of customers. Furthermore, surveys indicate that most pharmacists consider it important to have knowledge about CM or herbal medicine and be able to provide information to customers.

The current study confirms previous findings and suggests that the pressure for pharmacists to engage customers in discussion about CMs, recommend effective CMs and be knowledgeable about this area has increased in recent years as more customers expecting greater involvement from pharmacists.

In contrast to the RACGP/AIMA and AMA, the Pharmaceutical Society of Australia’s position statement about CM has remained unchanged since 1997 and makes no mention of promoting the integration of evidence based CMs into practice. It does state that ‘the provision of complementary medicines is at the discretion of individual pharmacists who must exercise their professional judgement. However, pharmacists involved in the supply of such products have the same obligation to provide information and advice, consistent with consumer needs, as they do with registered prescription and proprietary medicines’.

Despite the lack of direction from peak bodies such as the PSA, CM has become integrated into nearly every community pharmacy at some level. Our study has revealed over 80% of retail pharmacists take CMs, which is higher than reported for the general Australian public and also higher than previously reported for Australian pharmacists in 2005. Similar to the customers they see, CMs which are popular amongst pharmacists are multivitamins, glucosamine, fish oil supplements, probiotics and vitamin B complex.

Over 80% of surveyed pharmacists agreed that pharmacists have a professional responsibility to counsel customers about CMs and they should play a greater role in providing customers with safety and drug interaction information about CMs. Additionally, nearly all pharmacies stock CM products on their shelves, with a small percentage also stocking specialty lines such as liquid herbal extracts and practitioner only products.

Sociological research suggests that practitioner with CM knowledge may be ‘better’ practitioners. They seem to have a higher self awareness, improved core competencies such as evidence based practice, enhanced cultural competency and improved patient centred care. Our study confirms this research showing for example that pharmacists with prior CM knowledge were more likely to ask customers with prescriptions about their CM use and to mark an adverse drug reaction in the patient file.

Beyond this, our study has identified the emergence of three models of CM integration in the Australian community pharmacy setting.
Three models of integration in community pharmacy

The most prevalent model is one where pharmacy assistants have taken on the responsibility of providing information about CMs and making recommendations and as they are the first point of call for customers interested in CMs. In this scenario there is little pharmacist involvement. Pharmacists may provide information when pharmacy assistants ask them, in particular safety information; however they do not take on a proactive role in counselling customers about CMs.

This model has not developed because it was carefully designed to provide customers with the best possible evidence-based advice about CMs but most likely due to pharmacists reluctance to engage customers in discussions about CMs leaving pharmacy assistants as the main point of contact by default. From our research it seems that pharmacists feel ill-equipped to deal with CM enquiries or make recommendations. Many have not received any formal training through the tertiary education system, many don't refer to specialised CM resources or have them available, over half stated they had insufficient knowledge to recommend CMs as part of standard practice, some lack confidence and some say they lack time and opportunity. Data from this study suggests that while confident, pharmacy assistants’ knowledge may not be strong enough to support the role they play in product recommendation making it a less than ideal model to promote patient wellbeing and safety.

The second model to evolve is one where the pharmacist takes on a larger role and actively incorporates CM recommendations into their practice. We found that 47% of pharmacist respondents already describe their practice as ‘integrative’ because of this behaviour with a further 43% describing it as partly integrative. This scenario does not preclude pharmacy assistants from playing a role in CM recommendations however, there appears to be more interaction between the pharmacist and customer in this second model compared to the first.

Pharmacists taking a more active role in providing customers with information and making appropriate CMs recommendations has several obvious merits. Pharmacists display more knowledge about CMs than pharmacy assistants and have received biomedical education with a focus on medication putting them in a better position to give customers an informed opinion. The more knowledgeable and confident pharmacist can make recommendations about CMs which will substantially improve customers’ quality of life, reduce disease symptoms and have a significant preventative health impact in the long term. They will also be more effective in promoting patient safety by being able to prevent and detect drug interactions and adverse events from CMs. To be able to take on the role effectively, pharmacists require a adequate education, access to appropriate CM resources and quality CMs in the pharmacy and a clear sense of their role in integrating CMs into practice.

A third model has also evolved which involves the incorporation of a naturopath/natural therapist into the pharmacy setting to provide customer information and recommendations, private consultations and sometimes also staff education. In pharmacies where a naturopath was employed, even fewer pharmacists were involved in advising customers about CMs than in the average pharmacy suggesting that pharmacists have largely transferred this responsibility to the store naturopath.

This model is no doubt a reflection of a natural partnership due to the fact that pharmacies are retailers of CMs. When considering the positive feedback from pharmacists and pharmacy assistants that have worked with naturopaths in community pharmacy and the generally positive feedback from naturopaths themselves, it appears that this arrangement provides benefits for pharmacists and their staff, as well as meeting the needs of customers.

A new integrative model has emerged

Whilst only 18% of surveyed pharmacists reported that a naturopath/natural therapist is currently employed at their place of work, our results indicate that the number of pharmacies adopting this model may increase in the future. If developed carefully, this model could provide several advantages to pharmacists as health workforce shortages and the number of people with chronic disease increases and the burden on the pharmacy workforce increases in response.

The knowledge scores obtained by pharmacists and naturopaths in this study suggest that there are some naturopaths with knowledge of popular CMs which is comparable or possibly greater than pharmacists and a substantial number have received advanced diploma or bachelor degree education. Whether this level of education and knowledge gives naturopaths an appropriate level of competency to provide the type of counselling pharmacists may expect remains to be investigated.

Ideally, an appropriately credentialed naturopath on staff could allow pharmacists and pharmacy assistants more opportunity to focus on other tasks. More customers will have the opportunity to receive nutritional advice from a trained practitioner and pharmacists can share the burden of screening customers for adverse effects and drug interactions. It also has the potential to give customers a more complete package of health care information,
including health promotion strategies which pharmacists may have insufficient time to deliver or be ill-equipped to provide.

For naturopaths, it provides the opportunity to work as a member of a multi-disciplinary team, interact with a diverse range of patients, consult many people in a short period of time when working on the shop floor, become familiar with common pharmaceutical medications and CMs being used and engage in the education of pharmacy staff. The naturopath survey conducted as part of this study has identified that most naturopaths that had worked in pharmacy found the experience satisfying however many concerns were also voiced by this workforce has which need to be taken into account.

To attract and retain well educated naturopaths, several issues should be addressed which are of concern to naturopaths, chiefly, providing opportunities for them to conduct longer consultations when necessary to enable 'best practice', remuneration negotiation which reaches a satisfactory agreement for both parties, and stocking some of the practitioner-only lines favoured by naturopaths. In return, naturopaths must be aware of their duty of care in this setting and that most pharmacists expect them to increase product sales and act as an information source to them, their staff and customers.

Alternately, this model of integration has several pitfalls that cannot be ignored such as the possibility of employing an inappropriately trained naturopath that fails to provide sensible, advice, or worse, provides dangerous advice and operates outside a scope of practice considered acceptable to the pharmacist. Another potential problem which could arise is pharmacists neglecting their professional responsibility to become familiar with CMs so they can also advise customers, promote appropriate use and prevent and detect adverse events.

Other factors that require further investigation and are important to consider in such a model are: the need for pharmacists and naturopaths to clearly define their scope of professional practice within the pharmacy, how co-consultation and inter-referrals may work best to take advantage of the expertise of both pharmacists and naturopath and promote patient wellbeing and safety, issues of record keeping and shared files and the financial rewards of adopting this model.

A growing number of hospitals in the United States, Canada and the United Kingdom are offering CM services. Factors which have been identified as important to successful integration include: the importance of having a key player to champion the process, credibility and trust of and between the health care professionals involved, having people who are prepared and able to act as part of a team, clear communication pathways, having sufficient space and adequate financial rewards to deliver and sustain the service. Community pharmacy in Australia can learn from these findings in an attempt to develop a model of best IM practice that can provide definitive and measurable benefits to individuals and society.

Evidence based pharmacy practice and CMs

In CM, as in all branches of medicine, new research is continuously being generated and published in an effort to improve clinical practice and our understanding of health and disease, disease diagnosis and treatment.

Already, many articles have been published in peer-reviewed journals about CM. A review of CM in the scientific literature identified a total of 20,209 articles published about CM during the period 1997-2002, representing 0.7% of the total number of MEDLINE ® - listed articles. Overall, 13% of published articles were randomised controlled studies and clinical trials and 0.5% were meta-analyses.

According to a 2004 review, over 5800 Complementary medicine randomised controlled trials have been identified and made available through the central Cochrane Library. At the Australasian Integrative Medicine Association (AIMA) conference in 2004, Professor Sally Green (Director of the Australasian Cochrane centre) stated that complementary medicine is one of the better represented specialties on the database, better than several medical fields.

Just as there is a gap between evidence and practice in medicine, there is also an obvious gap between evidence and practice in community pharmacy. The scientific literature suggests that some of the main barriers slowing or preventing the adoption of evidence based practices are:

1. Lack of access to the evidence
2. Organisational barriers
3. Ineffectual continuing education programs

Lack of time and opportunity to become familiar with the relevant new evidence are other factors offered by Grol and Grimshaw as they describe the high reading workload necessary to keep abreast of new innovations and maintain present knowledge as onerous. The availability of systematic reviews and guidelines reduces the need for doctors and pharmacists to read original studies however it is still difficult to keep up with such syntheses.
A study of U.K. general practitioners found that the process of applying clinical evidence was influenced by the personal and professional experiences of the practitioner, their relationship with the patient and patient experiences. A study of 400 Australian nurses which investigated their beliefs about barriers to evidence implementation identified lack of support from others to use the research and the anticipated outcomes of using research as additional factors. Norman further suggests that not understanding the evidence, not believing the evidence and not knowing how to use it are also barriers.

Barriers to discussing and recommending evidence-based CMs

Whilst our study did not target evidence-based CMs specifically, it did provide some insights into the barriers which may be preventing pharmacists from incorporating the recommendation of evidence-based CMs into routine practice.

A perceived lack of knowledge, insufficient information sources and limited opportunity to discuss CMs with customers seem obvious explanations. Lack of confidence in Australian-made CMs did not appear to be a major reason as only 10% of pharmacists claimed they were not confident in this regard. We found lack of ‘belief’ about the effectiveness of CMs was not a major factor either. This is in contrast to Naidu et al. (2005) who reported that one of the chief reasons for pharmacists not recommending CM was lack of evidence (83%).

Similarly, Semple et al. (2006) reported that Australian pharmacists found the main barriers to discussing CMs were lack of suitable training; deficiencies in available information sources and time constraints due to competing demands in daily practice. In this sample of pharmacists, the need for regulatory changes was also identified.

Lack of knowledge and insufficient training has been reported as barriers in other countries. In Singapore, Koh et al. found 81% of pharmacist stated their training did not equip them with necessary skills and knowledge to counsel patients about herbal medicines and 90.5% thought the professional curriculum should have more components about herbal medicine.

Concordance is needed with CMs

The model of concordance was introduced by the Royal Pharmaceutical Society in 1997 as a more patient centred approach between medication prescribers (including pharmacists) and patients than had existed previously. Concordance aims to achieve the best possible use of medicines and is reached between medication prescriber and patient through negotiation until a therapeutic alliance is achieved. It requires the healthcare practitioner to recognise the primacy of the patient’s decision in taking medicines. Patients are encouraged to ask questions and express concerns about the medication prescribed to them and communicate their preferences for treatments and decision making. The prescriber provides evidence based information together with their relevant clinical experiences. The negotiation necessitates compromise on both sides until a mutually acceptable decision is reached. In situations where the patient defers a decision, the prescriber then makes it for the patient, whilst taking into account the individual factors present.

Australian pharmacists are supportive of the principles of concordance and believe that establishing a “therapeutic alliance” is a high priority in the consultation between pharmacists and their patients. Furthermore, they believe that pharmacists should respect patients’ beliefs and coping strategies, provide opportunities for patients to communicate their thoughts and be involved in negotiating about their treatment.

CM plays a role in the healthcare of most pharmacy customers. Many purchase their products from pharmacies, are open to discussing their use with pharmacists and expect pharmacists to give them information about CMs, in particular, safety information. These combined factors indicate that concordance could be feasibly achieved with many customers in regards to CMs if pharmacists have sufficient knowledge, time, motivation, confidence and information resources at hand.

Where to from here?

Based on the levels of integration defined by WHO, the situation occurring in pharmacy can be described as ‘inclusive’ whereby CM is recognised as an important part of the financial business of retail pharmacy but not fully integrated into the delivery of healthcare.

Pharmacy customers have accepted the integration of CMs into pharmacy and expect pharmacists to recommend effective CMs, provide information and for many, provide access to CM services. Pharmacists themselves have expectations that they should play a greater role in recommending CMs, and in particular, providing customers with safety information. Our study has identified several barriers which are preventing more effective integration of CMs into pharmacy and thereby holding pharmacy back as a destination where customers can have all their self-care
and medication needs met. Addressing barriers with more comprehensive undergraduate and post-graduate education about CMs, professional guidelines to address practice issues and clarify professional roles, and further research to determine the best models of integrative practice to suit pharmacy and customers alike is now urgently required.
References


(15) Braun L. *Complementary medicines in Hospitals - a focus on surgical patients*; PhD Thesis RMIT University, Melbourne, Australia; 2007.


(23) Pharmaceutical Society of Australia. PSA position statement: Complementary medicines. internet [serial online] 1997; Accessed December 8, 6 A.D.


Study Recommendations

**Recommendation ONE:** The role of the pharmacist and pharmacy assistant with regards to QUM and the incorporation of CM must be clearly defined by the relevant professional bodies (i.e. Pharmacy Guild, PSA and SHPA).

**Recommendation TWO:** Ongoing education programs, ratified by the relevant professional bodies, to be developed, delivered and evaluated, which will encourage the incorporation of CMs within routine medication history taking by pharmacists.

**Recommendation THREE:** Each pharmacy premises should be required to hold two resources from the NPS recommended list of high quality CM resources to promote QUM.

**Recommendation FOUR:** Evidence based CM information should be incorporated into all relevant professional pharmacy resources.

**Recommendation FIVE:** A consumer orientated educational program be developed, implemented and evaluated which aims to improve consumers understanding of the differentiation between products denoted with an AUST L

**Recommendation SIX:** The PSA position statement on CM should be updated to reflect evidence based principles and include educational and practice goals. (The AMA position statement could be used as a guide).

**Recommendation SEVEN:** All undergraduate curriculum and competency based assessments associated with implementation and/or evaluation of QUM principles in pharmacy practice should include CMs as a component. Education should not be limited to adverse drug reactions and interactions, but also include evidence based information about potential benefits of CMs to improve patient outcomes.

**Recommendation EIGHT:** Ongoing professional educational opportunities must be made available for the existing pharmacy workforce, both pharmacists and pharmacy assistants, so CMs can be incorporated into current QUM practice.

**Recommendation NINE:** Pharmacy practice guidelines need to be established which promote QUM in settings where pharmacists and naturopaths/natural therapists are currently working together. These may include advice about the employment and credentialing of naturopaths/natural therapists, defining the roles and responsibilities of both parties, issues about sharing patient records, inter-referrals, communication and scope of practice. Guidelines should be developed in conjunction with appropriate representation from the naturopathic workforce.

**Recommendation TEN:** Further research is required to develop and evaluate a best-practice integrative model in community pharmacy involving appropriately trained naturopaths/natural therapists.

**Recommendation ELEVEN:** An educational program should be developed, implemented and evaluated which encourages consumers of CMs to report actual and suspected adverse reactions to pharmacists and other health care professionals.

**Recommendation TWELVE:** Further research is required to identify the incidence and nature of adverse reactions to CMs in the community. Specific research should be undertaken to determine suitable methods to support the reporting of these events through community pharmacies.
Study Recommendations in Relation to the Expert Committee on Complementary Medicines in the Health System Government Recommendations

In May 2003, the Australian Government established the Expert Committee on Complementary Medicines in the Health System (the Expert Committee) which was asked to consider the regulatory, health system and industry structures necessary to ensure that the central objectives of the National medicines Policy are met in relation to complementary medicines. The Expert Committee made 49 recommendations to government and in May 2005, government responses to these recommendations were delivered in a report. Many of the recommendations resulting from the findings of this particular study are in alignment with recommendations from the original Expert Committee.

Recommendations 2, 3, 4, 5, 8 and 9 of this report relate to the Expert Committee’s recommendation 25 which discusses the need to determine the CM information needs of healthcare professionals and consumers, options for conveying that information, the need to increase their awareness of the benefits and risks of CMs and to develop knowledge and skills to use medicines appropriately. A study conducted by the National Prescribing Service (NPS) and commissioned by the Department of Health and Ageing has previously addressed some of these issues and this study has provided confirmation of some of those NPS findings and further added information about pharmacy assistants, naturopaths and western herbalists who were not investigated previously.

Recommendations 2, 11 and 12 of this report relates to the Expert Committee’s recommendation 20 and confirms the need to improve reporting about adverse reactions, for healthcare professionals to be encouraged to ask people about their use of CMs when taking a history and for more research to be conducted to investigate the safety of CMs. It also reinforces the need for consumer education about reporting adverse reactions.

Recommendations 2, 3, 7, 8 and 9 relating to the practice of QUM and the need to incorporate CMs within this framework supports the Expert Committee’s recommendations 43 and 44 and indicates that any strategies implemented thus far to improve the incorporation of CMs into pharmacists’ practice of QUM have been insufficient.

References

Study Limitations

There are several limitations to this study which influence the generalisability of the findings.

Several study phases relied on the collection of self-administered surveys. It is possible that people with an interest in the area of complementary medicine and with stronger positive or negative views about the topic may have been more likely to participate. Although all surveys were anonymous, responses may be biased by what respondents considered socially desirable answers.

The nature of the survey instrument limits the potential participants to those with who are able to read and comprehend the survey questions and who can read and write English. While this is unlikely to be an issue in three professional groups (pharmacist, pharmacy assistants and CM practitioners) it may be a significant issue in the customer group.

In addition the results only reflect the views of individuals who visited community pharmacies in the three sites and had the time to stop and speak with the research assistant distributing the survey. Although research assistants deliberately visited sites at different times (e.g. Thursday evening, week day mornings) to recruit a broad spectrum of pharmacy customers, it is possible that the customers participating in the study do not fully represent all pharmacy customers and some groups may be over or under-represented. Nevertheless the comparability of the data to other published reports of CM use by the Australian general public suggests that this is not a significant factor.

While language and comprehension difficulties are unlikely to affect the professional groups’ ability to participate, respondents’ knowledge of both the investigators and the funding source for the project may have influenced responses, however there is no evidence to suggest that this is a significant effect. The sample size in this study, particularly for the pharmacy assistant group, was small relative to the total population in each group and this limits the broader inferences that can be drawn from the data.

All data collected in this study was retrospective in nature and the recall of CM use, advising and referral activity and whether or not adverse reactions had been reported may suffer from recall bias. It is suggested that based on the findings of this study prospective data, particularly on adverse effects, be collected. With respect to the knowledge questions, definitions of terms used in this section were not provided to respondents and researchers obtained the ‘correct’ answers from two texts. The use of other generally used, authoritative texts may have provided a slightly different set of ‘correct’ answers however there is no reasons to expect major differences would have been found. This is an area that requires further investigation.
Appendices

Appendix A. Advisory Group terms of reference (attached)
Appendix B. Pharmacy customer survey questionnaire (attached)
Appendix C. Phase 1 Pharmacy Information and Consent form (attached)
Appendix D. Focus group discussion schedule (attached)
Appendix E. Pharmacist survey questionnaire (attached)
Appendix F. Pharmacy assistant survey questionnaire (attached)
Appendix G. Phase 5 Pharmacy assistant Information and Consent form (attached)
Appendix H. Naturopath/Western herbalist survey questionnaire (attached)