The Victorian Chinese Medicine Workforce and Practitioner Capability

A thesis submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy

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DECLARATION

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic awards; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged, and ethics procedures and guidelines have been followed.

Wenyu Zhou ____________________

Date: ________________________

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PUBLICATIONS

Peer- Reviewed Journal Papers

1. Xue CCL, Wu Q, **Zhou WY**, Yang WH, Story DF (2006). Comparison of Chinese medicine education and training in China and Australia. *Ann Acad Med Singapore*; 35: 775-9.

2. Xue CCL, **Zhou WY**, Zhang AL, Greenwood K, Da Costa C, Radloff A, Lin V, Story DF. (2008). Desired Chinese medicine practitioner capabilities and professional development needs: a survey of registered practitioners in Victoria, Australia. *BMC Health Serv Res*, 8(1): 27.

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ABBREVIATIONS

Acronym	Description
AACMA	Australian Acupuncture and Chinese Medicine Association
ACGME	Accreditation Council for Graduate Medical Education
ATCMA	Academy of Traditional Chinese Medicine of Australia
BAcC	British Acupuncture Council
BMAS	British Medical Acupuncture Society
CAM	Complementary and Alternative Medicine
CC	Communication Capability
CHM	Chinese Herbal Medicine
CM	Chinese Medicine
CMRA	Chinese Medicine Registration Act 2000
CMRBVic	Chinese Medicine Registration Board of Victoria
DHS	Department of Human Services (Victoria, Australia)
GP	General Practitioner
GST	Goods and Services Tax
HECCM	Higher Education Committee of Chinese Medicine
MBS	Medicare Benefits Schedule
MCNM	Melbourne College of Natural Medicine
NASC	National Academic Standards Committee
NCCAOM	National Certification Commission for Acupuncture and Oriental Medicine
NCCAM	National Centre for Complementary and Alternative Medicine
NESB	Non-English Speaking Background
NHC	Natural Healthcare Council
NHIS	National Health Interview Survey
NSW	New South Wales
PLS	Plain Language Statement
RIMC	Research and Information Management Capability
RSC	Responsible and Sustainable Capability

Acronym	Description
RMIT	RMIT University
SATCM	The State Administration of Traditional Chinese Medicine
SPSS	Statistical Package for Social Sciences
SSNT	Southern School of Natural Therapies
TCM	Traditional Chinese Medicine
TGA	Therapeutic Goods Administration
The Board	Chinese Medicine Registration Board of Victoria
UTS	University of Technology, Sydney
UWS	University of Western Sydney
VUT	Victoria University of Technology
WHO	World Health Organization

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SUMMARY

Chinese medicine (CM), a popular form of complementary and alternative medicine (CAM), has been increasingly used in the Western world over the last three decades. Quality, safety and efficacy of CAM therapies including CM have been major public concerns associated with the use of these interventions, for example, the variability of quality of herbal medicines, potential herb-drug interactions, organ injuries due to poor acupuncture practice, inadequate aseptic techniques, and the overall lack of high level clinical evidence of efficacy. Consequently, significant resources have been allocated to the generation of the new scientific evidence concerning quality, safety and efficacy of CAM therapies to address the public concerns and to support the clinical application of validated CAM therapies. Acupuncture and herbal medicines have been amongst the most popular CAM research areas. While the importance of such original research is well argued and supported, there has been a general negligence of the role of education in protecting public safety, promoting CM as a form of evidence-based healthcare and improving the quality of clinical CM services.

This study aimed to determine the essential practitioner capabilities to ensure the safe, competent and contemporary CM clinical practice in complex healthcare systems such that of Australia. The specific objectives of this study are: a. to understand the utilisation of CM in Australia, China and a number of developed countries; b. to review issues related capability-based curriculum development and to compare the similarities and differences of CM education in China and Australia; c. to provide a comprehensive profile of the Victorian CM workforce based on reliable and authoritative source of data; d. to investigate registered practitioners' views on the desired capabilities for CM practice; and e. to identify knowledge and skill gaps of practitioners who were registered under the transitional arrangements (between 1 January 2002 and 31 December 2004) which will provide the basis for

determining the needs of continuing professional education. Based on outcomes from the two literature reviews (addressing objectives a and b, see Chapters 2 and 4, publications 1, 6, 7, and 9), this research involves a workforce study (addressing objective c, see Chapter 3, publications 3, 4, 5, and 10) and a capability survey (addressing objective d, see Chapter 5, publications 2, and 8). Ethics approvals were obtained for both studies.

For the workforce study, a specific instrument with a coding system was developed and approved by the Chinese Medicine Registration Board of Victoria (CMRBVic) prior to the commencement of the data collection based on registration forms submitted by all practitioners registered with CMRBVic during the transitional (also known as grand-parenting) period. There were 639 Registered CM practitioners in Victoria as of December 2004. Acupuncture was practiced by almost all practitioners while Chinese herbal medicine was practised by about 60% of them. The mean age of the Victorian CM workforce was 44 years and 55% of them were male. Over 60% of CM practitioners had completed at least a bachelor degree with another one-third of them holding a diploma in CM. Furthermore, over half of the practitioners spoke English as their first language and over one-third (38%) spoke Chinese as their first language. The vast majority of the CM practitioners (90%) worked in the metropolitan areas of Melbourne. These findings provide comprehensive data on the current state of the Victorian CM workforce concerning their educational background, clinical experience and their current practice of CM. They are of significant value to educational institutions, professional associations, healthcare practitioners, government agencies, policymakers, and human resources and workforce managements for future planning.

The capability survey was divided into three stages: the literature review stage, a pilot stage and a survey that was sent to all registered CM practitioners. The literature review stage resulted in a draft capabilities chart that was initially developed for the curriculum development of a Master of Applied Science (Chinese Herbal Medicine) at the Division of Chinese Medicine, RMIT University between 2001 and 2003. This draft capabilities chart was piloted through interviews with CM academic staff, regulators and CM practitioners in Victoria prior to the finalisation of the chart.

In October 2005, the main postal survey was sent to all (701) eligible practitioners. The response rate was 32.5% with a total of 228 participants completing and returning the bilingual (English and Chinese) questionnaire. In addition, to seek their views on the importance of the individual items of the capabilities, demographic data were also gathered. The demography of the survey respondents did not differ appreciably from that of the Victorian CM workforce.

Findings of the survey indicated that of the four categories of capabilities (28 items in total), technical capabilities were considered to be the most important aspects of clinical practice. Specifically, the ability to perform acupuncture treatment and/or dispense an herbal prescription was ranked the highest. In relation to very important capabilities, seven technical capabilities and three capabilities concerning responsible and sustainable practice were ranked the highest of importance, while none of the research and information management capabilities were given the same scores. In addition, communication capabilities were considered to be important, but not to the extent of being very important. New graduates considered the capabilities of identifying key business issues as important while this was not the case for existing practitioners. Furthermore, over one-third of male participants considered patient referral capability to be less important. For continuing professional education, clinical skills courses were considered as a priority while research degree studies were not. The educational background of practitioners appeared to be an important factor influencing their rating of capabilities. Significantly, nearly double the number of practitioners with Australian qualifications compared with practitioners trained overseas valued communication as an important capability.

These findings represent a major step in the development of a capability-based curriculum that meets the needs of the Chinese medicine workforce. In the short-term, the findings of this study provide the basis for developing specific continuing professional educational programs that address knowledge and skill gaps such as communication, referral, research training and for some practitioners, basic biomedical sciences. These are particularly relevant and important for those who had not completed a qualification in Australia.

The limitations of these studies were a relatively low (32.5%) response rate and the lack of clarity of specific terminologies used in the survey and application for registration form, such as postgraduate education, highest qualification in CM versus highest qualification that may be in another academic discipline. It is unlikely that these issues would have an impact on the validity of the key data, findings of these studies need to be interpreted in the context that these findings represented the state of the CM workforce in a specific point in time.

In conclusion, this study, for the first time, provided the comprehensive data on the state of the Victorian CM workforce and CM practitioners' views on desired practitioner capabilities. A number of continuing professional education needs were identified and the successful implementation of these programs will contribute to the safe and competent CM practice and thus protect the public safety.

CHAPTER 1. INTRODUCTION

1.1 Background

Complementary and alternative medicine (CAM) comprises a wide range of therapeutic products and methods that is being used by diverse populations. In most countries, many of these are being considered either complementary or alternative to the conventional mainstream medical system. Perhaps, one of the exceptions is Chinese medicine in China where it is well integrated into the mainstream, modern health care system.

Over the last three decades, the popularity and demand for Chinese medicine is increasing in many Western countries, including Australia (C.C. L. Xue & Story, 2004). For example, the use of acupuncture in the management of chronic conditions, particularly for the musculoskeletal pain, is now common in the West. The modalities under the umbrella of traditional Chinese medicine (TCM) or Chinese medicine (CM) include those developed in the ancient China for thousands of years. These include but not limited to acupuncture, Chinese herbal medicine, Chinese therapeutic massage, Chinese medicine dietary therapy, Qigong and *taichi*.

Population based survey conducted in Australia in 2005 revealed, among other forms of popular complementary medicine, that nearly one in ten adult Australians (9.2%) have used acupuncture and nearly 7.0% used Chinese herbal medicine for a 12 months period (C. C. Xue, A. L. Zhang, V. Lin, C. Da Costa, & D. F. Story, 2007). In addition, some 2% – 6% Australians have also used other forms of Chinese medicine such as Chinese medicine dietary therapy and Chinese therapeutic massage. When all these modalities are considered together, the total use of Chinese medicine is likely to be the most popular form of CAM in the Australian general population.

Over 10 years ago, in response to the increasing popularity of the Chinese medicine therapies, a national Australian workforce survey on Chinese medicine was conducted in 1996 to investigate the demography and practice of traditional Chinese medicine in Australia (A Bensoussan & Myers, 1996). In this nationwide survey, 1,461 active Chinese medicine practitioners with active address were targeted with 621 of them returned the questionnaire, giving a response rate of approximately 43%. This survey concluded that the mean age of the Chinese medicine workforce in Australia was 44 years with 68% of them were male practitioners. Among all respondents, 54% practice predominantly in acupuncture, 3% in Chinese herbal medicine, 28% combining both acupuncture and Chinese herbal medicine, 13% in Chinese medicine massage and 16% in other Chinese medicine therapies such as Chinese medicine dietary therapy (A Bensoussan & Myers, 1996). Therefore, there were approximately 2.8 million Chinese medicine consultations resulting in an estimated expenditure of $84 million to Australian health care sector in 1996.

Wide use of Chinese medicine is coupled with a growing number of teaching institutions that are providing Chinese medicine programs in Australia. Currently Chinese medicine training is offered by more than 20 public and private Australian institutions. This proliferation of Chinese medicine education providers led to the establishment of the state government-back Chinese Medicine Registration Board of Victoria (CMRBVic). One of the key responsibilities of the CMRBVic is to approve Chinese medicine practitioner training programs. The "*Guidelines for the Approval of Courses of Study in Chinese Medicine as a Qualification for Registration*" has been promulgated by the CMRBVic in August, 2002. Thus, a CMRBVic-approved Chinese medicine program must provide a level of educational effectiveness, integrity, and quality that consistently produces graduates who can safely serve the Victorian public as registered acupuncturists and/or Chinese herbal medicine practitioners. Graduates from such a CMRBVic-approved Chinese medicine program are eligible to register to practice Chinese medicine in the state of Victoria under the Chinese Medicine Registration Act 2000. To date, twelve programs provided by five private or public institutes in Victoria have passed the assessment set by the CMRBVic. The approved-training levels vary from an advanced diploma to a Masters degree in acupuncture or/and Chinese herbal medicine.

1.2 Rationale

Since the national workforce survey on Chinese medicine in 1996 and the subsequent introduction of Chinese Medicine Registration Act (CMRA) in the state of Victoria in May, 2000, much has happened in this field including the expansion of evidence-based research in Chinese medicine, the establishment of the Chinese Medicine Registration Board of Victoria (CMRBVic) and the accreditation of tertiary level Chinese medicine programs. Perhaps, the most notable of these developments is the commencement of compulsory registration of Chinese medicine practitioners in 2002. Victoria is believed to be the first state in Western countries to formally register Chinese medicine practitioners. Victoria is now leading other states in Australia towards the introduction of statutory registration of Chinese medicine practitioners. It is now nearly one decade since the last workforce survey, so it is appropriate to investigate the present status of this important health profession and compare the current data with the data gathered in the earlier survey order to investigate the characteristics of the contemporary Chinese medicine workforce, identify key developments over this period and evaluate level of education and training by to facilitate future strategic planning in response the changing demands of the public and government for the provision of health care services.

As of 2007, over 900 Chinese medicine practitioners had been approved by the Board for registration within the divisions of Acupuncture and/or Chinese herbal medicine (CMRBVic, 2002). Since the establishment of the CMRBVic in 2000, information on registered practitioners has been systematically collected through the practitioner application for registration process. These reliable and comprehensive data on the workforce can be accessed only if the Board grants authority. Since it is the Board's interest and also in the interest of the Chinese medicine profession to have an up-to-date analytical assessment of the Chinese medicine workforce in Victoria, the Board was willing to grant authority for this research.

It has been demonstrated that inadequate training in Chinese medicine is one of the contributing factors to a higher adverse event rate amongst health care professionals in this field (A. Bensoussan, Myers, & Carlton, 2000). In the Australian community, the general public expects high quality, safe, efficient, and effective health services including Chinese medicine. The quality of undergraduate education plays a critical role in determining the quality of clinical services in Chinese medicine (D. Owen & Lewith, 2004). In Victoria alone, there are five institutions offering practitioner training in Chinese medicine. These include RMIT University, Victoria University of Technology (VUT), Southern School of Natural Therapies (SSNT), Melbourne College of Natural Medicine (MCNM), and the Academy of Traditional Chinese Medicine of Australia (ATCMA).

As noted above, under the CMRA 2000, the CMRBVic has the statutory power to approve Chinese medicine programs for the purpose registration. The course approval process is based on guidelines issued by the Board relating to course structure, content and delivery (hereafter, *Board's Course Approval Guidelines*). These guidelines use a traditional approach by describing the learning outcomes relating to knowledge, skills and attributes of graduates of the approved programs, rather than on more objective and measurable criteria.

With respect to curriculum design, although a capability based curriculum has been developed for one Chinese medicine postgraduate program in one of the institutions in Australia (O'Brien, Lines, & Xue, 2005), there is a lack of a widely accepted standard to guide the educational design of Chinese medicine programs. Educators are left to either adapt existing curricula from China or create contextualised standards under the guidance of local experts. It has been suggested that curricula based on the desired capabilities of the intended graduates provides the most appropriate foundation for curriculum design (Stephenson & Yorke, 1998). In addition, there is very limited information on what practitioners consider to be the essential capabilities required for quality Chinese medicine practice and how Chinese medicine graduates evaluate their training in helping them to develop the needed capabilities. In this connection, a Chinese medicine practitioner-based postal survey on desired graduate capabilities in the State of Victoria was conducted as part of this research.

1.3 Objectives and Research Questions

This research involves two major surveys, namely, (1) the workforce survey conducted through the records of all Chinese medicine registrants in the CMRBVic, and (2) the capability survey conducted via postal questionnaires to all Chinese medicine registrants.

The workforce study aimed to provide a reliable and comprehensive profile of registered Chinese medicine practitioners in Victoria who were assessed by the Board and deemed to be eligible under the transitional arrangements as specified in the CMRA 2000. In order to implement these transitional arrangements the Board developed a series of guidelines and procedures, referred to as the Grandparenting Policy, which were applied from the commencement of registration on January 1 2002 until the cut-off date for the transitional arrangements on 30 December 2004, see below Chapter 3.1.2). The principal aspects of this study were the demographic features of this workforce, academic qualifications and education level, and clinical experience of practitioners.

The specific objectives and associated research questions in the workforce survey are:

1. To assess the demographic profile of registered Chinese medicine practitioners in the state of Victoria during the period in which the transitional arrangements were in effect.
    - What are the general demographic of registered Chinese medicine practitioners?
    - What is the geographical distribution of practitioners in the state?
    - What is the educational background of the registered practitioners?
    - How long had practitioners been in Chinese medicine practice?

2. To compare the practitioners registered in the category of Existing Practitioner with those registered as New Graduate Practitioner under the grandparenting policy. (Note: definitions of these two categories of practitioners are detailed in Chapter 3.1.2.2. Briefly, New Graduate Practitioners are those who had recently graduated from a course in acupuncture or Chinese herbal medicine, while Existing Practitioner were those who already had spent a period of time in the professional practice of Chinese medicine)
    - What are the demographic similarities and/or differences between these two categories?
    - What are the similarities and/or differences in terms of the areas of practice chosen by these two categories of practitioners?

3. To compare the current workforce study with the workforce survey conducted in 1996
    - How different is the Chinese medicine profession today from ten years ago?
    - Has the demographic information including educational background and clinical experience of Chinese medicine changed after 10 years of development and 6 years since the establishment of the Chinese Medicine Registration Act? If yes, what are the changes and the implications for future Chinese medicine workforce strategic planning?

With respect to the capability postal survey, questionnaires were designed to gather the views of registered Chinese medicine practitioners on the desired capabilities for Chinese medicine practice. These desired capabilities are then compared with the CMRBVic requirements for New Graduates to determine any knowledge and skills gaps between the expectations of the practitioners and current educational requirements. Consequently, professional development needs and strategies could be developed by the CMRBVic and/or the Chinese medicine education providers to narrow down these gaps to ensure consistency of standards of practice, satisfy the professional needs of practitioners and ensure the delivery of safe, effective Chinese medicine practice to the public. Hence, the specific research questions in the capability study are:

1. What are the practitioners' views on the desired capabilities for competent Chinese medicine practice?
2. What are the practitioners' views on the importance levels of a list of predefined capabilities?
3. What capabilities are considered "highly important" or "less important" and what are the practitioner characteristics in relation to these capabilities?
4. What are the essential capabilities considered by the practitioners that would ensure an adequate standard in Chinese medicine professional practice in Victoria?
5. What are the practitioners' plans and needs for their professional development within the next five years?
6. What are the knowledge and skills gaps between practitioners currently in practice and the educational requirements for course accreditation in terms of their desired capabilities?

1.4 Significance of the Study

Chinese medicine is an organised medical system that is used by an increasing proportion of the Australian population, and it seems likely that its popularity will continue. Understanding the workforce of the Chinese medicine profession is important in that it can assist the development of a strategic approach to planning the future Chinese medicine workforce. A comprehensive workforce profile will also contribute to the development of an educational model which can address both the educational needs of the profession and the legislative requirement of protecting the public.

A number of states and territories in Australia are following Victoria's lead in regulating Chinese medicine practitioners. One example is the commitment of New South Wales (NSW) State Government to implement a registration act similar to the Victorian initiatives (Parliament of New South Wales, 2005). Consequently, a series of feasibility studies were conducted to investigate this matter. While the registration bill is yet to be developed by the NSW parliament, the Australian Federal Government has investigated a model for regulating a number of health professions nationally. Over 11 health professions were involved in the initial consultations for the national scheme for professional registration (New South Wales Health Department, 2002). Furthermore, in Victoria has taken further steps to establish uniform regulatory standard with the Health Professions Act 2005 being fully implemented in 2006. This superseded the Chinese Medicine Registration Act 2000 by incorporating its provisions into the new omnibus legislation along with the respective acts for other registered health professions. These developments represent Victoria's response to the need to keep abreast of changing healthcare concerns. The outcomes from this study may also provide valuable information for the future planning of a long-term workforce strategy for the sustainable development of the Chinese medicine profession in Australia.

To ensure optimum patient care, the required capabilities of practitioners have been used to guide curriculum design in most health practitioner education programs (Smith, Dollase, & Boss, 2003; Swider et al., 2006). It is expected that by the time students graduate they will have developed defined capabilities which meet the expectations of the public for safe and effective clinical practice. As a rapidly growing profession that is perceived by some members of the public to involve risks associated with the use of Chinese herbs and acupuncture, the quality of graduates is central to ensuring public health and safety. Thus, having a set of clearly defined and validated graduate capabilities will play a significant role in facilitating Chinese medicine educational development.

There is no existing literature on practitioners' view on desired Chinese medicine professional capabilities. The current study surveyed all registered Chinese medicine practitioners in the State of Victoria, Australia to obtain their views regarding desired capabilities and to identify their continuing educational needs. The findings of this study may help in the development of guidelines for Chinese medicine educational programs, and are of relevance to regulators who are increasingly concerned about mandating continuing professional development and ensuring that health professional education reflects the contemporary requirements of a changing health industry. These findings may also be relevant to a broader range of health professionals and educators, beyond those involved with Chinese medicine.

1.5 Organisation of the Thesis

This thesis comprises six chapters. Chapter 1 provides an overview of the background, rationale, objectives and details the specific research questions addressed by the study, as well as the significance of the study. There are two major studies in this thesis: the workforce study and the capability postal survey.

Chapter 2 provides a literature review of Chinese medicine development and utilisation, its current regulatory status in China, the North America, the United Kingdom (UK) and Australia. The existing available information of the Chinese medicine workforce is also presented.

Chapter 3 illustrates the outcome of the workforce study obtained and analysed systematically from the original records of the Chinese Medicine Registration Board of Victoria. Findings of the characteristics of the current registered Chinese medicine practitioners in Victoria are presented. Useful information was collected such as the gender, age, location of practice, educational background and clinical experience. Finally, key results were discussed together with comparisons with earlier published Chinese medicine workforce data, and workforce data in similar health professions, such as medical doctors, nurses, physiotherapists or other complementary medicine practitioners. Of particular significant relevance is the comparison with previously conducted Chinese medicine workforce study in 1996 as it reveals the trend and changes of the social demographic characteristics of the Chinese medicine industry.

Chapter 4 deals with the Chinese medicine practitioner capabilities and their competence to practice. It reviews literature of Chinese medicine tertiary education in China and Australia, and introduces the concepts of graduate capability, practitioner capability, the competency of practitioner, curriculum design and evidence-based healthcare. In addition, capability-based curricula in related health care professions are also reviewed.

Chapter 5 presents the results of a postal survey that targeted all registered Chinese medicine practitioners who resided in the state of Victoria, Australia in 2006. The questionnaire in this survey was designed to include various sections that investigate the desired capabilities and competency among the Chinese medicine practitioners. Detailed discussions with link to the existing educational models of capability training or competency based health professions training are also presented.

Finally, study limitations, general discussion and conclusion drawn from the two major studies of this research are presented in Chapter 6. It discusses the results in terms of their implication for the health professions, Chinese medicine stakeholders, such as academics, regulatory bodies, government bodies, researchers and private practitioners. Strategies for future implementation of recommendations are also discussed.

CHAPTER 2. CHINESE MEDICINE UTILISATION, PRACTICE AND REGULATION: AN OVERVIEW

2.1 An Overview of Chinese Medicine

2.1.1 Definition and Basic Principles of Chinese Medicine

Chinese medicine is a medical system with unique theories and clinical approaches that are different from those of modern medicine (Li, Duke, & Roufogalis, 2003). It is one of the highly developed and well-documented forms of traditional medicine with a history of more than two and half thousand years (Scheid, 1999), and is endorsed by the World Health Organization (Tang & Wong, 1998). It is used for general health enhancement and for the treatment of both acute and chronic illnesses.

The philosophical concepts of Chinese medicine are largely based on the theory that the human body is a sophisticated holistic system, comprising a number of sub-systems that work in dynamic balance to maintain healthy function of the human body. Disease occurs when the balance is disturbed, Chinese medicine works by identifying the aetiology and the visceral location(s) of the disease. Medicinal herbs and/or other Chinese medicine modalities may be applied to restore the imbalance which results in an improvement in health. The principles of Chinese medicine are based on several schools of thought, namely Taoism, Buddhism, and Confucianism (Yin, 1993). In addition, regional and philosophical differences existed between practitioners which in turn can lead to differences in practice.

2.1.2 Chinese Medicine Modalities

Around 10 to 20 different therapeutic or health enhancement approaches can be considered as part of the system of Chinese medicine. The most common ones are:

1. Acupuncture and moxibustion (針灸)
2. Chinese herbal medicine or Chinese medicinal (中藥)
3. Massage or Traditional Chinese *Tui na* (推拿)
4. Orthopedics and traumatology, bone-setting or *Die-da* (跌打)
5. Chinese food therapy (食療)
6. *Qigong* or conduction exercise (氣功)

Additional treatment methods can also be grouped into these branches. For example, *tai chi*, can be grouped into the breathing and meditation exercise and, cupping and *Gua Sha* are part of the therapeutic massage. It is also worthy of note that Chinese medicine practitioners of *Die-da* or *Tieh Ta* are those who specialize in healing traumatic injury such as bone fractures, sprains, and strains. In certain countries/regions some of these specialists are also permitted to use a range of Western medical practices or refer patients to other disciplines of Western medicine if serious orthopaedic injury is involved. Such practice of bone-setting is not common in the West.

2.1.3 Chinese Medicine and Western Medicine in China

China is the only country in the world where Chinese medicine exists as an official and independent health system alongside with Western medicine (Hesketh & Zhu, 1997). Cooperation between practitioners of Chinese medicine and Western medicine is common in China. Thus, Chinese medicine collaborates with Western medicine in most hospitals and in the community. In the so-called “Chinese medicine hospital” Chinese medicine is applied more predominantly but not exclusively over Western medicine while in the Western medicine hospitals (sometimes called “People’s hospital”), Chinese medicine, in particular acupuncture, is still readily available in the Chinese medicine department/clinic. Such an integrative medical approach is based on the concept of maximising the healing properties of both Chinese and Western medicines for the benefit of the patients. This approach is popular and readily available in China

Most Chinese in China do not see traditional Chinese medicine and Western medicine as being in conflict. A patient with a broken arm in the West would almost always visit an emergency department first, whereas going to a bone-setting Chinese medicine clinic is very common in the regional areas in China as belief in Chinese medicine remains strong in many patients. In addition, most Western medical doctors in China will use some elements of Chinese medicine in their own practice and very few of them would reject traditional Chinese medicine.

2.1.4 Therapeutic Effects of Chinese Medicine

Scientists are studying the efficacy of Chinese medicine particularly acupuncture and Chinese herbal medicine for a wide range of medical conditions. In recognition of the increasing worldwide interest in acupuncture, the World Health Organization (WHO) conducted a symposium on acupuncture in June 1979 in Beijing, China to investigate the diseases and disorders that can be treated by acupuncture, 43 suitable diseases were discussed (World Health Organization, 2002).

Chinese herbal medicine includes many products (e.g. raw herbs and minerals) and has been found to be effective in the treatment of some specific diseases, for example the use of ginseng for chronic obstructive pulmonary disease (COPD) (Guo, Pittler, & Ernst, 2006) and the use of Chinese herbal medicine formulae for hay fever (C. C.L. Xue, Li, Hugel, & Story, 2006). However, as it the case with other herbal medicines, the active ingredient(s) in many Chinese herbs are unknown at present.

In addition to its therapeutic effect, Chinese medicine may also be used to assist Western treatments such as in vitro fertilisation (IVF) procedures (Manheimer et al., 2008). Furthermore, many modalities of Chinese medicine are also commonly used to strengthen or promote general health and wellbeing. For example, the practice of qigong and tai chi are now common in most developed countries. A recent Australian national survey suggested some 6% Australian practice qigong, martial arts, tai chi or other Chinese meditation techniques to promote general (C. C. Xue et al., 2007).

2.2 Chinese Medicine Development in China

After more than three thousand years of development, Chinese medicine is now being used by almost one fourth of the world's population (Parry-Jones & Vincent, 1998). The earliest Chinese medicine ancestor and perhaps the most well-known Chinese medicine pioneer is *Huangdi*, the Yellow Emperor. It is believed that during the golden age of his reign from 2698 to 2596 B.C, as a result of a dialogue with his minister Qi Bo, the Yellow Emperor had composed *Neijing Suwen* or *Huangdi Neijing,* also known as the Basic Questions on Internal Medicine (Yin, 1993). The book is now regarded as the bible to everyone who studies Chinese medicine.

During the Han dynasty (206 B.C to 220 AD), Zhang Zhongjing, the Hippocrates of Chinese medicine, wrote a treatise on cold damage (*Shanghan Zabing Lun*) 200 AD, which contains the earliest known reference to *Neijing Suwen*. Subsequently, the Jin dynasty (265 AD to 420 AD) practitioner, Huang-fu Mi (215 - 282 AD), also quoted the Yellow Emperor in his *Jia Yi Jing* (one of the most famous acupuncture textbooks). During the Tang dynasty (618 AD to 907 AD), Wang Bing, a famous physician claimed to have located a copy of the originals of the *Neijing Suwen*, which he expanded and edited substantially. This work was then revisited by an imperial commission during the 11th century AD (Yin, 1993).

The development of Chinese medicine in China has not been smooth sailing. During the "Revolution of 1911", the Republic of China underwent a period of cultural modernization which tried to emulate the West. The government of the time proposed the abolishment of traditional Chinese medicine and the establishment of Western medicine as the only system. This led to the decline of Chinese medicine. When the Communist party of China came to power in 1949, there were very limited medical services at the time. The new communist government (People's Republic of China) encouraged the use of traditional Chinese remedies because they were cheap and acceptable to the Chinese community and were easily accessible in the rural areas. Traditional Chinese medicine regained popularity in the mid 1950s and the use of acupuncture and herbal medicine became routine practice in many hospitals. Many hospitals opened clinics to provide Chinese medicine treatments, teach and undertake research in Chinese medicine.

In 1965, Chinese medicine formed an important part of the barefoot doctor program in China, which extended public health into rural areas in which urban-trained doctors would not settle. Barefoot doctors were farmers who had received a minimal basic medical training (with a strong focus on Chinese medicine as it is accessible in the rural areas) and worked in rural villages in China. The barefoot doctor system was abolished in 1981 as medical care became more widely available.

Chinese medicine, as a reflection of traditional Chinese culture, underwent yet another period of extreme hardship during the Cultural Revolution. Thus, from 1966 to 1976, traditional doctors were purged from the schools, hospitals and clinics. In 1979, the National Association for Chinese Medicine was established, and many of the previously abolished textbooks were republished. Today traditional Chinese medicine with its many modalities has spread all over the world and increasingly gaining in popularity.

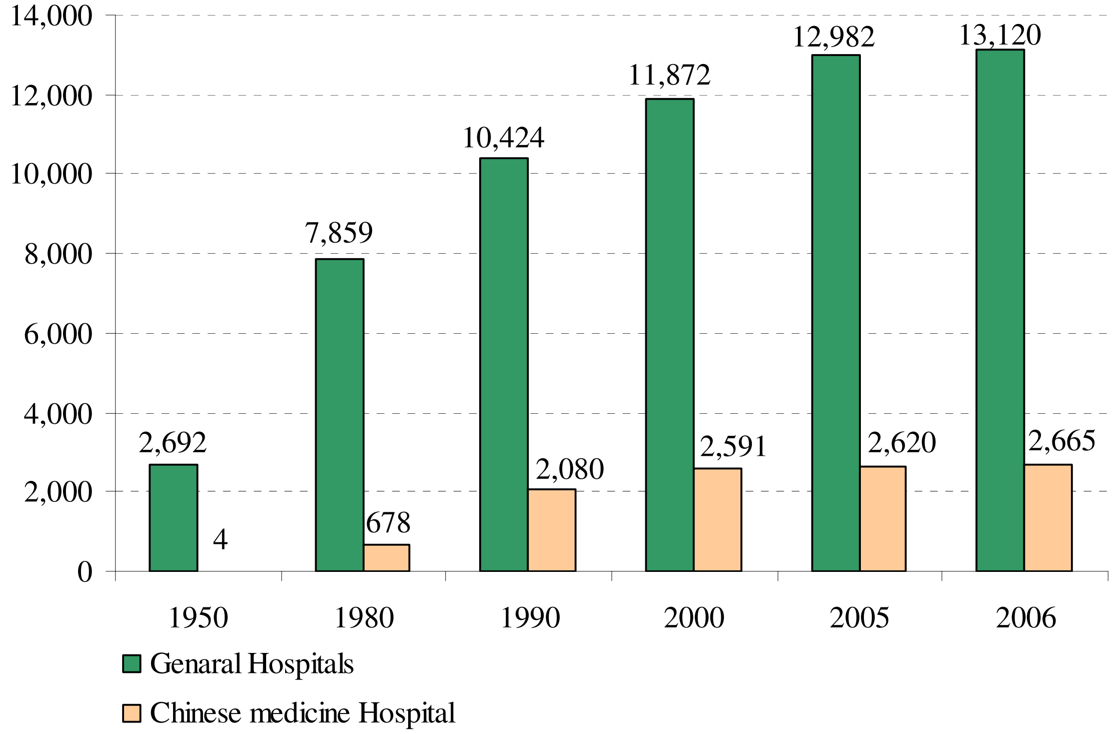
2.2.1 Chinese Medicine Utilisation and Practitioners in China

Chinese medicine practice in China has been fully integrated into the national healthcare system with traditional herbal therapies representing 30% - 50% of all medicines (World Health Organization, 2005). In the last half century the government in China has consistently emphasized the importance of traditional Chinese medicine side by side with Western medicine. Some literature has suggested about 60% of healthcare is provided by Western medicine and 40% by Chinese medicine (Chan, 2005; Scheid, 1999).

Statistics from the Ministry of Health of the People’s Republic of China indicated that in 2006, there were 2,665 traditional Chinese medicine hospitals in China (not including Chinese medicine and Western medicine integrated hospitals and minority nationality medicine hospitals) with a total number of 333,344 beds (Ministry of Health of the People's Republic of China, 2007). The number of Chinese medicine hospitals represented approximately 17% of the total hospitals in China at that time

In Chinese medicine hospitals, patients on presentation are diagnosed by Chinese medicine practitioners based on Chinese medicine theories. At the same time Western medicine diagnosis, and western modern technologies and laboratory tests are also commonly employed, often for purpose of diagnosis and health assessment.

Figure 2.1 Number of **Chinese** medicine hospitals in China, 1950-2006



It was estimated that in 2006 there were 216,452 registered Chinese medicine practitioners in China (including assistant practitioners and licensed Chinese herbal medicine pharmacists) working in all kinds of health organisations including both Chinese and Western medical services (State Administration of Traditional Chinese Medicine, 2008). Of these, only 81,313 actually worked in a Chinese medicine health organisation. That means that nearly two thirds (62.4%) of the Chinese medicine doctors practiced in general (Western medicine) hospitals in China. These figures are shown in Table 2.1. This indicates the extent to which general hospitals have integrated specialists in Chinese medicine into their systems. The public can also obtain Chinese medicine services from 50% of the health service agencies and 80% of the health service centres in the community (Xinhua News Agency, 2004). In rural areas, approximately 70% of the counties have at least one traditional Chinese medicine hospital and 40% of the rural medicine practitioners use only traditional Chinese medicine or both Chinese medicine and western medicine (Xinhua News Agency, 2004).

Table 2.1 Chinese medicine organisations and healthcare workers in China

	Unit	Total employee	Healthcare worker (%)[1]	Licensed Chinese medical doctor (%)[2]	Licensed assistant Chinese medical doctor (%)[2]	Licensed Chinese herbal medicine pharmacist (%)[2]
Total health care organisation (T)	82,624	5,101,817	4,106,442 (80.5)	166,614 (4.1)	28,514 (0.7)	21,324 (0.5)
Chinese medicine health care organisation (C)	3,904	486,299	393,553 (80.9)	68,610 (17.4)	6,030 (1.5)	6,673 (1.7)
C/ T（%）	4.7	9.3	9.6	41.2	21.2	31.3

Note：Figures do not include clinics and community healthcare facilities

1: % of total employees

2: % of total healthcare workers

Source: http://www.satcm.gov.cn/96/全国中医药统计摘编/main.htm

In Hong Kong Special Administrative Region of China, the use of Chinese medicine was left outside the mainstream healthcare system for about over a hundred years (Chung, Wong, Woo, Lo, & Griffiths, 2007; Holroyd, 2002) and not until recently, after the handover of sovereignty of Hong Kong to China in 1997, was the development of Chinese medicine explicitly encouraged under the Hong Kong Basic Law (National People's Congress of the People's Republic of China, 1990). Thus, the first large-scale, cross-sectional study of Chinese medicine utilisation was conducted with 31,762 interviews in 2002 (Chung et al., 2007). This survey concluded that about 4% of those interviewed preferred Chinese medicine when they experienced medical problems and of those with symptoms of a medical problem in the 30 days prior to the survey, about 1.8% had used Chinese medicine regularly in the previous six months and one in eleven (8.8%) had consulted a Chinese medicine practitioner (Chung et al., 2007).

2.2.2 Chinese Medicine Regulation in China

The State Administration of Traditional Chinese Medicine (SATCM) of the People's Republic of China was established in May, 1988. It is a national authority under the Chinese Ministry of Health. The authority is responsible for administrating traditional Chinese medicine and Chinese pharmacology, to inherit and develop the science of Chinese medicine, to enhance the integration of Chinese medicine and Western medicine, and to promote Chinese medicine development and international collaboration (State Administration of Traditional Chinese Medicine, 2007a). Under the guidelines of the "*Provision for New Drug Approval 1992*", Chinese herbal medicine supplies within China are also controlled by the Ministry of Health via the SATCM (State Council of People's Republic of China, 2004).

Legally, Chinese medicine practitioners in mainland China are recognised as medical doctors who particularly practice particular disciplines – Chinese herbal medicine, acupuncture or Chinese therapeutic massage. The status of Chinese medical doctors is similar to that of western medicine doctors who can specialise in a field such as dermatology or gynaecology. In Chinese there is no system of specialist colleges analogous to that in Australia. In addition, medical graduates who have received formal tertiary education are eligible to prescribe both Chinese medicinal herbs and Western drugs.

On 26th of June 1998, the People's Congress of China passed the bill of "*Licensed Medical Doctors in the People's Republic of China*". Categories of licensed medical doctor and licensed assistant medical doctor were set up regardless of the nature of practice of Chinese medicine or Western medicine. Subsequently, when applying for examination, applicants are required to select one of the sub-categories among "licensed medical doctor", "licensed Chinese medical doctor" or "licensed public health doctor". In all categories, the system of assistant doctors is also applicable. Thus, Chinese medical doctors are regulated under the national registration requirements according to the same standards as Western medical doctors.

The status of Chinese medicine practitioners in Hong Kong is somewhat different from those in the mainland China. On one hand, Hong Kong Chinese also have the tradition of utilising Chinese medicine and as a consequence of professionalism and increased legitimacy of Chinese medicine, there is evidence that the utilisation of Chinese medicine services has increased substantially in this special region (Chung et al., 2007). On the other hand, Chinese medicine practitioners in Hong Kong are regulated by a separate authority rather than the medical council. The Chinese Medicine Council of Hong Kong (the Council) is a statutory body established under the Chinese Medicine Ordinance in 1999. The Council is responsible for implementing regulatory measures for Chinese medicine practitioners and Chinese herbal medicines to ensure the professional standard of Chinese medicine practitioners and control the trade of Chinese herbal medicines through “self-regulation” (The Chinese Medicine Council of Hong Kong, 2007). To date, over 5,500 Chinese medicine practitioners have been included in the category of “registered Chinese medicine practitioners” and over 2,800 are “listed Chinese medicine practitioners”. Located at Western medical hospitals or Chinese medicine clinics, Chinese medicine services may be funded by both non-governmental organisations and the public medical sector. Yet, patients are still required to pay for treatment on an out-of-pocket basis.

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2.3 Recent Chinese Medicine Development in the Developed Countries

Western medicine was first introduced to China when Jesuit missionaries arrived in the 17th century (Duhalde, 1738-41). Yet, traditional Chinese medicine has only been introduced to the West relatively recently. After the 18th century, as economic and cultural exchanges between East and West became more frequent, most aspects of Chinese culture, including traditional medicine, became of interest to the Western world. For example, acupuncture anaesthesia attracted great attention from many Western countries in the 1970s, when James Reston of the New York Times required an emergency appendectomy and was operated on in China during the American president Nixon's visit to China.

In the past decades, with an increasing interest in Chinese medicine, a number of studies on the prevalence, cost implications and patients' attitudes to acupuncture and Chinese herbal medicine have been conducted in many countries outside China (Fang & Schinke, 2007; Herman, Craig, & Caspi, 2005; Schafer, 2004; Sibbritt, Adams, & Young, 2007; Upchurch et al., 2008). In general, acupuncture is the most frequently studied and reported therapy in the West. In the following sections, data on the utilisation of Chinese medicine particularly of acupuncture in Australia, the United States, and the United Kingdom will be presented.

2.3.1 Chinese Medicine in Australia

2.3.1.1 Utilisation and Practitioners

Australians are among the highest users of CAM in the Western world (Australian Government, 2006), and Chinese medicine is one of the most popular forms of CAM. It is widely used in Australian communities (Carlton & Bensoussan, 2002). It was estimated that more than two thirds of Australians use CAM either in conjunction with or separate from conventional health care, 9.2% of Australian reported using acupuncture and 7% had used Chinese herbal medicine in the past 12 months (C. C. Xue et al., 2007).

Chinese medicine was first brought to Australia after the discovery of gold in the 18 century. It was reported that there were 50 Chinese medicine practitioners in Australia in 1867. Chinese medicine was then gradually accepted by people other than Chinese immigrants and by 1911 Chinese herbal remedies were available with English labels and directions (Loh, 1985). After 130 years' development, it is estimated that in 1996 there were approximately 4,500 Chinese medicine practitioners in the states of New South Wales, Victoria and Queensland. It included traditional Chinese medicine acupuncturists and those medical practitioners who had made claims in the previous 12 months on the Medicare item number for acupuncture (A Bensoussan & Myers, 1996).

Clearly, the practice of Chinese medicine together with other CAM modalities has undergone a significant growth in the last few decades. Data from the Chinese Medicine Registration Board of Victoria indicated that about 900 people were registered with the Board in 2007. Mandatory registration systems have not yet been implemented in other states in Australia. Data from one of the biggest Chinese medicine professional associations in Australia – the

Australian Acupuncture and Chinese Medicine Association (AACMA) indicated that about 1,700 people were members of the association. These members may be practicing acupuncture, Chinese herbal medicine or both (Australian Acupuncture and Chinese Medicine Association, 2006).

Currently, most private health insurance funds in Australia provide limited rebates for visiting Chinese herbal medicine and/or acupuncture practitioners. Acupuncture is the more commonly used aspect of Chinese medicine and is being recognised as useful by more and more health professionals. An increasing number of medical doctors, chiropractors and physiotherapists have learned and practiced acupuncture. Since acupuncture became a Medicare benefit item in 1984, claims have risen from 655,000 in the financial year 1984-85 to 960,000 in 1996-97, and Medicare reimbursements have increased from $7.7 million to $17.7 million over a 12 year period (1984 to 1996) (Easthope, Beilby, Gill, & Tranter, 1998). During 2004 to 2005, 18% of Australian general practitioners (GPs) had practised acupuncture and 31% said they would consider using it in their practice (Cohen, Penman, Pirotta, & Da Costa, 2005).

Currently, most allied health, complementary and alternative medicine services are excluded from Medicare, whereas acupuncture is an item on the Medicare Benefits Schedule (MBS) if it is provided by a qualified conventional medical practitioner with minimum acupuncture training. For in-hospital acupuncture treatment, Medicare pays 75% of the MBS fee. The remaining 25% can be covered if the patient has private patient hospital insurance. For out-of-hospital acupuncture treatment, Medicare pays 100% of the MBS fee for general practitioner consultations and 85% of the MBS fee for specialist consultations (Australian Department of Health and Ageing, 2007).

2.3.1.2 Regulation

In Australia, the regulation of practitioners and medicines are independently controlled by different authorities. In September 2003 the Therapeutic Goods Administration (TGA) published a report entitled *Complementary Medicines in the Australian Health System* (Therapeutic Goods Administration (TGA), 2003). It argued that the governments should move more quickly to a nationally consistent, statutory regulation (where appropriate) of complementary healthcare professions. One of the important recommendations (clause 27) is worth of note. Thus, the Expert Committee on Complementary Medicines in the Australian Health System suggested that all jurisdictions introduce legislation to regulate practitioners of traditional Chinese medicine and dispensers of Chinese herbs, based on existing Victorian legislation, as soon as possible (Therapeutic Goods Administration (TGA), 2003). Overall, in the report, the Expert Committee made 49 major recommendations for improved regulation of complementary medicine in Australia. In 2005, the Australian Government accepted all but one of these recommendations (Therapeutic Goods Administration (TGA), 2005).

In Australia, regulation of Chinese medicine practitioners is a responsibility of States and Territories. Besides the state of Victoria, presently there is no other jurisdiction that has a registration system for Chinese medicine in Australia. Generally, acupuncture and Chinese herbal medicine practitioners in states other than Victoria can be recognised by becoming a member of a professional association that has uniform national registration requirements. According to the Australian Taxation Office (ATO), acupuncture and Chinese herbal medicine (included in the category of "herbal medicine") are listed as two of the twenty one GST-free complementary medicine services (Australian Taxation Office, 2006). With an eligible professional association membership in any state except Victoria, or being a registered member of the Chinese Medicine Registration Board of Victoria, practitioners are entitled to receive Goods and Services (GST) exemption from the ATO and their patients are eligible to receive rebates from some major private health insurance funds for Chinese medicine services.

It is important to note the historical development of the Chinese Medicine Registration Act in the state of Victoria, the sole state in Australia with a mandatory Chinese medicine registration requirement. In 1995, the Victorian Department of Human Services (DHS) (previously known as Health and Community Services) commenced a review of traditional Chinese medicine. The review was undertaken in response to a rapid expansion in the practice of and demand for Chinese medicine in Australia and increasing concerns expressed by consumers, practitioners and professional groups (Victorian Ministerial Advisory Committee, 1998). Subsequently, with joint funding from Victoria, New South Wales and Queensland, Southern Cross University and the University of Western Sydney undertook a major national research project on the practice of Chinese medicine. The research project collected information to assess the risks and benefits associated with Chinese medicine and the nature of its workforce. It also examined the need for legislative regulation of Chinese medicine practice (A Bensoussan & Myers, 1996).

The workforce review resulted in a major report in November 1996 entitled *Towards a Safer Choice: the practice of traditional Chinese medicine in Australia* (A Bensoussan & Myers, 1996). In addressing the criteria set by the Australian Health Ministers Advisory Council for regulation of the professions, it became apparent that the practice of Chinese medicine involved potential significant risks and therefore occupational regulation would be appropriate. The report recommended the regulation of practitioners of Chinese medicine with the primary purpose of protecting the public.

In 2000 the Chinese medicine Registration Act 2000 was passed by the Victorian parliament. Soon after this, the Chinese Medicine Registration Board of Victoria (CMRBVic) was established under the Act, to register acupuncturists, Chinese herbal medicine practitioners and Chinese herbal dispensers. The CMRBVic is also empowered to investigate complaints about registrants' professional conduct and fitness to practice (The Parliament of Victoria, 2005). Registration began in January 2002. Practitioners can apply for registration in any one, or a combination of, the following areas: acupuncture; Chinese herbal medicine practice or Chinese herbal medicine dispensing.

In recent years, although there is no state registration for Chinese medicine practice, a discussion paper on the regulation of complementary health practitioners was released by the state of the New South Wales (NSW) Department of Health in September 2002 (New South Wales Health, 2002). After a consultation period, in 2005 an expert committee prepared a report for the NSW Minister for Health in relation to regulation of Chinese medicine practitioners in the state. A total of 33 recommendations were made in this report, and it was recommended Chinese medicine practitioners including acupuncturists, Chinese herbal medicine practitioners and Chinese herbal medicine dispensers be registered in NSW.

Following the lead of Victoria and New South Wales, in June 2005 the Western Australia Department of Health released a discussion paper entitled "*Regulation of Practitioners of Chinese medicine in Western Australia*" (Government of Western Australia, 2005). The paper indicated that regulating Chinese medicine practitioners in the Western Australia was important given the potential for serious adverse effects arising from the practices of the profession. Despite these developments, there are no official immediate plans to regulate complementary health practitioners in the Australian Capital Territory, Northern Territory, Queensland, South Australia or Tasmania.

2.3.2 Chinese Medicine in the Northern America

2.3.2.1 Utilisation and Practitioners

In the United States, Chinese medicine is growing as an integral part of CAM. After the developments in the last several decades, Chinese medicine is now being practised with an orientation that is consistent with the accepted public health paradigm in the North America (Giordano, Garcia, & Strickland, 2004). The National Centre for Complementary and Alternative Medicine (NCCAM), an affiliation of the National Institutes for Health, has documented the ever-growing number of Americans seeking assistance from all forms of CAM including Chinese medicine, in particular acupuncture.

Acupuncture is one of the most commonly used forms of CAM in the United States. A national consumer survey in 1997 found 2% of the population reported lifetime use of acupuncture (Landmark Healthcare, 1998) and in the 2002 National Health Interview Survey (NHIS), approximately 4.1% of the survey participants have used acupuncture, which represents 8.19 million Americans. Higher percentages were found in some specific populations, such as first generation Chinese immigrants (Wu, Burke, & LeBaron, 2007), or patients with cancer (Samuels, 2002) or chronic diseases (Jones, Maloney, Boneva, Jones, & Reeves, 2007). Compared with the high public interest and high satisfaction among users, the utilisation of acupuncture was not as much as expected (A. Burke, Upchurch, Dye, & Chyu, 2006; Stewart, Weeks, & Bent, 2001). It is probable that this relatively low utilisation of acupuncture is due to the limitations and restrictions on healthcare insurance benefits for acupuncture treatments and perhaps due to a low level of knowledge of this therapy among primary care physicians.

It was estimated in 1997 that more than 8,700 licensed acupuncturists practiced more than 10 million treatments every year in the US (Marwick, 1997). An acupuncturist is considered a non-physician clinician in the US and in addition to these licensed acupuncturists about 3,000 physicians in the United States were believed to practice acupuncture in 1997 (Eisenberg et al., 2002; Kaptchuk, 2002) and the number has increased dramatically during the following years (Lin, Lee, Kemper, & Berde, 2005). In Oken's book *Complementary Therapies in Neurology: An Evidence-Based Approach* (2003) it was estimated that 14,000 licensed acupuncturists practiced in the US (Oken, 2003).

Up to July 2007, there were 16,116 licensed acupuncturists in the United States. The number of acupuncturists varies from state to state. As shown in Table 2.2, more than four fifths (81.3%) of the licensed acupuncturists concentrated in thirteen states with nearly half of them living in California (Acupuncture Today, 2007).

Table 2.2 Distribution of licensed acupuncturists in the United States in 2007

State	No. of Licensed Acupuncturists	%
1. California	6,455	40.0
2. Florida	1,317	8.2
3. Texas	640	4.0
4. Colorado	632	3.9
5. Oregon	628	3.9
6. New York	591	3.7
7. Massachusetts	543	3.4
8. Maryland	466	2.9
9. Illinois	440	2.7
10. New Mexico	404	2.5
11. Arizona	349	2.2
12. Pennsylvania	324	2.0
13. New Jersey	318	2.0
Other	3,099	18.7
Total	**16,116**	**100**

2.3.2.2 Regulation

In the USA, acupuncture is a regulated medical service in 43 out of 51 states except for Alabama, Delaware, Kansas, Mississippi, North and South Dakota, Oklahoma and Wyoming. California was the first state to license acupuncture (Kaptchuk, 2002). The stipulations and rules vary from state to state, however the basic content of these regulations include: standards of practice, administration of acupuncture, establishment of a licensing examination, definitions of unprofessional conduct, and other related regulations (Stux, Berman, & Pomeranz, 2003). A certificated acupuncture practitioner usually uses the state-protected title of "Licensed Acupuncturist", "Diplomate Acupuncturist" or "Acupuncturist".

In different states, acupuncture may be considered to be part of the practise of medicine without further training and is restricted to licensed physicians. This applies in 18 states including Kentucky, Michigan, Mississippi and Ohio. There are 11 states that require a certain number of hours of acupuncture training (or the passing of an examination) by a licensed physician before they can practise acupuncture: California, District of Columbia, Georgia, Illinois, Louisiana, Maryland, Montana, New York, Nevada, Pennsylvania (Stux et al., 2003). For non-physician acupuncturists, they may be independently licensed or registered based on their training and/or examinations. In some states, acupuncturists must practice under some sort of supervision by a medical doctor such as referral from a medical doctor.

Although acupuncturists in each of the 50 states is under their own Chinese medicine board or professional associations, The National Certification Commission for Acupuncture and Oriental Medicine (NCCAOM) is a non-profit organisation that was set up in 1982 in order to establish, assess, and promote recognized standards of competence and safety in acupuncture and oriental medicine for the protection and benefit of the public (National Centre for

Complementary and Alternative Medicine (NCCAOM), 2007). Formal education and/or apprenticeship in acupuncture and Chinese herbs are required to be eligible to apply for a nationally recognised certificate distributed by NCCAOM.

Health insurance

In 2001, approximately half of the health insurance companies in the US covered acupuncture, all of which required that acupuncture be performed by a physician or licensed acupuncturist (Cleary-Guida, Okvat, Oz, & Ting, 2001). Similarly, a Kaiser Family Foundation employer survey in 2004 found that 47% of covered employers had acupuncture coverage. Among the general population, 1.3% of a total of 600,000 insurance enrolees from Western Washington made claims for acupuncture in 2002 (Lafferty et al., 2006). Today more and more public or private insurance companies start to provide benefits on CAM therapies (Barrett, 2003; Pelletier, Astin, & Haskell, 1999).

2.3.3 Chinese Medicine in the United Kingdom

2.3.3.1 Utilisation and Practitioners

In the last several decades, the prevalence of Chinese medicine, especially acupuncture has grown considerably in the United Kingdom (UK) along with other forms of complementary and alternative medicine (D. K. Owen, Lewith, & Stephens, 2001). According to a postal survey in 1998, 7% of adult population in the UK reported visiting acupuncture practitioners in their lifetime and 1.6% had recently (as defined in the survey) visited acupuncturists (Thomas, Nicholl, & Coleman, 2001). A more recent study suggested that each week about 10% of general practitioners refer patients to acupuncture, or practise it themselves (Thomas, Nicholl, & Fall, 2001).

The treatment of acupuncture for some types of chronic pain was considered to be safe, acceptable and cost effective in the longer term (Ratcliffe, Thomas, MacPherson, & Brazier, 2006; Thomas et al., 2005). Thus, acupuncture is practised by not only Chinese medicine practitioners but also used as a technique by some other healthcare professionals, including medical doctors and specialists, nurses and physiotherapists as well as many CAM professionals such as osteopaths, chiropractors and naturopaths (Acupuncture Regulatory Working Group, 2003).

There are around 7,500 practitioners in the UK who practise acupuncture to some extent and belong to a relevant professional or regulatory body (Xing & Long, 2006). Of these, around one third (2,400) are traditional acupuncturists who practise acupuncture in conjunction with Chinese herbal medicine. Most commonly, these acupuncturists belong to the British Acupuncture Council (BAcC), one of the biggest acupuncture associations in the UK. In addition, a large cohort of medical doctors, physiotherapists and nurses were also qualified acupuncturists. They practise a Western type of medical acupuncture and use acupuncture techniques as part of their normal clinical practice. For example, some 2,200 registered doctors belong to the British Medical Acupuncture Society (BMAS), some 2,650 physiotherapists belong to the Acupuncture Association of Chartered Physiotherapists (AACP), and 250 nurses belong to the British Academy of Western Acupuncture (BAWA).

In 2003, the Acupuncture Regulatory Working Group (UK) estimated that more than 10,000 acupuncturists practise different kinds of acupuncture in private practice and in the London hospitals (Acupuncture Regulatory Working Group, 2003). It was also estimated that approximately 50% of them were classified as traditional acupuncturists, that is, these acupuncturists practise acupuncture in conjunction with Chinese herbal medicine.

A survey was conducted by the British Medical Acupuncture Society (BMAS), the leading professional body for medical practitioners, registering more than 2,300 medical doctors who practise acupuncture in the UK, it indicated that a total of about one million acupuncture treatments were provided by BMAS members per year, of which over a half were provided free within the National Health Service (Price & White, 2004).

2.3.3.2 Regulation

In UK, complementary and alternative medicine practitioners without a university medical degree can not be officially recognised as a medical doctor. The regulation of most complementary medicine practitioners including acupuncturists is largely based on voluntary self-regulatory bodies and professional organisations. Thus, although some local authorities have license arrangements for practice premises, acupuncture and Chinese herbal medicine practice are currently not regulated by law in the UK (Acupuncture Regulatory Working Group, 2003).

Currently, more than 2,800 members are registered with the British Acupuncture Council (BAcC) which was set up in 1995 and is the largest body of professional acupuncturists in the UK. As a self-regulating professional body, the BAcC is committed to a number of standards for protecting both the public and its members: safe practice, training standards and ethical behaviours. Entry to this professional body is at three year undergraduate degree level training and members need to be trained in both traditional acupuncture and relevant biomedical sciences (British Acupuncture Council, 2007).

In a report entitled *Science and Technology into Complementary and Alternative Medicine* that was submitted to the House of Lords' Select Committee in November 2000, acupuncture was identified as one of the five main CAM therapies and was recommended for statutory regulation in the UK. Based on these, the Department of Health is in the process of introducing statutory regulation for acupuncture, herbal Medicine and traditional Chinese medicine and a document on "*Regulation of herbal medicine and acupuncture*" was released by the Department in March 2004 (Department of Health United Kingdom, 2004). This report suggested acupuncture and herbal medicine, and possibly non-medical homeopathy, should be standardized and independently subject to statutory regulation (Mills, 2001).

In response to public concerns on the safety of acupuncture and the need to protect the public, the Acupuncture Regulatory Working Group (ARWG) and Herbal Medicine Working Group (HMRWG) were established in 2002. The purposes of setting up these working groups were to examine the situation of acupuncture and herbal medicine and to produce proposals for their statutory regulation. The Groups concluded in 2003 that acupuncture has been shown to be extremely safe in the hands of properly trained, competent practitioners. However, the Groups also considered that self–regulation of the health professions is an important way of protecting patients. Thus, the acupuncture professions will need to operate statutory self–regulation schemes that reflect and encompass both traditional and Western medical approaches (Department of Health United Kingdom, 2003). It has been estimated that the acupuncture profession will be regulated by statute by 2010 (British Acupuncture Council, 2007). On full implementation of this regulatory requirement, only those who meet the required standards of competence will be eligible to be registered for practice, and be entitled to be called “acupuncturist” or “herbal medicine practitioner”.

More recently, according to a media release from the Prince’s Foundation of Integrative Health, a new regulatory body called The Natural Healthcare Council (NHC) will be launched in April 2008, marking an historic milestone in healthcare regulation in the UK (Prince’s Foundation of Integrative Health, 2008). As a result a reliable and professional voluntary regulatory structure for the practice of complementary healthcare will be provided by NHC in the UK.

2.4 Summary

In summary, this chapter provides an overview of the current utilisation and regulation of Chinese medicine in China, Australia, the United States and the United Kingdom. With the widespread and growing use of traditional or complementary medicine in many developed countries, policy-makers, health professionals and the public have become more and more concerned about the safety, efficacy, and future development of this type of health care. However, regulation of traditional medicine including Chinese medicine in many countries still relies on voluntary self-regulation although moves towards systems of compulsory licensing or registration are evident in a number of countries. To date, only 25 of the World Health Organisation's 191 member states have developed a national TM/CAM policy. For the purpose of promoting integration of traditional medicine into national healthcare systems, WHO published its *Global Strategy for Traditional and Complementary Alternative Medicine* in 2002.

The profile of the practitioners who are practicing traditional Chinese medicine has changed significantly worldwide. Yet, limited information is available on the workforce in Chinese medicine and their patients internationally. Thus, the principal aims of these reviews have been to assist our understanding of the professional practice of Chinese medicine in China and a number of Western countries. Since the establishment of the Chinese Medicine Registration Act 2000 in Victoria, the need for detailed data on the Chinese medicine workforce has been growing. A workforce study that is able to systematically address the profile of registered Chinese medicine practitioners in Victoria is much needed. Therefore, data from the Chinese Medicine Registration Board have been scrutinised, collated, and analysed in the present research, and the results are presented in the next chapter.

CHAPTER 3. CHINESE MEDICINE WORKFORCE IN THE STATE OF VICTORIA, AUSTRALIA

3.1 Introduction

Victoria is the second largest state in Australia by population, with nearly 5 million people living in a land area of 227,420 square kilometres. It is also believed to be the State that Chinese medicine was first brought to Australia by Chinese miners in the gold rush in the 18^{th} century (Loh, 1985). Nearly two centuries later a Chinese Medicine Registration Act 2000 (the Act 2000) was passed by the Victorian parliament on 9 May 2000, which made Victoria the first jurisdiction to adopt a comprehensive regulatory regime for Chinese medicine outside China.

Existing information on the Chinese medicine workforce in Victoria relies on a study that was conducted in 1996 (A Bensoussan & Myers, 1996). However, in the last decade there have been significant changes in the development of Chinese medicine in Australia, including the implementation of the Chinese Medicine Registration Act in 2000 but no new detailed information on the workforce profile of Chinese medicine practitioners in Victoria is available. This study aimed to obtain a full picture of the Chinese medicine profession and understand the changes in the demography of the Chinese medicine workforce in Victoria since 1996 in order to better comprehend the current status and sustainability of the profession and to provide statistical materials for future Chinese medicine policy development and for educational training program providers. The study outcomes may also assist the planning of a long-term workforce strategy for the sustainable development of Chinese medicine profession in Victoria and in other states/territories in Australia.

3.1.1 The Chinese Medicine Registration Act

The Chinese medicine Registration Act 2000 provides for the registration of Chinese herbal medicine practitioners, acupuncturists and Chinese herbal dispensers. It was developed following an extensive consultation process commencing in 1995 as part of the Victorian Department of Health and Community Services Review of Traditional Chinese Medicine (CMRBVic, 2000).

The main purposes of this Act are:

(a) *to protect the public by providing for the registration of practitioners of Chinese medicine and dispensers of Chinese herbs and investigations into the professional conduct and fitness to practise of registered practitioners of Chinese medicine and dispensers of Chinese herbs; and*

(b) *to regulate the advertising of Chinese medicine and Chinese herbal dispensing services; and*

(c) *to establish the Chinese Medicine Registration Board of Victoria and the Chinese Medicine Registration Board Fund; and*

(d) *to amend the Drugs, Poisons and Controlled Substances Act 1981; and*

(e) *to make amendments to other Acts regulating health practitioners; and*

(f) *to provide for other related matters.*

The Chinese Medicine Registration Board of Victoria (hereafter, the Board or CMRBVic) was established under the Chinese Medicine Registration Act 2000. It is an independent statutory authority. Its powers and functions include registering persons who comply with the requirements of the Act, approving courses of study, regulating the standards of practice and, advising the Health Minister on any matters relating to its functions (CMRBVic, 2000).

The Act specified that a person is qualified for general registration as a Chinese medicine practitioner or a Chinese herbal dispenser in Victoria if that person-

(a) has successfully completed a course of study approved by the Board; or

(b) in the opinion of the Board, has a qualification that is substantially equivalent or is based on similar competencies to a course of study approved by the Board; or

(c) has passed an examination set by or on behalf of the Board; or

(d) has a qualification that is recognised in another State or Territory of the Commonwealth for the purposes of undertaking work of a similar nature to that which a person, holding a qualification to which paragraph (a), (b) or (c) applies, is qualified to undertake.

3.1.2 Transitional Arrangements

3.1.2.1 Introduction

The CMRBVic recognised there were a substantial number of practitioners in Victoria who were professionally competent to practice acupuncture or Chinese herbal medicine. These practitioners may not have standard qualifications that meet the requirement for general registration. Thus, to support the existing Chinese medicine practitioners and ensure the sustainable development of the profession, the Grandparenting policy was introduced to ensure that, from 1 January 2002 when the registration provisions of the Chinese Medicine Registration Act came into effect until the end of 2004, practitioners could continue to practice while their qualifications, training, and experience could be assessed by the CMRBVic to determine their eligibility for general or specific registration.

The Grandparenting policy provides the basis of practitioner registration for those applicants who applied to the Board during a defined period (between 1 January and 31 December 2004, known as the grand-parenting period or transitional arrangements) under the following conditions. The practitioner:

(1) has obtained a qualification or undergone training in Chinese herbal medicine, acupuncture or herbal dispensing whether in Victoria or elsewhere that is considered by the Board to be adequate for the purposes of this section; or

(2) has obtained a qualification or undergone training in Chinese herbal medicine, acupuncture or herbal dispensing whether in Victoria or elsewhere and undergone any further study, training or supervised practice required by the Board for the purposes of this section; or

(3) has carried on the practice of Chinese herbal medicine, acupuncture or herbal dispensing at any time within 10 years before the commencement of this section for a consecutive period of 5 years or for any periods the aggregate of which is 5 years; and

(a) the person has satisfied the Board that he or she is professionally competent as a practitioner in the division of registration applied for; and

(b) if required by the Board, the person has satisfactorily completed an examination conducted by or on behalf of the Board; and

(c) the person has satisfied the other requirements of this Act as to registration.

Under this policy, applicants with or without Chinese medicine degrees could apply for registration, when appropriate evidence of safe and sustainable practice was provided. From 1 January 2005, that is, the post grand-parenting period, Chinese medicine practitioners can only register with the CMRBVic if they have completed a program accredited by the CMRBVic or passed the examinations set by the CMRBVic.

Many hundreds of practitioners were registered under these flexible arrangements of the grandparenting policy. Under these arrangements, Chinese medicine practitioners could apply for registration under the categories of New Graduate or under one of five categories of Existing Practitioner depending upon when they graduated, type of qualification and length of practice (details below 3.1.2.2). Identifying the differences between the categories of practitioners on characteristics such as their language skills, their educational backgrounds and clinical practice experiences, either in Australia or overseas, can investigate changes in the Chinese medicine workforce over time.

3.1.2.2 Definitions of New Graduate and Existing Practitioner

As defined in the "*Application for General Registration Form*" developed by the Board, a "New Graduate" or a "New Graduate Practitioner" is "*a graduate of a course in acupuncture or Chinese herbal medicine who has completed all the course requirements, passed all their final examinations, and is eligible for graduation from the end of the 2002 academic year onwards*".

An Existing Practitioner is: "*a practitioner of Acupuncture or Chinese herbal medicine who has professional clinical experience in the practice of Chinese medicine, and/or a graduate of a course in Acupuncture or Chinese herbal medicine who has graduated, or was eligible to graduate, prior to the end of the 2002 academic year*".

3.1.2.3 Five Assessment Criteria for the Category of Existing Practitioner

Applicants who applied to the Board for registration were asked to nominate one of five assessment criteria (A, B, C, D and E) depending on their qualifications, time after graduation and length of practice. However, on assessing these applications, the Board could decide to use a category of assessment criteria that was the same or different to the one initially claimed by the applicant.

As shown in Table 3.1, for each of the five criteria, applicants were asked to provide different evidence of qualification and experience of Chinese medicine practice to be considered by the Board to determine eligibility for registration as an Existing Practitioner. In some cases, evidence such as the academic transcript or a statement from an educational institution was also required.

Criteria A and B are for those with a minimum of 5 years clinical experience. Applicants must provide “approved evidence” for 10 years of practice (criterion A) or 5 years of practice (criterion B). Such evidence of practice may include any of the following 11 types of documents: taxation records, health provider rebate status, proprietor of premises registered for skin penetration with local council, invoices or statement from supplier of Chinese herbs, invoices or statement from supplier of acupuncture needles, professional indemnity insurance, membership of a Chinese medicine professional association (acceptable to the Board for providing proof of length of practice), written record from an employer, and non-identifying patient records. This evidence is required for each division being applied for (Table 3.2).

Table 3.1 Summary of the requirements for practitioner registration

Qualification and experience necessary for registration as an exiting practitioner	Apply for registration under one of the five criteria				
	A	B	C	D	E
1. Minimum length of practice (years)	10	5	n/a	n/a	n/a
2. Evidence of practice:					
a) Two pieces of approved evidence for each claimed year*	yes	yes			
b) One piece of competence to practice	yes	#			#
3. Courses requirements:					
a) Acceptable to the Board, this includes but is not limited to:		yes			yes
I. Being broadly consistent with a diploma-level in the Australian Qualifications Framework		yes			yes
II. Incorporating a clinical component		yes			yes
III. Incorporating training in Chinese medicine differential diagnosis and the design of individualized acupuncture and/or Chinese herbal medicine prescriptions		yes			yes
b) Graduated in Australia between 01/01/1997 and 31/12/2001 from an accredited advanced diploma or degree			yes		
c) Graduated in Australia between 01/01/1997 and 31/12/2001 from a non-accredited course that has since obtained accreditation				yes	
d) Graduated in Australia or overseas between 01/01/1997 and 31/12/2001 from a non-accredited course					yes
4. Academic records					
a) Certified copy of academic records or such other evidence as the Board considers satisfactory		yes		yes**	yes
b) Certified copy of academic records			yes		

#: Evidence required if academic transcript does not demonstrate differential diagnosis and individualised acupuncture or Chinese herbal medicine prescriptions
* Approved evidence listed in Table 3.2
**: A statement from educational institution may be required by the Board
n/a: not applicable.

In addition, evidence of competency to practice is also required for criteria A, B and E applicants if their academic transcripts do not indicate disciplines of learning in differential diagnosis and individualised acupuncture or Chinese herbal medicine prescriptions. Finally, all applicants under criteria A, B or E may be required to sit an examination set by the Board if their applications are considered not sufficient for registration.

Evidence of clinical experience is not compulsory for those who apply for criteria C and D. These applicants, however, are required to have graduated in Australia between 01/01/1997 and 31/12/2001 from an accredited course or a non-accredited course which had subsequently obtained accreditation by the time of lodging the application. Other applicants, including those holding overseas qualifications, who did not have a minimum of 5 years clinical experience, were assessed under criterion E.

Table 3.2 Evidence accepted by the Board as professional experience

1. Tax records
2. Health provider rebate status
3. Proprietor of premises registered for skin penetration
4. Invoices/statements from supplier of Chinese herbs
5. Professional indemnity insurance
6. Membership of Chinese medicine professional association
7. Written record from employer
8. Non-identifying patient records
9. Statement from Chinese medicine professional association
10. Statement from employer
11. Other

3.2 Methodology

3.2.1 Data Source and Data Collection

To ensure a complete representation of the Chinese medicine profession, data were collected from several sources in this workforce study. Firstly and most importantly, the original documents submitted for registration applications were retrieved and analysed. Secondly, copies of the CMRBVic Annual Report from 2001 to 2007 were obtained and examined. Thirdly, additional information such as consumer complaint records, and records of formal and informal hearing were also analysed.

The original application documents submitted to the Board are stored at the CMRBVic office, Alphington, Victoria. By the end of 2004 when applications under the Grandparenting policy had closed, 1,264 applications had been received by the Board. Incomplete questions or sections, or questionable documents were required to be supplemented for final consideration. All application documents provided to the Board including the application form and other supporting evidence for each applicant were stored in an individual folder and coded with the application number. Additional information such as registration renewal letters following successful registration was added to the file. Rejected applicants and expired registrations were stored separately.

Data were extracted from the original application forms after de-identification. These were then entered into a predefined data transfer sheet (Appendix 1). No original record with any identifier was removed from the office of the Board. Confidentiality and privacy were paramount and no personal information was recorded. Upon completion of extracting data into the data transfer sheet, all data were then entered into an Excel database. They were double-checked by a second investigator at random against the original database and the dates of data entry were recorded in the database.

It is worth noting that a large proportion of qualifications submitted, particularly those awarded from overseas institutes, differed considerably in the course content and duration. Therefore, the duration of the Chinese medicine training and clinical practice were examined in detail against the *Board's Course Approval Guidelines*.

Specific features related to Chinese medicine registration application were coded and given fixed values. These Predefined codes and values were developed to ensure consistency in the data collection procedure and to facilitate data analyses (Appendix 2, *Specification of Legends for the Victorian Chinese medicine Workforce Database*). For example, Existing Practitioners are coded as 1 while New Graduates are coded as 2. The ages of all practitioners were calculated as at the end of December 2006.

3.2.2 Data Analyses

Data were entered into a Microsoft Excel spreadsheet and analysed using Statistical Package for Social Sciences (SPSS) for Windows, version 15.0. Descriptive statistics were presented for different groups of registered practitioners. Chi-square analyses were used to compare the differences among practitioners for the different characteristics. The relationships between practitioners' characteristics were assessed by Spearman Correlation (interval variables). In addition, differences between groups of practitioners were analysed using t-test, where appropriate. Probability levels less than 0.05 were taken to indicate statistical significance.

3.3 Results

At the end of 2006, there had been 1,264 applicants to the Board under the Grandparenting policy and 970 of them had been registered in one or more divisions, at some time up to December 31 2006, so the registration rate was 76.7%. Details on the non-approved applicants were not available. Of the 970 registered applicants 790 were resident in the state of Victoria. Of these, 151 were no longer registered on December 31 2006 for a variety of reasons not specified in these data. The findings of this study are presented in the following sections:

1) an overall profile of all 970 registered practitioners;

2) the demographic characteristics of all practitioners in Victoria with active registration status at the time of data collection (i.e. the end of 2006, n=639);

3) an in-depth analysis of the Victorian practitioners registered under the category of Existing Practitioners (see definition above, 3.1.2.2, n=491);

4) comparisons of practitioner characteristics between Existing Practitioners and New Graduates (see definition above, 3.1.2.2, n=148);

5) cross-tabulation analyses including significance tests on the characteristics of the active Victorian practitioners (n=639).

3.3.1 All Practitioners Approved under the Transitional Arrangements

The residential distribution of all practitioners who were approved for registration under the Grandparenting policy is shown in Table 3.3. Figures show the number of people who were approved for registration under the Grandparenting policy before 31 December 2004. Some practitioners may then have failed to renew registration in subsequent years. Hence only information about active practitioners will be analysed.

Table 3.3 Practitioners approved under the Grandparenting policy by region of residence

Region of residence		**n**
Australia	Victoria	790
	New South Wales	73
	Queensland	22
	West Australia	12
	South Australia	8
	Australian Capital Territory	4
	Northern Territory	3
	Tasmania	3
	Total Australia	**915**
Overseas	United States	1
	Canada	1
	P.R. China (Mainland)	1
	P.R. China (Hong Kong)	15
	Total overseas	**18**
Registration expired and postcode was not able to be identified		37
Total registered		**970**

A total of 970 practitioners were granted registration by the end of 2006. Based on the correspondence addresses provided, they came from all states and territories in Australia and a number of overseas countries. Naturally, Victoria had the highest number of registrants (790), followed by New South Wales (73) and Queensland (22). Interestingly there were eighteen overseas registrants including 16 from China. On the other hand, 37 practitioners had lost contact or did not renew their registration. Their data were not considered in this study.

3.3.2 Demographic Characteristics of Chinese Medicine Workforce in Victoria

3.3.2.1 Overall Profile

A total of 790 applicants resident in Victoria were initially approved for registration as Chinese medicine practitioners at the time of data collection. Nearly one in five (19.1%) were not actively practising due to various reasons such as loss of contact or failure to renew registration. The demographic information on the remaining 639 active Victorian practitioners is presented in Table 3.4.

Practitioners could apply for registration for either acupuncture or Chinese herbal medicine or both divisions. In all, nearly two thirds of the 639 Victorian practitioners (n=386, 60.4%) approved for both divisions.

As shown in Table 3.4, the mean age of all practitioners was 43.6 (mode=36, median=43.0) and among them 54.5% were male. Notably, nearly two thirds (60.2%) of the practitioners were aged between 35-54 years while less than one in six (16.1%) were aged over 55.

Nearly nine in ten (89.2%) registrants were resident in metropolitan areas in Victoria (this figure was calculated based on postal addresses of the practitioners). In addition, over one third (37.9%) of all registered practitioners indicated Chinese language as their first language.

The Grandparenting policy set out the minimum requirements regarding qualifications, training standards and clinical experience for registration. These are also summarised in Table 3.4. The majority (96.4%) of the registrants held at least a diploma in Chinese medicine.

Approximately one in seven (14.6%) had completed postgraduate training. Nearly half held a bachelor degree in Chinese medicine and over one third (34.1%) had an advanced diploma or a diploma in Chinese medicine.

The length of time a practitioner had been in practice was not a question asked on the CMRBVic's application form, so this cannot be reliably determined from this data. Nevertheless, an estimate can be calculated based on the time elapsed between the completion of the first main qualification in Chinese medicine and 2006 (Table 3.4). On average this was 13.3 years but the range was from 52 years to 0 years for those who had just graduated.

Table 3.4 Demographic characteristics of all registered practitioners

Characteristic		Registered practitioners (n=639)	
		n	%
Division of registration	Acupuncture only	225	35.2
	Chinese herbal medicine only	28	4.4
	Both divisions	386	60.4
Gender	Male	384	54.5
	Female	291	45.5
Age (years, mean = 43.6)	18 – 24	7	1.1
	25 – 34	144	22.5
	35 – 44	188	29.4
	45 – 54	197	30.8
	55 – 64	81	12.7
	65+	22	3.4
Highest qualification	Postgraduate	93	14.6
	Bachelor degree	305	47.7
	Diploma/advanced diploma	218	34.1
	Short courses	5	0.8
	Apprenticeship	11	1.7
	No assessable qualification	7	1.1
Years elapsed since graduation from the main qualification*	< 5 years	102	16.4
	5-9 years	197	31.6
	10-14 years	76	12.2
	15+ years	248	39.8
First Language	English	384	54.5
	Chinese	242	37.9
	Others	47	7.4
Location	Metropolitan area	571	89.8
	Rural Victorian region	65	10.2

* the main qualification is one that is formal and is sufficient for practice in at least one division. In the case of apprenticeship training this is the end date. Informal qualifications were excluded from analysis.

3.3.2.2 Age by Other Demographic Factors

In all but the highest age bracket (65+) the proportion registered in acupuncture exceeded the proportion registered in Chinese herbal medicine. In general, as age increased the difference in the proportion between these two divisions decreased (Spearman correlation = 0.236, $p<0.05$). However, the greatest difference was in 25-34 years with 95.1% practising acupuncture but only 40.3% practising Chinese herbal medicine (Figure 3.1).

Speaking Chinese was strongly correlated with age (Spearman correlation = 0.326, $p<0.05$), with 81.0% of those aged 65 years and over having Chinese as their first language compared with 13.9% in the 25-34 age group. So as age increased so did the proportion of native Chinese speakers (Figure 3.2).

The older practitioner groups had higher proportions of holders of diploma or advanced diploma as their highest qualifications, with those in the 55-64 age group had the highest proportion of non degree holders (55.6%). Bachelor qualifications were concentrated in the lower age groups with 85.7% in the 18-24 age group and 81.9% in the 25-34 age group. As expected postgraduate qualifications were more common in those aged 35 years and over, ranging from 16.0 to 22.7% (Figure 3.3).

Figure 3.1: Correlations of practitioners' practice type and age ranges

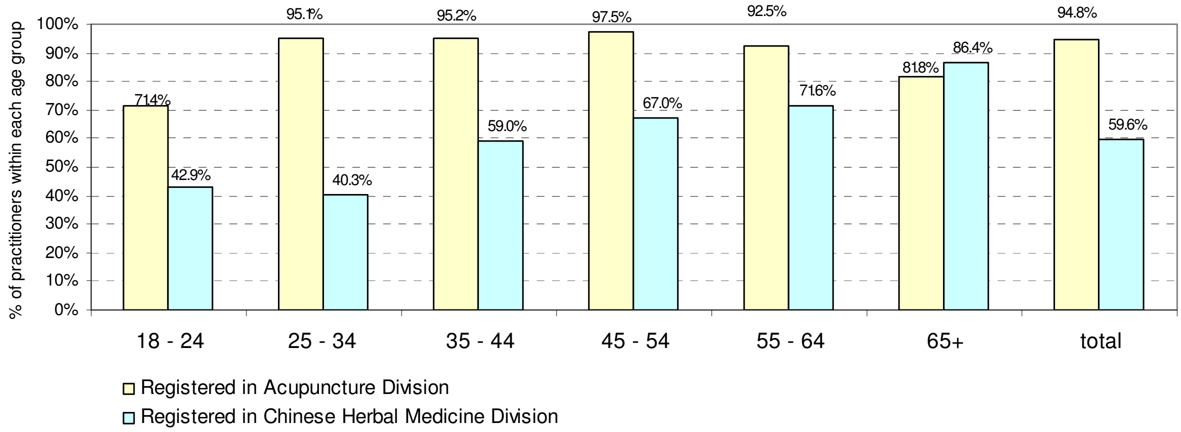


Figure 3.2: Correlations of practitioners' first language and age ranges

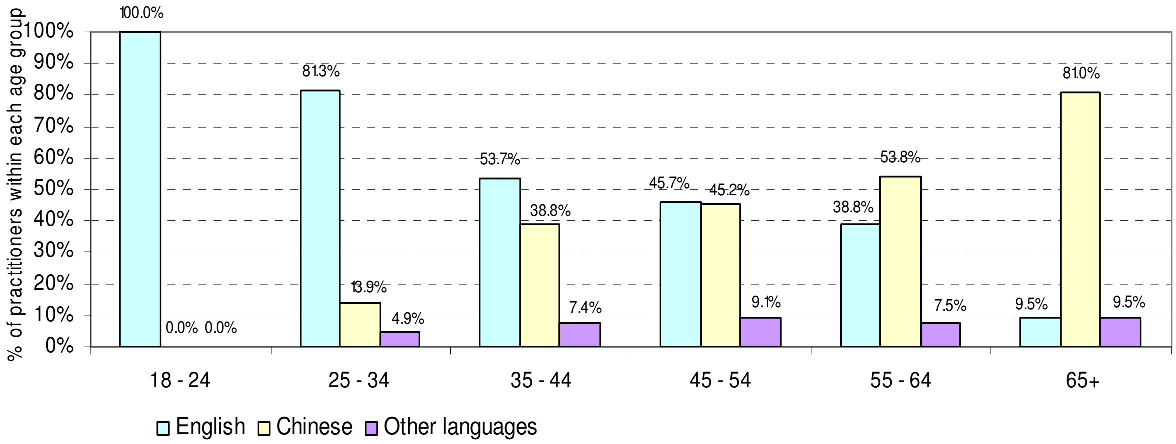
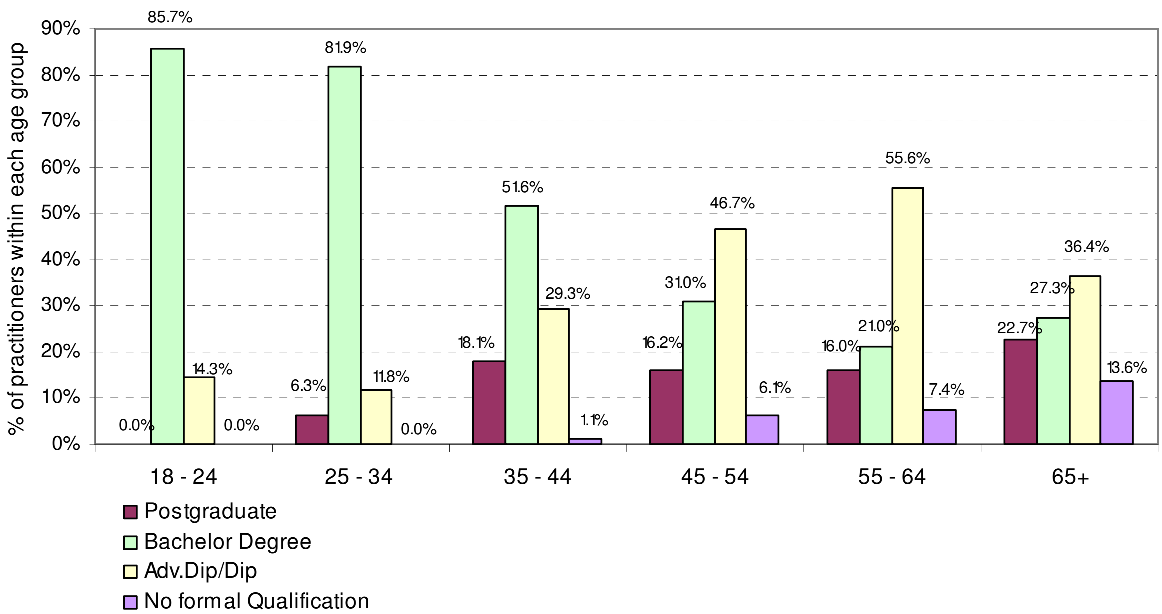


Figure 3.3: Correlations of practitioners' highest qualification and age ranges



3.3.2.3 Gender by Other Demographic Factors

There is a correlation between the practitioners' gender and age group (Figure 3.4). Females made up 58.3% of those aged 25 to 34. In contrast, 61.4% of those aged 45-54 years were males (Spearman correlation = -0.128, p = 0.001). Overall, as age increased so did the proportion of males (Figure 3.4).

A greater proportion of females (59.1%) spoke English as a first language than males (50.9%). In contrast, a greater proportion of males (39.9%) spoke Chinese as a first language than females (35.7%), however, no statistically significant differences were shown (Chi square = 6.270, p = 0.044) (Figure 3.5).

With regard to division of registration, 96.0% of males practiced acupuncture compared with 93.5% of females. For Chinese herbal medicine the proportions were 60.1% of males and 59.1% of females but these differences were not significant (Figure 3.6).

There was a significant difference in qualification level between genders (Chi square = 20.421, $p < 0.001$). There was a larger proportion of males with a postgraduate degree as their highest qualification (16.7%) compared with females (12.0%). Females were more represented in the bachelor degree category (57.4%) while there was a larger proportion of males with diploma/advanced diploma as their highest qualification (39.1%) compared with females (28.2%) (Figure 3.7).

Figure 3.4: Correlations of practitioners' genders and age ranges

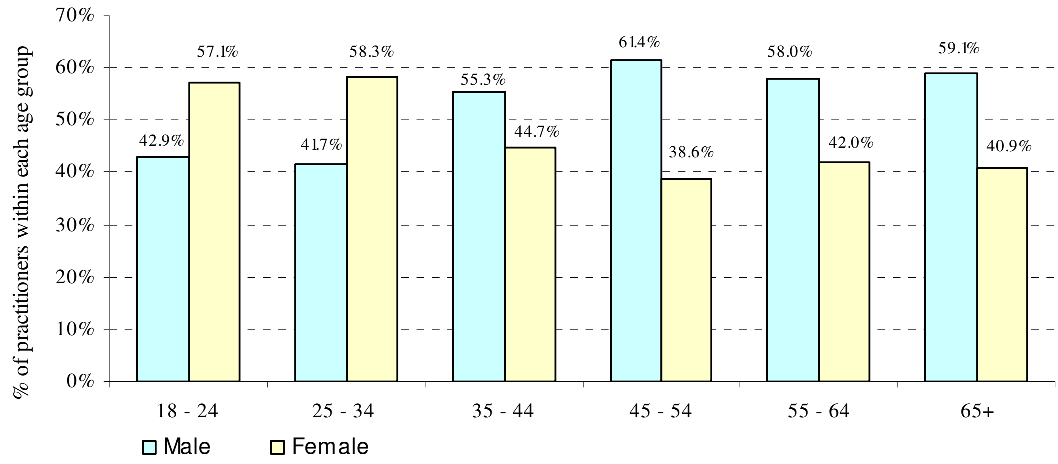


Figure 3.5: Correlations of practitioners' first language and genders

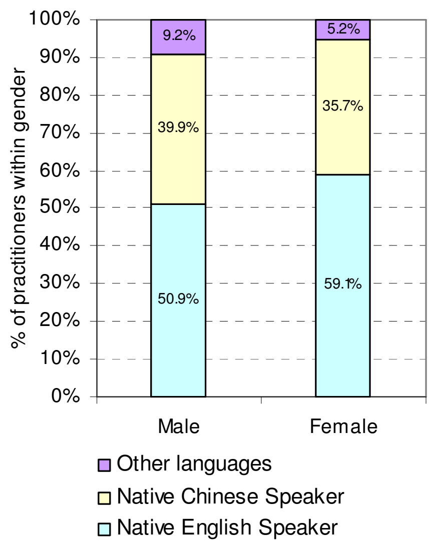


Figure 3.6: Correlations of practitioners' division of registration and genders

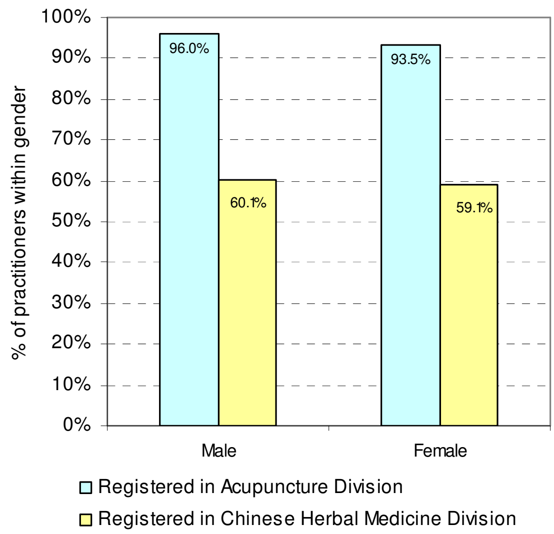
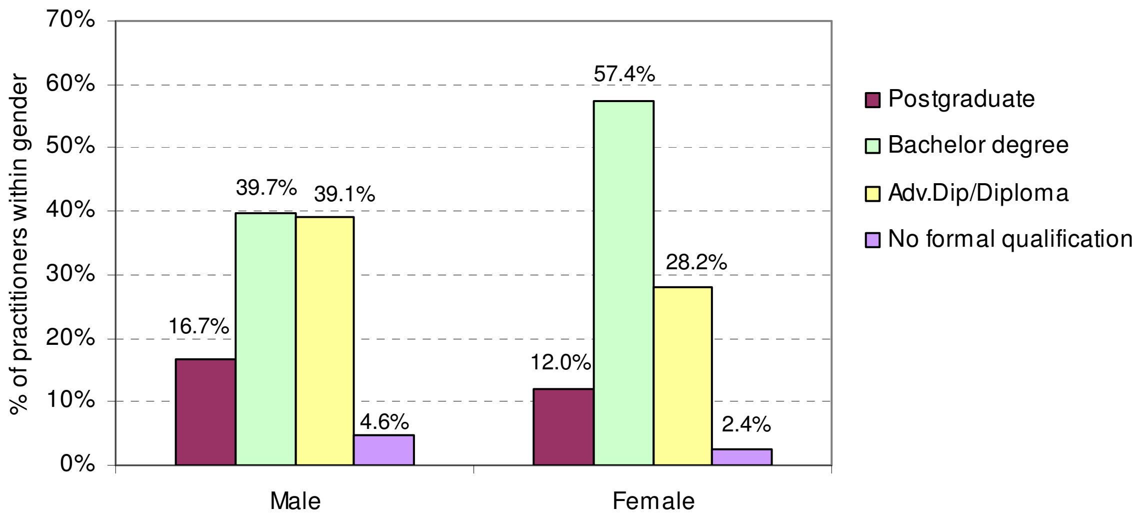


Figure 3.7: Correlations of practitioners' highest qualification and genders



3.3.2.4 Location of Practice

Based on the contact addresses and the postcodes provided by registrants, the areas of residence of all practitioners were summarised in eight areas according to the classification of the Victorian Department of Human Services (DHS) (Table 3.5). Excluding three practitioners who did not provide a valid correspondence address, 89.8% of all practitioners were in one of the three metropolitan areas as defined by the DHS. Of these eight DHS areas, 35.4% (225 practitioners) resided in the North & West Metropolitan area, 29.2% (186) resided in the Eastern Metropolitan area while 25.2% (160) resided in the Southern Metropolitan area. When compared with the total population of the state, these regions account for 28.8%, 20.0% and 23.2% respectively. Thus, practitioners tended to be concentrated in metropolitan areas, but less so in the Southern Metropolitan area (Table 3.5).

Table 3.5 Location of practice of the registered practitioners

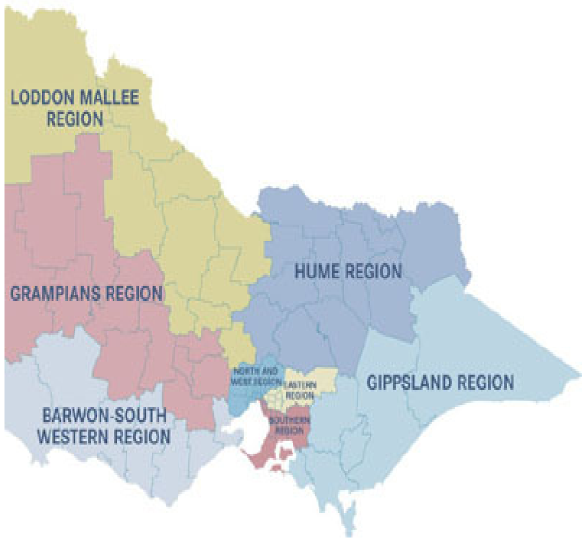
Victorian Department of Human Services Region	Number of practitioners	%	Population data*	%
Melbourne Metropolitan				
North & West Metropolitan	225	35.4	1,400,000	28.8
Eastern Metropolitan	186	29.2	973,000	20.0
Southern Metropolitan	160	25.2	1,126,223	23.2
Rural Victoria				
Barwon South West	25	3.9	350,109	7.2
Loddon-Mallee	17	2.7	298,882	6.2
Grampians	9	1.4	216,000	4.4
Hume	9	1.4	250,800	5.2
Gippsland	5	0.8	240,114	4.9
Total#	639	100.0	4,855,128	100.0

#Missing=3
*Source: the Victorian Department of Human Services Regional Information: http://nps718.dhs.vic.gov.au/dhsregions/regional/riip.nsf

The ratio of Chinese medicine practitioner to population was found to be much higher in the metropolitan areas than in the rural areas. On average, there were 13 practitioners for every 100,000 Victorians in the metropolitan areas. Specifically, there were 19 practitioners per 100,000 population in the Eastern metropolitan, 16 per 100,000 in the North and West and, 14 per 100,000 in the South. On the other hand, there were only two practitioners per 100,000 population in the Gippsland area. The maximum ratio of practitioners per 100,000 population in the rural areas was in the Barwon South West with 7 practitioners per 100,000.

A map of the eight DHS areas is presented in Figure 3.8. The actual postcodes for each practitioner are presented in Table 3.6. Notably, the suburb with postcode 3150 (Glen Waverley) had the highest number of practitioners (n=20), followed by postcode 3070 (Northcote) with 17 practitioners. The remaining distributions are 3128 (Box Hill) (n=13), 3149 (Mount Waverley) (n=13), 3011 (Footscray) (n=12), 3104 (Balwyn North) (n=12) and 3121 (Richmond) (n=10).

Figure 3.8: The Victorian metropolitan and rural regions



Three metropolitan and five rural regions
Source:
http://www.dhs.vic.gov.au/about.htm

Figure 3.9: Correlations of practitioners' division of registration and location of practice

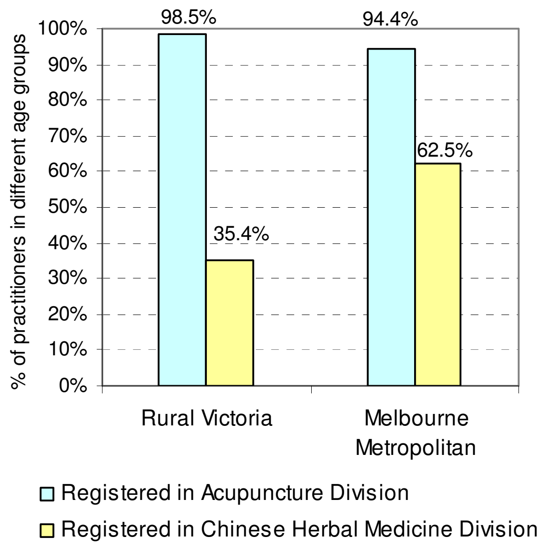


Figure 3.10: Correlation of practitioners' location of practice and age ranges

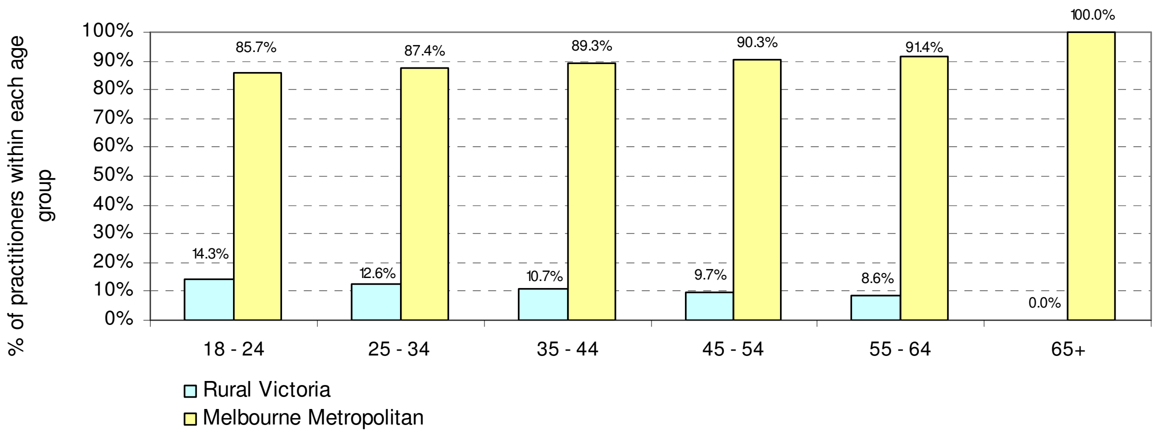


Figure 3.11: Correlation of practitioners' location of practice and genders

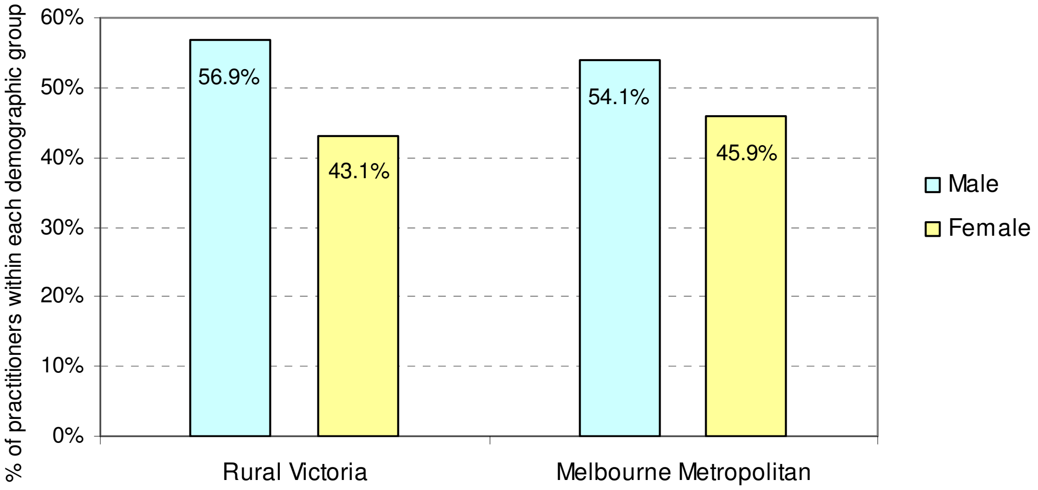


Figure 3.12: Correlation of practitioners' location of practice and first language

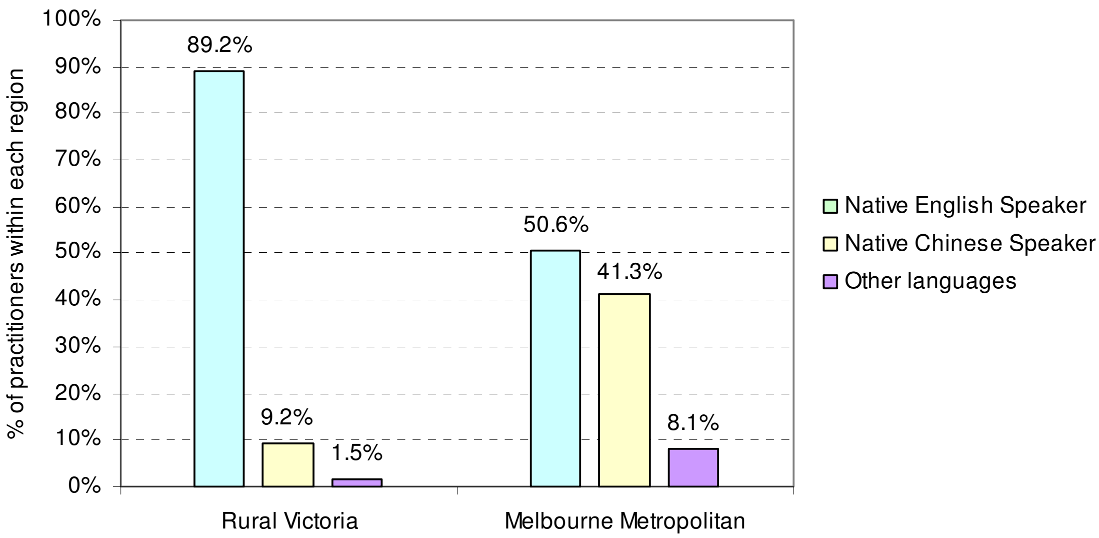


Figure 3.13: Correlation of practitioners' location of practice and highest qualification

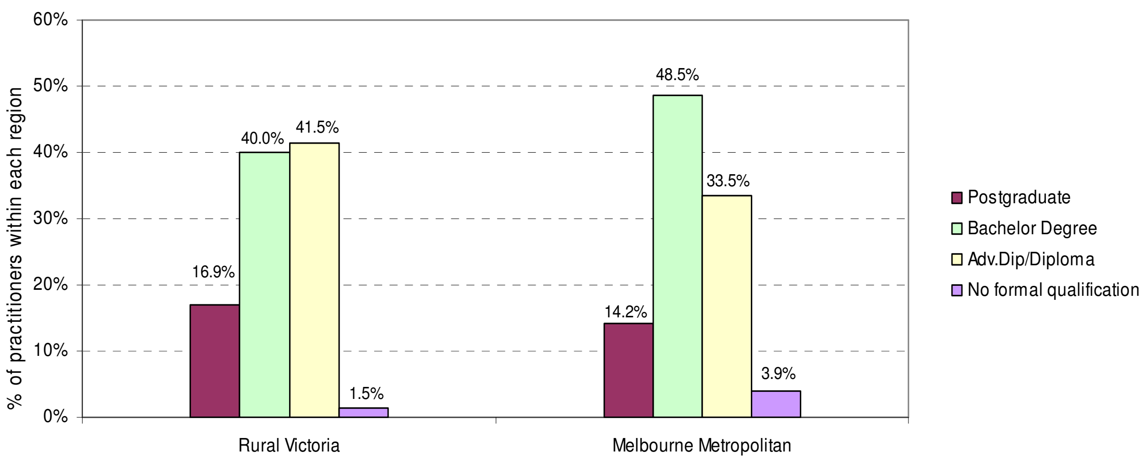


Table 3.6 Postcodes of all registered practitioners in Victoria

Postcode	No.*	Postcode	No.*	Postcode	No.*	Postcode	No.*	Postcode	No.*
3000	7	3057	3	3124	7	3181	5	3437	1
3002	1	3058	8	3126	2	3182	7	3442	2
3003	3	3060	1	3127	8	3183	5	3450	4
3004	3	3064	3	**3128**	**13**	3184	5	3451	1
3008	1	3065	6	3129	3	3185	3	3460	2
3011	**12**	3066	1	3130	4	3186	4	3461	2
3012	3	3067	4	3131	4	3187	9	3465	1
3013	4	3068	7	3133	1	3188	3	3501	1
3015	1	**3070**	**17**	3134	3	3189	3	3505	1
3016	2	3071	1	3135	1	3190	2	3550	2
3018	1	3072	5	3136	3	3192	3	3564	2
3019	2	3073	2	3137	1	3193	5	3585	1
3020	3	3074	1	3138	3	3194	2	3630	3
3021	6	3075	1	3140	1	3195	1	3658	1
3022	1	3076	2	3141	7	3196	1	3660	1
3023	2	3078	3	3142	2	3199	9	3677	1
3025	1	3079	4	3143	2	3201	2	3690	1
3026	1	3082	1	3144	3	3204	9	3717	1
3029	3	3083	8	3145	3	3205	3	3724	1
3030	4	3084	2	3146	7	3206	1	3752	1
3031	5	3088	2	3147	4	3207	3	3765	1
3032	6	3094	2	3148	6	3214	1	3777	1
3033	3	3095	1	**3149**	**13**	3216	3	3796	1
3034	3	3097	1	**3150**	**20**	3218	2	3802	2
3036	1	3099	1	3151	3	3220	5	3803	1
3037	1	3101	7	3152	3	3221	1	3804	1
3038	3	3102	2	3155	1	3224	1	3805	2
3039	2	3103	8	3158	2	3226	1	3806	6
3040	6	**3104**	**12**	3160	2	3228	1	3810	1
3041	4	3105	4	3161	2	3233	1	3840	1
3042	2	3106	3	3162	6	3250	1	3844	2
3043	2	3107	2	3163	4	3269	1	3888	1
3044	2	3108	6	3165	2	3280	5	3912	1
3048	1	3109	6	3166	8	3305	1	3930	1
3049	1	3111	3	3168	1	3315	1	3931	1
3050	1	3113	3	3170	1	3337	2	3934	1
3051	3	3114	1	3171	7	3340	1	3942	1
3053	4	3116	1	3172	1	3350	3	3977	1
3054	3	**3121**	**10**	3173	2	3419	1	3978	1
3055	4	3122	3	3175	5	3429	1	3996	1
3056	9	3123	2	3178	1	3434	1	Missing	3

* no. of practitioners residing in each postcode area
Postcode areas with more than 10 practitioners are shaded

With regard to division of registration, almost all practitioners in both rural and metropolitan areas practiced acupuncture but a much lower percentage of rural practitioners practiced Chinese herbal medicine (35.4%) compared with metropolitan practitioners (62.5%). (Figure 3.9)

The proportions of rural practitioners in each age group were not significantly different from those of metropolitan practitioners. However, there tended to be a higher proportion of younger practitioners in the younger age groups in rural practice (Figure 3.10). The proportion of males in the rural areas was slightly higher (56.9%) than in metropolitan areas (54.1%) but the difference was not significant (Figure 3.11). There was a significant difference in first language between rural and metropolitan areas (Chi square = 35.095, $p < 0.001$). Of the rural practitioners 89.2% were native English speakers compared with 50.6% of metropolitan practitioners (Figure 3.12). In terms of the level of highest qualification, there was no significant difference overall between rural and urban practitioners, but it is notable that 16.9% of rural practitioners has a postgraduate degree (Figure 3.13).

3.3.2.5 Chinese Medicine Qualifications

On initial application, most practitioners provided multiple qualifications to the CMRBVic to support their applications. Most practitioners had more than one qualification in Chinese medicine and these were in more than one specialty area such as acupuncture, Chinese herbal medicine, traditional Chinese *Tuina*.

Overall, 62.3% of the practitioners had a qualification of bachelor or above. This includes about 14.6% of the practitioners that had a postgraduate qualification. An additional one third (34.1%) of the practitioners had a diploma level qualification.

For those qualifications that are higher or equal to a diploma level, the origins (overseas or Australia) of the qualifications were collected. Thus, the overall educational backgrounds of all registered Chinese medicine practitioners in Victoria are presented in Table 3.7, which has been broken down into the categories of qualification awarded in Australia and qualification awarded in overseas.

In total, 66.4% of the Chinese medicine practitioners who lived in the state of Victoria had at least one Australian qualification (Table 3.7). In addition, 43.5% of the Victorian workforce had a qualification of bachelor degree or above from Australia. Specifically, over one third (37.4%) of the practitioners had received a bachelor degree from an Australian institute and nearly one in eleven (8.3%) practitioners had received Australian postgraduate training in Chinese medicine. On the other hand, one third (34.9%) of the practitioners held an overseas qualification, and 61.0% of them held a bachelor degree or higher.

Table 3.7 Educational backgrounds of all registered practitioners in Victoria

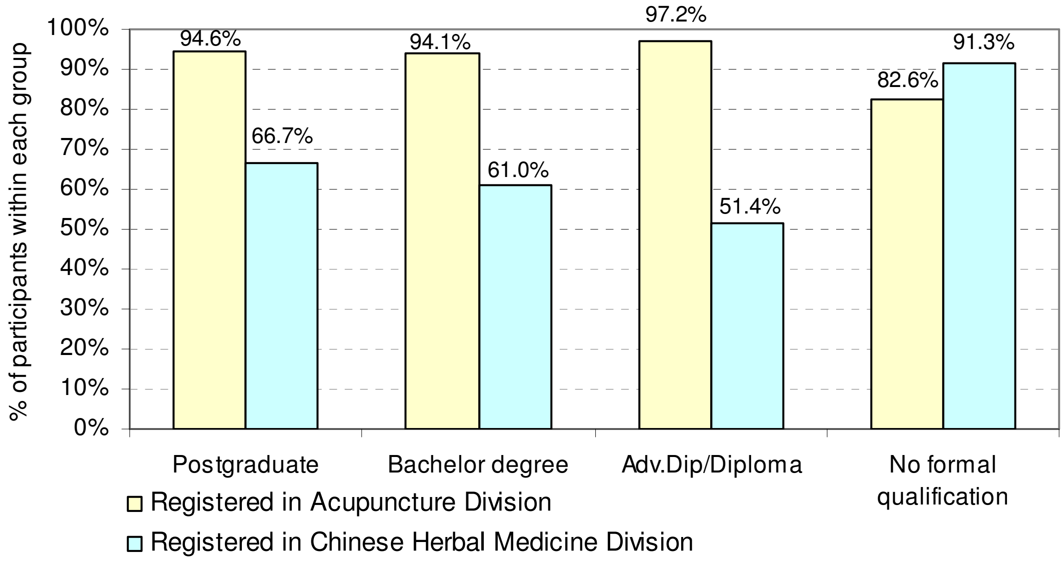
Qualifications	n (%)*
Awarded from Australia	
Relevant postgraduate qualification	53 (8.3)
Bachelor degree	239 (37.4)
Advanced Diploma	151 (23.6)
Diploma	94 (14.7)
Awarded from overseas	
Relevant postgraduate qualification	40 (6.3)
Bachelor degree	107 (16.7)
Advanced diploma	72 (11.3)
Diploma	63 (9.9)
Relevant short courses in Chinese medicine	124 (19.4)
Chinese medicine apprenticeship	100 (15.6)
No Chinese medicine qualification provided	7 (1.1)

*: Applicants may have multiple qualifications, total numbers do not add up to 639

In the case of the practitioners who were registered in the division of Chinese herbal medicine, there were some significant differences in their educational levels compared with those registered in the division of acupuncture only. Those registered in acupuncture only were more likely to have a diploma/advanced diploma level as the highest qualification (41.1%) than those registered in Chinese herbal medicine (29.4%) whereas those registered in Chinese herbal medicine were more likely to have bachelor (48.8% versus 46.1%) or postgraduate degree (16.3% versus 12.0%, Chi square= 17.9, $p < 0.05$).

With regard to the division of registration, majority of those with qualifications higher or equal to a diploma level registered in the division of acupuncture (94.1% to 97.2%), while only half (51.4%) to two thirds (66.7%) of them registered in the division of Chinese herbal medicine. In contrast, 82.6% of those without formal qualification registered in the division of acupuncture, this compared with 91.3% registered in the division of Chinese herbal medicine (Figure 3.14).

Figure 3.14: Correlation of practitioners' division of registration and highest qualification



The characteristics of the practitioners with educational backgrounds from Australia or overseas were also compared and the results are shown in Table 3.8. Noticeably, those practitioners with overseas qualifications only were more likely to be within the age range of 35 – 54 (64.2%), have applied for registration under the category of existing practitioner (99.0%) and indicated Chinese as their first language (84.9%). Thus, only 1% of those with overseas qualifications only had applied for registration under the category of New Graduate. In general, there were more male than female practitioners but the gender imbalance was noticeably less in practitioners with an Australian qualification (48.8% female) than with an overseas qualification (40.1% female) (Table 3.8).

That aproximately 85% of the overseas trained practitioners were native Chinese speakers reflects the fact that the majority of these practitioners received Chinese medicine training in

China. Therefore the data on overseas trained practitioners mainly refers to those trained in China or Hong Kong. Of those who had been trained overseas 94.8% were registered in the division of acupuncture. This was a very similar proportion to those with at least one Australian qualification (95.5%). There was, however, a very significant difference with regard to Chinese herbal medicine. Of those trained overseas 87.5% were registered in the Chinese herbal medicine division compared with only 45.3% of those with at least one Australian qualification. Therefore, those trained overseas were much more likely to practice both acupuncture and herbal medicine.

A higher number of practitioners with an Australian qualification (55 out of 421 i.e., 13.1%) practiced in a rural Victorian area compared with those practitioners with overseas qualifications only (9 out of 192 i.e., 4.7%, $p<0.05$). Those with postgraduate qualifications were more likely to be overseas trained (20.8%) than Australian trained (12.5%, $p<0.05$), whereas most of the Australian trained practitioners (53.1%) had a bachelor degree as their highest qualification (compared with 41.7% for overseas trained practitioners, $p<0.05$) (Table 3.8).

It is of interest to note that those with at least some Australian education were less likely to consult and treat patients without a common language (36.7%) than those with overseas qualifications only (58.1%, $p<0.05$) (Table 3.8).

Table 3.8 Demographic characteristics of the practitioners with different educational backgrounds

Characteristic	At least one Australian education n (%)	Overseas education only n (%)	Statistical difference Chi square	p value
Gender			4.0	0.04
Female	207 (48.8)	77 (40.1)		
Male	217 (51.2)	115 (59.9)		
Age			64.1	0.000
18-24	7 (1.7)	0 (0)		
25-34	128 (30.2)	16 (8.3)		
35-44	129 (30.4)	57 (29.7)		
45-54	118 (27.8)	67 (34.5)		
55-64	38 (9.0)	37 (19.3)		
65+	4 (0.9)	15 (7.8)		
Division of Registration			114.7	0.000
Acupuncture	405 (95.5)	182 (94.8)		
Chinese herbal medicine	192 (45.3)	168 (87.5)		
Category of the practitioner			80.7	0.000
New Graduate	146 (34.4)	2 (1.0)		
Existing Practitioner	278 (65.5)	190 (99.0)		
Highest qualification			9.9	0.007
Postgraduate	53 (12.5)	40 (20.8)		
Bachelor degree	225 (53.1)	80 (41.7)		
Adv. diploma or diploma	146 (34.4)	72 (37.5)		
First language			296.0	0.000
English	329 (78.0)	17 (8.9)		
Chinese	59 (14.0)	163 (84.9)		
Other languages	34 (8.1)	12 (6.3)		
Will consult and treat patients without a common language			23.8	0.000
Yes	150 (36.7)	108 (58.1)		
No	259 (63.3)	78 (41.9)		
Location			9.9	0.002
Metropolitan area	366 (86.9)	183 (95.3)		
Rural region	55 (13.1)	9 (4.7)		

Note: Only those with at least a diploma level qualification are included in this table.

3.3.2.6 Disciplines in Chinese Medicine Training

To better understand any differences in the disciplines and depth in Chinese medicine training among the registered practitioners, their academic transcripts and other supporting evidence were reviewed. Nine disciplines of Chinese medicine training were pre-defined (No. 1 to No. 9, Table 3.9). The percentages of practitioners that fulfil each of these defined disciplines were calculated (Table 3.9).

All except one practitioner (99.8%) had received training in the Chinese medicine theoretical paradigm (No. 1, Table 3.9). In contrast, only one third (38.9%) of the practitioners had been trained in one or more aspects of the Chinese medicine classic literature (No. 5, Table 3.9). These topics in classic literature may include any one of the following: *Classic Literature, Huang Di Nei Jing*, *Shang Han Lun*, *Jin Gui Yao Lue, Wen Bing Xue* and *Zhen Jiu Jia Yi Jing*.

Basic and biomedical sciences courses (No. 6) were received by most of the practitioners (95.1%), and some four fifths (80.9%) of the practitioners received clinical management skills such as managing patients and patient records. On the other hand, only about half of the practitioners had completed courses in clinical Chinese medicine (No. 7) (55.1%) or professional development related subjects (No. 9) (50.3%) (Table 3.9).

Among the registered acupuncturists (No. 2), the vast majority (97.9%) of them provided evidence of acupuncture training including channel and acupuncture point theory, needling theory, moxibustion and cupping theory, and acupuncture microsystems. In addition, about one third (37.4%) of them had also taken courses in Chinese herbal medicine.

For Chinese herbal medicine practitioners (No. 3), 91.2% of them had provided evidence of training in Chinese herbal medicine (such as Chinese medicine materia medica, Chinese medicinal formulae, and dispensing Chinese medicinal substances) while one third of them had also been trained in acupuncture.

Table 3.9 Disciplines and description of Chinese medicine training

No.	Discipline	Description	% of practitioners received training in each discipline^
1	Chinese Medicine Theoretical Paradigm	Including terminology of Chinese medicine, history of Chinese medicine, Principles of Chinese medicine, and traditional Chinese diagnostics.	99.8
2	Acupuncture*	Including Channel and acupuncture point theory, Needling theory and practice, moxibustion and cupping theory and practice, and acupuncture microsystems.	97.9
3	Chinese Herbal Medicine#	Including materia medica of Chinese medicine, formula study, and dispensing Chinese medicinal substances.	91.2
4	Traditional Chinese *Tuina*	Traditional Chinese *Tuina* (therapeutic massage)	43.3
5	Chinese Medicine Classic Literature	Including classic literature, *Huang Di Nei Jing, Shang Han Lun, Jin Gui Yao Lue, Wen Bing Xue and Zhen Jiu Jia Yi Jing.*	38.9
6	Basic and Biomedical Sciences	Including cell biology, biochemistry and molecular biology, anatomy, physiology, microbiology, pathology, pharmacology and toxicology, phyto-chemistry and pharmaceutics, diagnosis in western medicine, radiology and imaging, laboratory diagnosis, clinical western medicine and biomedicine.	95.1
7	Clinical Chinese Medicine	Including internal medicine, gynaecology and obstetrics, paediatrics, orthopedics and traumatology, external medicine, dermatology, and ear, eye, nose and throat disorders.	55.1
8	Clinical Training – General Description	Including managing patients and patient records, managing equipment used in treatment, assessing a patient, gathering clinical information and clinical decision-making, performing acupuncture treatment, and dispensing prescriptions.	80.9
9	Professional Development and Other Areas of Study	Including research methods, ethical and professional issues, first aid, small business management, and communication and counselling.	50.3

* % among those registered in the division of acupuncture, # % among those registered in the division of Chinese herbal medicine

^ % of practitioners who have provided academic transcripts

The disparities in the level of training in different disciplines are also compared between Australian qualified and overseas qualified, between different qualification levels and between native English and non-native English speaking practitioners. The results are shown in Table 3.10, Table 3.11 and Table 3.12 respectively.

Practitioners with only an overseas Chinese medicine qualification, who held a Bachelor degree as the highest qualification in Chinese medicine or who were native Chinese speakers were more likely to be trained in classic literature of Chinese medicine. For example, 57.3% of the registrants with overseas qualifications had been trained in classic literature compared to only 32.2% among those with Australian qualifications (Table 3.10). Similarly, almost two thirds (66.3%) of the Chinese native speakers had taken courses in classic literature compared to only about one quarter among the native English speaking practitioners (25.0%), and among speakers of languages other than English or Chinese (25.6%) ($p<0.05$).

Clinical subjects in Chinese medicines commonly consist of internal medicine, gynaecology and obstetrics, paediatrics, traumatology, external medicine, dermatology, and ear, eye, nose and throat disorders (No 7, Table 3.9). Over four fifths (84.0%) of the overseas trained practitioners had completed at least one of these subjects while less than half (44.6%) of the practitioners with Australian qualifications had completed one or more of these subjects ($p<0.05$) (Table 3.10). A similar disparity also appears in practitioners with a Chinese language background (Table 3.12). Nearly ninety percent (87.5%) of native Chinese speakers had provided evidence of training in clinical Chinese medicine subject, compared to 38.6% for native English speakers and 41.9% for speakers of languages other than English or Chinese as their first language ($p<0.05$).

Table 3.10 Comparisons of the training disciplines received by registered practitioners with Australian or overseas qualification

Discipline[1]	Qualification[2]		Statistical difference	
	At least one Australian Qualification[3] n (%)	Overseas qualification only[4] n (%)	Chi Square	p value
1	395 (100.0)	150 (100.0)	^	^
2*	373 (99.2)	141 (95.9)	6.7	0.01
3#	169 (93.9)	118 (90.1)	1.55	0.21
4	184 (45.8)	55 (36.7)	3.7	0.054
5	127 (32.2)	86 (57.3)	29.0	0.000
6	381 (96.5)	140 (93.3)	2.5	0.133
7	176 (44.6)	126 (84.0)	68.5	0.000
8	329 (83.5)	113 (75.8)	4.2	0.041
9	261 (66.1)	16 (10.4)	132.6	0.000

Note 1: Detailed descriptions of the disciplines available in Table 3.9
Note 2: Table presents information regarding practitioners who have at least a diploma qualification and had provided academic transcripts (n=546)
Note 3: % among practitioners with at least one Australian qualification
Note 4: % among practitioners with overseas qualifications only
* % among those registered in the division of acupuncture
# % among those registered in the division of Chinese herbal medicine
^ No statistics are computed because discipline 1 is a constant.

Table 3.11 Comparisons of the training disciplines received by registered practitioners with different qualification levels

Discipline[1]	Highest qualification in Chinese medicine[2]			Statistical difference	
	Postgraduate[3] n (%)	Bachelor[4] n (%)	Dip/ Adv. Dip[5] n (%)	Chi Square	p value
1	80 (100)	285 (100)	180 (100)	^	^
2*	72 (94.6)	266 (98.9)	176 (98.9)	6.6	0.04
3#	43 (82.7)	168 (97.7)	76 (87.4)	16.7	0.000
4	26 (32.5)	129 (45.3)	81 (45.0)	4.5	0.11
5	25 (31.3)	158 (55.4)	30 (16.7)	72.1	0.000
6	74 (92.5)	280 (98.2)	167 (92.8)	10.0	0.01
7	50 (62.5)	167 (58.6)	85 (47.2)	7.7	0.02
8	66 (82.5)	239 (84.5)	137 (76.1)	5.1	0.08
9	45 (56.3)	180 (63.4)	52 (28.9)	53.5	0.000

Note 1: Detailed descriptions of the disciplines available in Table 3.9
Note 2: Table presents information among practitioners who have at least a diploma qualification and had provided academic transcripts (n=546)
Note 3: % among practitioners with at least a postgraduate qualification
Note 4: % among practitioners with a bachelor degree only
Note 5: % among practitioners with a diploma or advanced diploma qualification only
* % among those registered in the division of acupuncture
# % among those registered in the division of Chinese herbal medicine
^ No statistics are computed because discipline 1 is a constant.

Table 3.12 Training disciplines for practitioners with different language backgrounds

Disciplinue[1]	First language[2]			Statistical difference	
	English[3] n (%)	Chinese[4] n (%)	Other language[5] n (%)	Chi Square	p value
1	316 (100.0)	184 (100.0)	43 (100.0)	^	^
2*	298 (99.0)	172 (96.6)	42 (100.0)	4.5	0.11
3#	116 (94.3)	155 (91.7)	15 (83.3)	2.8	0.25
4	156 (49.4)	63 (34.2)	17 (39.5)	11.1	0.004
5	79 (25.0)	122 (66.3)	11 (25.6)	86.9	0.000
6	306 (96.8)	171 (92.9)	42 (97.7)	4.7	0.10
7	122 (38.6)	161 (87.5)	18 (41.9)	116.0	0.000
8	258 (81.6)	151 (82.0)	32 (76.2)	0.80	0.67
9	214 (67.7)	36 (19.7)	26 (60.5)	108.8	0.000

Note 1: Detailed description of the disciplines available from Table 3.9
Note 2: Table presents information among practitioners who have at least a diploma qualification and had provided academic transcripts (n=546)
Note 3: % among practitioners with English as first language
Note 4: % among practitioners with Chinese as first language
Note 5: % among practitioners with other languages as first language
* % among those registered in the division of acupuncture
# % among those registered in the division of Chinese herbal medicine
^ No statistics are computed because discipline 1 is a constant.

Concerning the subjects related to professional development (Discipline No. 9, Table 3.9), about two thirds (66.1%) of the Australian trained practitioners had taken such courses including research methods, ethical and professional issues, first aid, small business management, or communication and counselling during their study in Chinese medicine. In contrast, only 10.4% of practitioners with only overseas qualifications (No. 9, Table 3.10) (Chi square=132.6, $p<0.001$) had taken at least one of these subjects. Those having different levels of Chinese medicine qualifications also showed difference in professional development training. Thus, only 28.9% of those with diplomas had received training in professional development compared to 63.4%, ($p<0.01$) among the bachelor degree holders (No. 9, Table 3.11) and to 56.3% ($p<0.01$) among the postgraduate degree holders. Furthermore, those who indicated Chinese as their first language are less likely to have received training in this discipline (19.7%) compared to the native English speakers (67.7%, $p<0.001$), and speakers of other languages (60.5%, $p<0.01$) (No. 9, Table 3.12).

We also found that different levels of Chinese medicine qualifications influenced the training on Chinese medicine clinical subjects (No. 7, Table 3.11). Thus, only 47.2% of those with diplomas had received training in Chinese medicine clinical subjects compared to 58.6%, ($p<0.05$) among the bachelor degree holders and to 62.5% ($p<0.05$) among the postgraduate degree holders.

3.3.2.7 Years Elapsed since Completion of Main Chinese Medicine Qualification

With regard to years elapsed since first main qualification in Chinese medicine this was strongly correlated with age as would be expected but is notable that in the 25-34 age group 53.5% had graduated between 5 and 9 years prior to 2006 (Table 3.13). When gender is considered a significant correlation is evident (Spearman correlation = -0.198, $p < 0.001$). Males tended to have graduated 15 or more years previously (48.2%) whereas 56.5% of females had graduated less than 10 years previously.

There was also a significant correlation for first language by years elapsed since first qualification in Chinese medicine (Spearman correlation = -0.329, $p < 0.001$) (Table 3.13). Within the Chinese speakers, 69.3% had graduated 15 or more years previously whereas only 5.7% had graduated less than 5 years previously. For native English speakers, 24.2% had graduated less than 5 years previously and 23.1% had graduated 15 or more years previously. Therefore the correlation lay within the Chinese speakers. When those overseas trained only were considered, 77.0% had graduated 15 or more years previously and only 2.7% had graduated less than five years compared with those with at least one Australian qualification (22.0% and 22.9% respectively). These proportions are very similar to those for first language (Table 3.13).

With regard to highest qualification, there was a significant correlation with years elapsed since first qualification in Chinese medicine (Spearman correlation = -0.193, $p < 0.001$) (Table 3.13). Of those who had graduated less than five years previously, 79.4% had at least a bachelor degree and this percentage was 79.7% in those who had graduated between five and nine years previously. In contrast, of those who had graduated 10 or more years previously only 48.8% had at least a bachelor degree. Of those who had an apprenticeship or did not provide evidence of a formal qualification, 84.6% had finished their training 15 or more years previously (Table 3.13).

When the division of registration is the criterion, 52.6% of those in the Chinese herbal medicine division had graduated 15 or more years previously compared with 21.5% of those only registered in Acupuncture. Conversely, 12.8% in Chinese herbal medicine had graduated less than five years previously compared to 21.5% of those in acupuncture only.

Table 3.13 Years elapsed since completion of main Chinese medicine qualification

Characteristics		% of practitioners within each group of years since graduation				Statistic difference	
		< 5 years	5-9 years	10-14 years	15+ years	Chi-square	p value
Age (years)*						247.4	0.000
	18-24	100	0	0	0		
	25-34	37.5	53.5	8.3	0.7		
	35-44	12.9	33.9	19.9	33.3		
	45-54	7.4	20.6	10.1	61.9		
	55-64	3.8	20.5	7.7	67.9		
	65+	0	10.5	10.5	78.9		
Gender*						24.5	0.000
	Male	12.0	27.8	12.0	48.2		
	Female	21.5	36.0	12.0	30.1		
First language*						145.5	0.000
	English	24.2	38.3	14.4	23.1		
	Chinese	5.7	15.8	9.2	69.3		
	Other	10.9	58.7	10.9	19.6		
Australian or overseas*#						174.6	0.000
	Australia	22.9	42.1	13.0	22.0		
	Overseas	2.7	10.2	10.2	77.0		
Highest qualification*#						95.9	0.000
	Postgraduate	5.5	30.8	17.6	46.2		
	Bachelor	25.2	42.9	5.6	26.2		
	Adv.Dip/Dip	9.6	18.3	18.8	53.2		

*Spearman Correlation sig<0.001

only those with at least a diploma level qualification are included in this analysis, those with at least one Australian qualification are categorised as "Australia" and those with overseas qualification only are categorised as "overseas".

CHM: Chinese herbal medicine

3.3.2.8 Proficiency in English

<u>*First language for all practitioners*</u>

As shown in Table 3.14, more than half (54.5%) of the practitioners stated that English was their first language. A total of 23 languages were nominated by the remaining 291 practitioners (45.5%). Chinese speakers, either Mandarin or Cantonese, are the second largest group of practitioners, with 242 out of 639 (37.8%). The remaining 22 languages, such as Vietnamese, German, Japanese, Korean, or French, were each spoken by less than 10 practitioners (Table 3.14).

Table 3.14 First language of the practitioners

First language	n	%	First language	n	%
English	348	54.5	Dutch	1	0.2
Chinese	242	37.8	Indian*	1	0.2
Vietnamese	8	1.3	Lebanese	1	0.2
German	4	0.6	Macedonian	1	0.2
Japanese	4	0.6	Philippine*	1	0.2
Korean	4	0.6	Polish	1	0.2
Greek	3	0.5	Russian	1	0.2
Hebrew	3	0.5	Somalian	1	0.2
Arabic	2	0.3	Turkish	1	0.2
Hindi	2	0.3	French	1	0.2
Hungarian	2	0.3	Farsi	1	0.2
Persian	2	0.3	Missing	2	0.3
Slovakian	2	0.3	**Total**	**639**	**100**

* as written on the application form

Table 3.15 compares native English speakers with non-native English speakers in terms of differences in gender, age, category, qualification, and location of practice. Among male practitioners, the two groups had similar numbers (176 vs 170 for English vs non-English speakers). However, there were significantly more female native English speakers than non-English speaking practitioners (172 vs 119 or 59.1% vs 40.9%). Similarly, younger practitioners tended to be native English speakers (100% for 18-24 years old and 81.3% for 25-34 years old) than non-native English speakers. The proportion of native English speaker was apparently descending with age. This preponderance was even more pronounced among the category of New Graduates (119 vs 29 or 80.4% vs 19.6%, $p<0.05$). On the other hand, there were many more non-native English practitioners than English speakers among those aged 55 years or older (68 vs 33 or 67.3% vs 32.7%, $p<0.05$).

In terms of qualification, there is a clear difference between the two major language groups among those who had completed short courses or apprenticeships or had no formal qualifications: 21 (91.3%) practitioners were non-native English speakers compared to only 2 (8.7%) native English speakers. Finally, the majority of those who practiced in rural Victoria were native English Speakers, (58 or 89.2%) compared to a mere seven (10.8%) non-native English speakers.

Table 3.15 Native and non-native English speakers of the practitioners

Characteristic	Native English n (%)	Non-native English n (%)	Statistical difference Chi Square	p value
Gender			4.3	0.023
Female	172 (59.1)	119 (40.9)		
Male	176 (50.9)	170 (49.1)		
Age			78.8	0.000
18-24	7 (100.0)	0 (0)		
25-34	117 (81.3)	27 (18.8)		
35-44	101 (53.7)	87 (46.3)		
45-54	90 (45.7)	107 (54.3)		
55-64	31 (38.8)	49 (61.3)		
65+	2 (9.5)	19 (90.5)		
Category of practitioners			51.7	0.000
New Graduate	119 (80.4)	29 (19.6)		
Existing Practitioner	229 (46.8)	260 (53.2)		
Highest qualification			31.1	0.000
Postgraduate	40 (43.0)	53 (57.0)		
Bachelor degree	169 (55.6)	135 (44.4)		
Adv. Diploma or Diploma	137 (63.1)	80 (36.9)		
Short course/apprenticeship /no formal qualifications	2 (8.7)	21 (91.3)		
Location			35.1	0.000
Metropolitan area	288 (50.6)	281 (49.4)		
Rural Victorian region	58 (89.2)	7 (10.8)		

Competency in English for Non-native Speakers

Practitioners with a first language other than English were asked to state their level of competency in communication in English. They were classified as fluent, average or minimal level in speaking, writing and reading. The results are presented in Table 3.16. Overall, more than half of all practitioners considered their English as fluent in speaking (72.2%), writing (57.4%) and reading (65.3%). Between one quarter and one third of them considered their English as average in speaking, writing and reading. It is of particular concern that 13 (4.5%) practitioners considered their speaking English was at a minimal level.

Table 3.16 Competency of communication in English among non-native English practitioners

	Speaking English		Writing English		Reading English	
	n	**%**	**n**	**%**	**n**	**%**
Fluent	210	72.2	167	57.4	190	65.3
Average	68	23.4	102	35.1	86	29.6
Minimal	13	4.5	22	7.6	15	5.2
Total	291	100	291	100	291	100

Table 3.17, Table 3.18 and Table 3.19 showed non-native English speaking practitioners' self-rating of their competency in speaking, writing and reading English. Differences were found between demographic groups such as gender, age, highest qualification, New Graduates or Existing Practitioners and location of the practitioners.

Overall, females were found to be more confident in all aspects of English language ability than males, especially in speaking. For example, only one (0.8%) female practitioner considered their English speaking ability to be minimal, while 12 (7.1%) male practitioners considered their speaking English to be minimal ($p<0.05$).

There are significant differences in all aspects of English among different age groups. It appears that young practitioners were more competent. For example, 26 of the 27 (96.3%) practitioners aged 18 to 34 considered their speaking, writing and reading ability to be fluent, while only about 40% of those aged 55 or over considered their speaking (48.5%), reading (38.2%) and writing (38.2%) ability to be fluent ($p<0.05$). In addition, practitioners who held a higher level of qualification (bachelor or postgraduate qualification) were more confident in English (speaking, 80.3%; writing, 67.6%; and reading, 75.5%). Consistently, New Graduates (speaking, 89.7% and writing, 89.7%; reading, 93.1%) were more likely to consider their English ability as fluent.

Table 3.17 Competency in speaking English among demographic groups

Characteristic	Proficiency in speaking English			Statistical difference	
	Fluent n (%)	Average n (%)	Minimal n (%)	Chi Square	p value
Gender				7.6	0.02
Female	93 (78.2)	25 (21.0)	1 (0.8)		
Male	115 (67.6)	43 (25.3)	12 (7.1)		
Age				34.6	0.000
18-34	26 (96.3)	1 (3.7)	0 (0.0)		
35-54	149 (76.8)	41 (21.1)	4 (2.1)		
55+	33 (48.5)	26 (38.2)	13 (4.5)		
Category of practitioners				5.2	0.07
New Graduate	26 (89.7)	3 (10.3)	0 (0.0)		
Existing Practitioner	182 (70.0)	65 (25.0)	13 (5.0)		
Highest qualification				32.1	0.000
Postgraduate	41 (77.4)	12 (22.6)	0 (0.0)		
Bachelor degree	110 (81.5)	20 (14.8)	5 (3.7)		
Adv. Diploma or Diploma	48 (60.0)	25 (31.3)	7 (8.8)		
Short course/apprenticeship /no formal qualifications	9 (42.9)	11 (52.4)	1 (4.7)		
Location				2.8	0.25
Metropolitan area	200 (71.2)	68 (24.2)	13 (4.6)		
Rural Victorian region	7 (100.0)	0 (0.0)	0 (0.0)		

Table 3.18 Competency in writing English among demographic groups

Characteristic	Proficiency in writing English			Statistical difference	
	Fluent n (%)	Average n (%)	Minimal n (%)	Chi Square	p value
Gender				0.86	0.65
Female	69 (58.0)	43 (36.1)	7 (5.9)		
Male	96 (56.5)	59 (34.7)	15 (8.8)		
Age				49.9	0.000
18-34	26 (96.3)	1 (3.7)	0 (0.0)		
35-54	113 (58.2)	75 (38.7)	6 (3.1)		
55+	26 (38.2)	26 (38.2)	16 (23.5)		
Category of practitioners				14.1	0.001
New Graduate	26 (89.7)	3 (10.3)	0 (0.0)		
Existing Practitioner	139 (53.5)	99 (38.1)	22 (8.5)		
Highest qualification				39.6	0.000
Postgraduate	38 (71.7)	14 (26.4)	1 (1.9)		
Bachelor degree	89 (65.9)	41 (30.4)	5 (3.7)		
Adv. Diploma or Diploma	33 (41.3)	35 (43.8)	12 (15.0)		
Short course/apprenticeship /no formal qualifications	5 (23.8)	12 (57.2)	4 (19.0)		
Location				2.5	0.29
Metropolitan area	158 (56.2)	101 (35.9)	22 (7.8)		
Rural Victorian region	6 (85.7)	1 (14.3)	0 (0.0)		

Table 3.19 Competency in reading English among demographic groups

Characteristic	Proficiency in reading English			Statistical difference	
	Fluent n (%)	Average n (%)	Minimal n (%)	Chi Square	p value
Gender				5.1	0.08
Female	80 (67.2)	37 (31.1)	2 (1.7)		
Male	108 (63.5)	49 (28.8)	13 (7.6)		
Age				36.9	0.000
18-34	26 (96.3)	1 (3.7)	0 (0.0)		
35-54	131 (67.5)	59 (30.4)	4 (2.1)		
55+	31 (38.2)	26 (38.2)	11 (16.2)		
Category of practitioners				11.2	0.004
New Graduate	27 (93.1)	2 (6.9)	0 (0.0)		
Existing Practitioner	161 (61.9)	84 (32.3)	15 (5.8)		
Highest qualification				36.7	0.000
Postgraduate	41 (77.4)	11 (20.8)	1 (1.9)		
Bachelor degree	101 (74.8)	31 (23.0)	3 (2.2)		
Adv. Diploma or Diploma	39 (48.8)	32 (40.0)	9 (11.3)		
Short course/apprenticeship /no formal qualifications	7 (33.3)	12 (57.2)	2 (9.5)		
Location				1.4	0.49
Metropolitan area	181 (64.4)	85 (30.2)	15 (5.3)		
Rural Victorian region	6 (85.7)	1 (14.3)	0 (0.0)		

Evidence of proficiency in English

Among the 291 non-native English speakers, 245 (84.2%) of them had provided, or claimed that they were able to provide, evidence of proficiency in English. Eligible evidence as defined by the CMRBVic was either a qualification where English was the language of instruction or one of the three English tests recognised by CMRBVic (See Table 3.20).

Table 3.20 Evidence of proficiency in English

Eligible Evidence	n*	%#
Education (in which English was the language of instruction)	143	49.1
TOEFL (Test of English as a Foreign Language)	82	28.1
ISLPR (International Second Language Proficiency Ratings, formerly ASLPR)	23	7.9
IELTS (International English Language Testing System)	19	6.5
Total	245	84.2

*: Applicants may provide multiple items of evidence, total numbers do not add up to 245
#: Percentages are of total non-native English speakers

Willingness to consult and treat a patient without a common language

It is of interest to investigate whether or not practitioners would be happy to communicate with patients without a language in common. All practitioners were asked "will you consult and treat a patient without a common language?" Among all practitioners, two fifths (44.0%) were willing to do so. Such willingness was varied according to the following practitioner characteristics, as shown in Table 3.21. Hence, a much higher proportion of the older practitioners (55 plus, 56%), the Existing Practitioners (48.4%), and practitioners with

Chinese as first language (60.9%), as well as practitioners who lived in the metropolitan areas (46.7%) were more likely to consult and treat a patient without a common language.

Table 3.21 Consult and treat a patient without a common language

Characteristic	Consult and treat a patient without a common language		Statistical difference	
	Yes n (%)	No n (%)	Chi Square	p value
Gender			0.02	0.48
Female	124 (44.3)	156 (55.7)		
Male	148 (43.8)	190 (56.2)		
Age			20.6	0.000
18 – 34	41 (28.7)	102 (71.3)		
35 – 54	175 (46.7)	200 (53.3)		
55+	56 (56.0)	44 (44.0)		
Category of practitioner			16.9	0.000
New Graduate	40 (28.8)	99 (71.2)		
Existing Practitioner	232 (48.4)	247 (51.6)		
First language			47.6	0.000
English	107 (31.8)	229 (68.2)		
Chinese	143 (60.9)	92 (39.1)		
Other languages	22 (48.9)	23 (51.1)		
Highest qualification			6.7	0.08
postgraduate	48 (52.2)	44 (47.8)		
Bachelor degree	118 (40.4)	174 (59.6)		
Adv. diploma or diploma	92 (43.6)	119 (56.4)		
Short course/apprenticeship /no formal qualifications	14 (60.9)	9 (39.1)		
Location			15.6	0.000
Metropolitan area	259 (46.7)	296 (53.3)		
Rural Victorian region	12 (20.0)	48 (80.0)		

3.3.3 Characteristics of the Existing Practitioners in the Workforce

Among the 639 practitioners who became registered and who lived in Victoria, more than three quarters (76.8%, n=491) had applied for registration under the category of Existing Practitioners. So, at the time of registration, those classed as Existing Practitioners comprised the main proportion of the Chinese medicine workforce. They were also the group to whom the Grandparenting policy was principally aimed. Consequently, this sub-group requires more detailed analysis.

Among the 639 practitioners in Victoria, more than three quarters (76.8%, n=491) had applied for registration under the category of Existing Practitioners. These practitioners were assessed under the criteria A, B, C, D or E (For descriptions of criteria refer to Chapter 3.1.2.3). Many characteristics of these Existing Practitioners (particularly the requirement of clinical experience in Chinese medicine practice) are different from those who applied under the category of New Graduates. The overall profile of the Existing Practitioners will be presented in Chapter 3.3.3.1, followed by the comparisons between these two categories (Chapter 3.3.4).

3.3.3.1 Overall Profile

As shown in Table 3.22, over one third (36.0%) of the Existing Practitioners were registered in the acupuncture division only and a further 60% were registered in both the acupuncture and Chinese herbal medicine divisions. The remaining 4% were registered in herbal medicine only. The mean age of the Existing Practitioners was 45.9 (mode=43, median=46) and among them 58.5% were male. Nearly nine in ten (89.8%) of the existing practitioners practiced or lived in metropolitan areas of Victoria (figure was calculated based on corresponding postal addresses of the practitioners).

Practitioners nominating either Chinese or English as their native language amounted to 93.2% of all registrants, with the two groups being equally represented: Chinese speakers (46.4%) and English speakers (46.8%). Only a small minority (6.7%) of all practitioners indicated a language other than English and Chinese (Table 3.22).

Similar proportions held a Bachelor degree (38.3%) or Diploma/advanced diploma (39.3%) with 17.7% holding a postgraduate qualification. Less than 5% of the existing practitioners had received qualifications that were less than a diploma level of training (Table 3.22). The time elapsed since the completion of the main Chinese medicine education is calculated. So we found that half (52.0%) of the Existing Practitioners have graduated more than 15 years and additional one third (30.9%) graduated for five to nine years (Table 3.22).

Table 3.22 Demographic characteristics of the Existing Practitioners

Characteristic		**Registered practitioners (n=491)**	
		n	**%**
Division of registration	Acupuncture only	177	36.0
	Chinese herbal medicine only	20	4.1
	Both divisions	294	59.9
Gender	Male	287	58.5
	Female	204	41.5
Age (years, mean =46)	18 – 24	0	0.0
	25 – 34	70	14.3
	35 – 44	154	31.4
	45 – 54	170	34.6
	55 – 64	76	15.5
	65+	21	4.3
Highest qualification	Postgraduate	87	17.7
	Bachelor degree	188	38.3
	Diploma/advanced diploma	193	39.3
	Short courses	5	1.0
	Apprenticeship	11	2.2
	No qualification provided	7	1.4
Years elapsed since graduation	< 5 years	5	1.1
	5-9 years	147	30.9
	10-14 years	76	16.0
	15+ years	247	52.0
First language	English	229	46.8
	Chinese	227	46.4
	Others	33	6.7
Location	Metropolitan area	441	89.8
	Rural Victorian region	47	9.6

3.3.3.2 Location of Practice

Based on the practitioners' contact addresses, excluding three practitioners who did not provide a valid corresponding address, 90.4% of the existing practitioners were in one of the three metropolitan areas as defined by the Victorian Department of Human Services. The metropolitan practitioners were more concentrated in the North and West Metropolitan area (32.0%) and the Eastern Metropolitan area (33.4%) with the highest concentration of Existing Practitioners being in the Eastern Metropolitan areas although the total population in this region amounts to only 20.0% of the total Victorian population (Table 3.23). On the other hand, the distribution of Existing Practitioners over the five Victorian regional areas was very thin, being 10 or less in four of them, and 17 in Barwon South West (see Table 3.23).

Table 3.23 Location of the Existing Practitioners

Victorian Department of Human Services Region	Number of practitioners	%	Population data*	%
North & West Metropolitan	156	32.0	1,400,000	28.8
Eastern Metropolitan	163	33.4	973,000	20.0
Southern Metropolitan	122	25.0	1,126,223	23.2
Barwon South West	17	3.5	350,109	7.2
Loddon-Mallee	10	2.0	298,882	6.2
Grampians	9	1.8	216,000	4.4
Hume	7	1.4	250,800	5.2
Gippsland	4	0.8	240,114	4.9
Total#	488	100	4,855,128	100.0

#Missing = 3
*Source: the Victorian Department of Human Services Regional Information: http://nps718.dhs.vic.gov.au/dhsregions/regional/riip.nsf

3.3.3.3 Chinese Medicine Qualifications

The educational backgrounds of all Existing Practitioners in Victoria are presented in Table 3.24**.** For those qualifications higher than or equal to a diploma level, the origins (either overseas or Australia) of these qualifications were collected. Some practitioners provided multiple qualifications to support their registration applications. Overall, approximately one quarter of the existing practitioners had received a bachelor degree from either an Australian institute (25.3%) or from an overseas institute (21.6%). In addition, nearly one in five (19.6%) existing practitioners undertaken apprenticeship training either as part of their training in Chinese medicine or as their only Chinese medicine training.

Table 3.24 Educational backgrounds of the Existing Practitioners

Qualifications	**n (%)***
Awarded from Australia	
Relevant postgraduate qualification	49 (10.0)
Bachelor degree	124 (25.3)
Advanced Diploma	114 (23.2)
Diploma	88 (17.9)
Awarded from overseas	
Relevant postgraduate qualification	39 (7.9)
Bachelor degree	106 (21.6)
Advanced diploma	71 (14.5)
Diploma	62 (12.6)
Relevant short courses in Chinese medicine	118 (24.0)
Chinese medicine apprenticeship	96 (19.6)
No Chinese medicine qualification provided	7 (1.4)

*: Applicants may have multiple qualifications, total numbers do not add up to 491

As with the native English speakers and non-native English speakers (Table 3.15), Existing Practitioners who had at least some Australian education were compared to those who had overseas education with regard to gender, age, level of education, first language spoken, location of practice and willingness to consult patients without a common language (Table 3.25). It can be seen that a much larger percentage of the youngest group of practitioners held at least one Australian educational qualification (78.6%), compared to 40.9% among the oldest group of 55 years old and over ($p < 0.05$). As expected, most native English practitioners (93.4%) had at least some Australian education, while only 21.3% of the native Chinese speaking practitioners had some Australian education ($p < 0.05$). On the other hand, when location of practice is the comparison, just over half (56.8%) of the metropolitan Existing Practitioners had received an Australian qualification, but by far the majority (80.4%) of the rural Existing Practitioners held an Australian qualification.

Table 3.25 Demographic characteristics of the Existing Practitioners with different educational backgrounds

Characteristic	At least one Australian education# n (%)	Overseas education only n (%)	Statistical difference	
			Chi Square	p value
Gender			0.6	0.448
Female	121 (61.4)	76 (38.6)		
Male	157 (57.9)	114 (42.1)		
Age			23.3	0.000
18-34	55 (78.6)	15 (21.4)		
35-54	187 (60.3)	123 (39.7)		
55+	36 (40.9)	52 (59.1)		
Highest qualification			1.7	0.434
Postgraduate	48 (55.2)	39 (44.8)		
Bachelor degree	109 (58.0)	79 (42.0)		
Adv. diploma or diploma	121 (62.7)	72 (37.3)		
First language			233.5	0.000
English	212 (93.4)	15 (6.6)		
Chinese	44 (21.3)	163 (78.7)		
Other languages	20 (62.5)	12 (37.5)		
Will consult and treat patients without a common language			14.7	0.000
Yes	110 (50.5)	108 (49.5)		
No	162 (68.1)	76 (31.9)		
Location			9.6	0.002
Metropolitan area	238 (56.8)	181 (43.2)		
Rural region	37 (80.4)	9 (19.6)		

Note: Only those with at least a diploma level qualification are included in this table.

3.3.3.4 Disciplines of Chinese Medicine Training

Data on the disciplines of Chinese medicine training among all practitioners were collected. All but one practitioner (99.8%) had received training in the Chinese medicine theoretical paradigm. In contrast, approximately one third of the practitioners had been trained in Chinese medicine classic literature (38.9%), Chinese therapeutic massage (37.9%) and professional development related subjects (36.0%) such as ethical and professional issues, small business management and first aid (Table 3.26).

Nearly all practitioners (93.3%) had received training in basic and biomedical sciences subjects and some four fifths (82.6%) of the practitioners had received training in clinical management skills such as managing patients and patient records. Surprisingly only about half of the practitioners had completed subjects in clinical Chinese medicine (58.4%) (Table 3.26).

Among the registered acupuncturists, 97.7% had provided evidence of acupuncture training including channel and acupuncture point theory, needling theory, moxibustion and cupping theory, and acupuncture microsystems. Furthermore, among Chinese herbal medicine practitioners, 89.2% of them had provided evidence of training in Chinese herbal medicine subjects (such as materia medica of Chinese medicine, Chinese medicinal formulae, and dispensing Chinese medicinal substances).

Table 3.26 Disciplines and description of Chinese medicine training areas among Existing Practitioners

No	Discipline	Description	% of practitioners received training in each discipline^
1	Chinese medicine theoretical Paradigm	Including terminology of Chinese medicine, history of Chinese medicine, Principles of Chinese medicine, and diagnosis in Chinese medicine.	99.8
2	Acupuncture*	Including Channel and acupuncture point theory, Needling theory and practice, moxibustion and cupping theory and practice, and acupuncture microsystems.	97.7
3	Chinese herbal medicine#	Including materia medica of Chinese medicine, Chinese medicinal formulae, and dispensing Chinese medicinal substances.	89.2
4	Chinese therapeutic massage	*Tuina* (Chinese therapeutic massage).	37.9
5	Chinese medicine classic literature	Including classic literature, *Huang Di Nei Jing, Shang Han Lun, Jin Gui Yao Lue, Wen Bing Xue and Zhen Jiu Jia Yi Jing.*	38.9
6	Basic and biomedical sciences	Including cell biology, biochemistry and molecular biology, anatomy, physiology, microbiology, pathology, pharmacology and toxicology, phyto-chemistry and pharmaceutics, diagnosis in western medicine, radiology and imaging, laboratory diagnosis, clinical western medicine and biomedicine.	93.3
7	Clinical Chinese medicine	Including internal medicine, gynaecology and obstetrics, paediatrics, traumatology, external medicine, dermatology, and ear, eye, nose and throat disorders.	58.4
8	Clinical training – general description	Including managing patients and patient records, managing equipment used in treatment, assessing a patient, gathering clinical information and clinical decision-making, performing acupuncture treatment, and dispensing prescriptions.	82.6
9	Professional development and other areas of study	Including research methods, ethical and professional issues, first aid, small business management, and communication and counselling.	36.0

* % among those registered in the division of acupuncture, # % among those registered in the division of Chinese herbal medicine
^ % of practitioners who have provided academic transcripts

Certain characteristics of the training of the Existing Practitioners in the different disciplines of Chinese medicine education were analysed. Thus, Table 3.27, Table 3.28 and Table 3.29 show the results of the comparisons between those Existing Practitioners with different educational backgrounds and those with different language backgrounds.

Noticeably, 10.2% of the Existing Practitioners with only an overseas qualification had been trained in professional development, whereas five times as many (52.2%) of the Existing Practitioners with an Australian qualification had been trained in professional development ($p < 0.001$). In addition, more practitioners with at least one Australian qualification (88.0%) had received training in clinically related courses such as patient management and record keeping than those with an overseas qualification only (75.5%, $p<0.05$). However, those with overseas qualification were more likely to have been trained in Chinese medicine classical literature (58.1%) and clinical subjects of Chinese medicine (85.1%) than their Australian qualified counterparts (27.7% and 43.4%, respectively, $p <0.05$ for both comparisons) (Table 3.27).

With regard to the highest qualification achieved, a greater proportion of those who were trained overseas had a postgraduate qualification compared with those with some Australian training. Those who had received a higher level of qualification had also received more training in clinical Chinese medicine subjects, other clinically related subjects and professional development subjects.

However, there is one exception that is worthy of note. While the majority (60.7%) of the bachelor degree practitioners had studied Chinese medicine classical literature, only one in three (33.8%) of those with a postgraduate qualification had studied this area. This difference is most likely due to the structure of the postgraduate curriculum in China which does not usually include classical literature. Most of these people would have studied another healthcare discipline at undergraduate level before undertaking a postgraduate course in Chinese medicine. Only a minority (18.1%) of those with their highest qualification as diploma or advanced diploma had studied Chinese medicine classical literature (Table 3.28).

Language background is another important factor in the disciplines of education and training received. Those with Chinese as a first language had been trained more extensively in clinical Chinese medicine subjects (89.9%) and Chinese medicine classical literature (66.3%), compared with those whose first language was English or another language other than Chinese (17.8% and 24.1% respectively). However, practitioners with Chinese as a first language had received significantly less training in professional development (14.3%) (Table 3.29).

Table 3.27 Comparisons of the training disciplines received by the Existing Practitioners with Australian or overseas qualification

Discipline[1]	Qualification[2]		Statistical difference	
	At least one Australian qualification[3] n (%)	Overseas qualification only[4] n (%)	Chi Square	p value
1	249 (100.0)	148 (100.0)	^	^
2*	242 (99.6)	139 (95.9)	7.1	0.008
3#	104 (91.2)	117 (90.0)	0.1	0.743
4	96 (38.6)	54 (36.5)	0.2	0.681
5	69 (27.7)	86 (58.1)	36.0	0.000
6	235 (94.4)	138 (93.2)	0.2	0.647
7	108 (43.4)	126 (85.1)	66.9	0.000
8	219 (88.0)	111 (75.5)	10.3	0.001
9	130 (52.2)	15 (10.2)	70.2	0.000

Note 1: Detailed description of the disciplines available from Table 3.9
Note 2: Table presents information among practitioners who have at least a diploma qualification and whom have provided academic transcripts (n=398)
Note 3: % among practitioners with at least one Australian qualification
Note 4: % among practitioners with overseas qualification only
* % among those registered in the division of acupuncture
# % among those registered in the division of Chinese herbal medicine
^ No statistics are computed because discipline 1 is a constant.

Table 3.28 Comparisons of the training disciplines received by the Existing Practitioners with different highest qualifications

Discipline[1]	Highest qualification in Chinese medicine[2]			Statistical difference	
	Postgraduate[3] n (%)	Bachelor[4] n (%)	Dip/ Adv. Dip[5] n (%)	Chi Square	p value
1	74 (100.0)	168 (100.0)	155 (100.0)	^	^
2*	66 (94.3)	164 (99.4)	151 (98.7)	7.6	0.02
3#	42 (82.4)	113 (97.4)	66 (85.7)	12.5	0.002
4	25 (33.8)	61 (36.3)	64 (41.3)	1.5	0.48
5	25 (33.8)	102 (60.7)	28 (18.1)	62.7	0.000
6	68 (91.9)	163 (97.1)	142 (91.9)	4.8	0.09
7	49 (66.2)	110 (65.5)	75 (48.4)	11.7	0.003
8	62 (83.8)	148 (88.6)	120 (77.4)	7.3	0.03
9	39 (52.7)	71 (42.5)	35 (22.6)	23.9	0.000

Note 1: Detailed description of the disciplines available from Table 3.9
Note 2: Table presents information among practitioners who have at least a diploma qualification and whom have provided academic transcripts (n=398)
Note 3: % among practitioners with at least a postgraduate qualification
Note 4: % among practitioners with a bachelor degree only
Note 5: % among practitioners with a diploma or advanced diploma qualification only
* % among those registered in the division of acupuncture
# % among those registered in the division of Chinese herbal medicine
^ No statistics are computed because discipline 1 is a constant.

Table 3.29 Training disciplines of the Existing Practitioners with different language backgrounds

Discipline[1]	First language[2]			Statistical difference	
	English[3] n (%)	Chinese[4] n (%)	Other language[5] n (%)	Chi Square	p value
1	197 (100.0)	169 (100.0)	29 (100.0)	^	^
2*	191 (99.5)	160 (96.4)	28 (100.0)	5.3	0.07
3#	67 (91.8)	144 (91.1)	9 (75.0)	3.6	0.17
4	84 (42.6)	58 (34.3)	8 (27.6)	4.1	0.13
5	35 (17.8)	112 (66.3)	7 (24.1)	92.9	0.000
6	187 (94.9)	156 (92.3)	28 (96.6)	1.5	0.48
7	68 (34.5)	152 (89.9)	13 (44.8)	118.1	0.000
8	168 (85.3)	137 (81.5)	23 (79.3)	1.3	0.53
9	106 (53.8)	24 (14.3)	14 (48.3)	62.9	0.000

Note 1: Detailed description of the disciplines available from Table 3.9
Note 2: Table presents information among practitioners who have at least a diploma qualification and whom have provided academic transcripts (n=398)
Note 3: % among practitioners with English as first language
Note 4: % among practitioners with Chinese as first language
Note 5: % among practitioners with other languages as first language
* % among those registered in the division of acupuncture
\# % among those registered in the division of Chinese herbal medicine
^ No statistics are computed because discipline 1 is a constant.

3.3.3.5 Proficiency in English

As shown in Table 3.30, 19 languages were nominated as first languages. Nearly half of the Existing Practitioners stated English (46.8%) or Chinese (46.4%) as their first language. Of the remaining 17 languages, none of them had more than 4 practitioners (Table 3.30).

Table 3.30 First language of the Existing Practitioners

First language	n	%	First language	n	%
English	229	46.8	Persian	2	0.4
Chinese	227	46.4	Arabic	1	0.2
German	4	0.8	Dutch	1	0.2
Vietnamese	3	0.6	Indian*	1	0.2
Japanese	3	0.6	Lebanese	1	0.2
Korean	3	0.6	Macedonia	1	0.2
Greek	3	0.6	Philippine*	1	0.2
Hebrew	3	0.6	Somalian	1	0.2
Hindi	2	0.4	French	1	0.2
Hungarian	2	0.4	Missing	2	
Total				**491**	**100**

* as written on the application form

Table 3.31 compares the profiles of Existing Practitioners with native and non-native English speaking backgrounds. Most significantly, practitioners aged 18 to 34 (71.4%) were more likely to be native English speakers than those aged 55 or over (29.5%, $p<0.05$). For every level of qualification (diploma, advanced diploma, bachelor or postgraduate degrees), the distribution between native English and non-English speaking Existing Practitioners is fairly evenly divided. However, among those who provided no qualifications, who had taken short courses or had apprenticeship training only, the distribution between the two language groups is extremely markedly skewed, with 91.3% being non-native English speaking and only 8.7% native speaking ($p<0.05$).

Table 3.31 Native and non-native English speakers of the Existing Practitioners

Characteristic	Native English n (%)	Non-native English n (%)	Statistical difference	
			Chi Square	p value
Gender			6.7	0.412
Female	100 (49.0)	104 (51.0)		
Male	129 (45.3)	156 (54.7)		
Age			28.5	0.000
18-34	50 (71.4)	20 (28.6)		
35-54	151 (46.6)	173 (53.4)		
55+	28 (29.5)	67 (70.5)		
Highest qualification			29.0	0.000
Postgraduate	36 (41.4)	51 (58.6)		
Bachelor degree	77 (41.2)	110 (58.8)		
Adv. Diploma or Diploma	114 (59.4)	78 (40.6)		
Short course/apprenticeship /no formal qualifications	2 (8.7)	21 (91.3)		
Location			30.8	0.000
Metropolitan area	187 (42.6)	252 (57.4)		
Rural Victorian region	40 (85.1)	7 (14.9)		
Will consult and treat patients without a common language			27.2	0.000
Yes	81 (34.9)	151 (65.1)		
No	144 (58.8)	101 (41.2)		

3.3.3.6 Competency in English for Non-native Speakers

Table 3.32 shows English language competency in reading, writing and speaking among the Existing Practitioners whose first language was not English. Overall, at least half of the existing practitioners considered their English to be fluent in speaking (70.0%), writing (53.5%) and reading (61.9%). Additionally, one quarter of them considered their English was at an average level in terms of speaking (25.0%), writing (38.1%) and reading (32.3%).

Table 3.32 Communication competency in English among non-native English Existing Practitioners

	Speaking English		Writing English		Reading English	
	n	%	n	%	n	%
Fluent	182	70.0	139	53.5	161	61.9
Average	65	25.0	99	38.1	84	32.3
Minimal	13	5.0	22	8.5	15	5.8
Total	260	100	260	100	260	100

Note: first language other than English only (n=260)

Table 3.33, Table 3.34, and Table 3.35 show non-native English speaking practitioners' rating of their competency in speaking, writing and reading English. Differences were found between demographic characteristics such as gender, age, highest qualification, New Graduates or Existing Practitioners and location of the practitioners.

Overall, females were found to be more confident in their ability in all aspects of English language than males, especially in speaking. For example, more than three quarters (76.9%) of female practitioners considered their English speaking to be fluent, while approximately two thirds (65.4%) of male practitioners considered their spoken English to be fluent ($p<0.05$).

It appears that young practitioners were more competent in all aspects of English than the older practitioners. For example, 95% of the practitioners aged 18 to 34 considered their speaking, writing and reading abilities to be fluent, while only about 40% of those aged 55 or over considered their speaking (49.3%), reading (44.8%) and writing (37.3%) ability to be fluent ($p<0.05$). Furthermore, it appears that a higher educational background also contributed to the level of English proficiency. Thus, those with at least a bachelor degree were more likely to consider their English competency to be fluent (speaking, 78.9%; writing, 64.0%; and reading, 72.7%) whereas a much lower proportion of those without a diploma qualification considered their English to be fluent (speaking, 42.9%; writing, 23.8%; and reading, 33.3%).

Table 3.33 Competency in speaking English among Existing Practitioners

Characteristic	Proficiency in speaking English			Statistical difference	
	Fluent n (%)	Average n (%)	Minimal n (%)	Chi Square	p value
Gender				7.4	0.03
Female	80 (76.9)	23 (22.1)	1 (1.0)		
Male	102 (65.4)	42 (26.3)	12 (7.7)		
Age				27.3	0.000
18-34	19 (95.0)	1 (5.0)	0 (0)		
35-54	130 (75.1)	39 (22.5)	4 (2.3)		
55+	33 (49.3)	25 (37.3)	9 (13.4)		
Highest qualification				22.4	0.001
Postgraduate	39 (76.5)	12 (23.5)	0 (0)		
Bachelor degree	88 (80.0)	17 (15.5)	5 (4.5)		
Adv. Diploma or Diploma	46 (59.0)	25 (32.1)	7 (9.0)		
Short course/apprenticeship /no formal qualifications	9 (42.9)	11 (52.4)	1 (4.8)		
Location				3.1	0.21
Metropolitan area	174 (69.0)	65 (25.8)	13 (5.2)		
Rural Victorian region	7 (100)	0 (0)	0 (0)		
Will consult and treat patients without a common language				9.2	0.01
Yes	102 (67.5)	36 (23.8)	13 (8.6)		
No	75 (74.3)	26 (25.7)	0 (0)		

Table 3.34 Competency in writing English among Existing Practitioners

Characteristic	Proficiency in writing English			Statistical difference	
	Fluent n (%)	Average n (%)	Minimal n (%)	Chi Square	p value
Gender				0.7	0.71
Female	57 (54.8)	40 (38.5)	7 (6.7)		
Male	82 (52.6)	59 (37.8)	15 (9.6)		
Age				41.7	0.000
18-34	19 (95.0)	1 (5.0)	0 (0)		
35-54	95 (54.9)	72 (41.6)	6 (3.5)		
55+	25 (37.3)	26 (38.8)	16 (23.9)		
Highest qualification				26.7	0.000
Postgraduate	36 (70.6)	14 (27.5)	1 (2.0)		
Bachelor degree	67 (60.9)	38 (34.5)	5 (4.5)		
Adv. Diploma or Diploma	31 (39.5)	35 (44.9)	12 (15.4)		
Short course/apprenticeship /no formal qualifications	5 (23.8)	12 (57.1)	4 (19.0)		
Location				3.1	0.21
Metropolitan area	132 (52.4)	98 (38.9)	22 (8.7)		
Rural Victorian region	6 (85.7)	1 (14.3)	0 (0)		
Will consult and treat patients without a common language				6.0	0.05
Yes	85 (56.3)	49 (32.5)	17 (11.3)		
No	50 (49.5)	46 (45.5)	5 (5.0)		

Table 3.35 Competency in reading English among Existing Practitioners

Characteristic	Proficiency in reading English			Statistical difference	
	Fluent n (%)	Average n (%)	Minimal n (%)	Chi Square	p value
Gender				4.7	0.10
Female	67 (64.4)	35 (33.7)	2 (1.9)		
Male	94 (60.3)	49 (31.4)	13 (8.3)		
Age				30.4	0.000
18-34	19 (95.0)	1 (5.0)	0 (0)		
35-54	112 (64.7)	57 (32.9)	4 (2.3)		
55+	30 (44.8)	26 (38.8)	11 (16.4)		
Highest qualification				25.5	0.000
Postgraduate	39 (76.5)	11 (21.6)	1 (2.0)		
Bachelor degree	78 (70.9)	29 (26.4)	3 (2.7)		
Adv. Diploma or Diploma	37 (47.7)	32 (41.0)	9 (9.5)		
Short course/apprenticeship /no formal qualifications	7 (33.3)	12 (57.1)	2 (9.5)		
Location				1.8	0.40
Metropolitan area	154 (61.1)	83 (32.9)	15 (5.0)		
Rural Victorian region	6 (85.7)	1 (14.3)	0 (0)		
Will consult and treat patients without a common language				8.6	0.01
Yes	94 (62.3)	43 (28.5)	14 (9.3)		
No	62 (61.4)	38 (37.6)	1 (1.0)		

Evidence of proficiency in English

Among the 260 non-native English speakers, 215 (82.7%) of them provided evidence of proficiency in English or stated that they could provide such evidence on request. Evidence approved by the CMRBVic is summarised in Table 3.36.

Table 3.36 Evidence of proficiency in English provided by Existing Practitioners by Existing Practitioners

Eligible Evidences	n*	%#
Education (in which English was the language of instruction)	115	53.5
TOEFL (Test of English as a Foreign Language)	88	40.9
ISLPR (International Second Language Proficiency Ratings, formerly ASLPR)	20	9.3
IELTS (International English Language Testing System)	19	8.8
Total	215	82.7

*: Applicants may provide multiple items of evidence, total numbers do not add up to 215
#: Percentages of total non-native English speakers

Willingness to consult and treat a patient without a common language

Of the Existing Practitioners, those more willing to consult and treat patients without a common language included: practitioners aged 55 and over (57.4%), practitioners with Chinese as their first language (62.9%), as well as practitioners who lived in the metropolitan areas (51.5%) (Table 3.37).

Table 3.37 Consult and treat patients without a common language

Characteristic	Consult and treat a patient without a common language: Yes n (%)	Consult and treat a patient without a common language: No n (%)	Statistical difference: Chi Square	Statistical difference: p value
Gender			0.3	0.56
Female	99 (50.0)	99 (50.0)		
Male	133 (47.3)	148 (52.7)		
Age			9.4	0.009
18 – 34	23 (33.3)	46 (66.7)		
35 – 54	155 (49.1)	161 (50.9)		
55+	54 (57.4)	40 (42.6)		
First language			33.6	0.000
English	81 (36.0)	144 (64.0)		
Chinese	139 (62.9)	82 (37.1)		
Other languages	12 (38.7)	19 (61.3)		
Highest qualification			2.5	0.47
postgraduate	45 (52.3)	41 (47.7)		
Bachelor degree	88 (47.8)	96 (52.2)		
Adv. diploma or diploma	85 (45.7)	101 (54.3)		
Short course/apprenticeship /no formal qualifications	14 (60.9)	9 (39.1)		
Location			16.2	0.000
Metropolitan area	222 (51.5)	209 (48.5)		
Rural Victorian region	9 (20.0)	36 (80.0)		

3.3.3.7 Evidence Provided by the Practitioners

Overview of the five assessment criteria

With the exception of one Existing Practitioner who received his/her registration status by passing an examination set by the Board, all other Existing Practitioners provided evidence under one of the five assessment criteria. Overall, nearly half (46.7%) of the existing practitioners was approved under criterion B and about one quarter of them was approved under criteria A (22.9%) or C (23.7%). In addition, 1.6% was approved under criterion D and a further 5.1% was approved under criterion E.

Details of the assessment criteria nominated by the Existing Practitioner applicants are summarised in Table 3.38, together with their demographic data. There are marked differences among the practitioners who were assessed under different criteria. In criterion A the highest proportions of the practitioners were male (71.4%), aged 35 to 54 (58.9%), had Chinese as a first language (62.5%), were registered in both divisions (73.2%) and had a qualification of diploma or advanced diploma (50.9%).

For those assessed under criterion B, most were again male (58.1%), more than three quarters (78.2%) were aged 35 to 54, just over half (52.8%) had Chinese as a first language, and over half (54.2%) had a qualification higher than bachelor degree. In criterion C, the majority were female (51.7%), had English as a first language (75.0%), and had a qualification of bachelor or postgraduate level (86.2%). It is worth noting that the proportion of practitioners assessed under criterion C that had at least a bachelor degree is much higher than the proportions in any of the other criteria (range between 25.0% and 54.2%). In addition, proportion of practitioners assessed under criterion C who were registered only in the division of acupuncture is much higher than the proportions in any of the other criteria (range between 17.9% and 35.8%).

For criterion D, the gender balance was equal (50%), the highest proportion was aged 35 to 54 (62.5%), had English as a first language (87.5%), were registered in both divisions (75.0%) and had a qualification of diploma or advanced diploma (75.0%). However, it should be noted that only a small number of applicants were registered under criteria D and E.

Table 3.38 Five assessment criteria nominated by Existing Practitioners

Characteristic*	Existing practitioners n=491*				
	Criterion A n=112	Criterion B n=229	Criterion C n=116	Criterion D n=8	Criterion E n=25
Gender					
Male	71.4	58.1	48.3	50.0	56.0
Female	28.6	41.9	51.7	50.0	44.0
Age range					
18 – 34	0.9	4.4	44.0	0.0	32.0
35 – 54	58.9	78.2	48.3	62.5	68.0
55+	40.2	17.5	7.8	37.5	0.0
Mean age (years)	52.9	47.1	38.3	48.6	38.5
First language					
English	32.1	41.0	75.0	87.5	20.0
Chinese	62.5	52.8	18.1	0	52.0
Others	5.4	6.2	6.9	12.5	28.0
Divisions					
Acupuncture	17.9	35.8	55.2	25.0	32.0
CHM	8.9	3.1	0.9	0	8.0
Both divisions	73.2	61.1	44.0	75.0	60.0
Qualification					
Postgraduate	14.3	21.0	11.2	25.0	36.0
Bachelor degree	16.1	33.2	75.0	0	28.0
Adv. dip/dip.	50.9	45.4	13.8	75.0	36.0
Short course	3.6	0	0	0	0
Apprenticeship	8.9	0.4	0	0	0
No qualification	6.3	0	0	0	0

Note: One practitioner obtained registration by passing the CMRBVic examination
% within each characteristics group
CHM: Chinese herbal medicine

Clinical practice experience

Evidence of Chinese medicine clinical practice was required by the Board if an applicant graduated prior to 1997. Depending on their background qualification, the length of evidence of clinical practice required was 10 years (criterion A) or 5 years (criterion B). In addition, where determined by the Board, applications assessed under criterion E may have been required to provide evidence of competence of practice (see above Chapter 3.1.2.3).

Usually practitioners provided evidence of clinical practice over a certain period of time that met the minimum Board requirement. Therefore, this evidence might not necessarily represent their actual full length of clinical experience. For example, a practitioner with a total of 20 years experience may have provided evidence of practice for anything between 10 and 20 years. Presumably, this depended on the accessible evidence for the length of practice and how willing the practitioner was to retrieve the full length of the clinical practice.

Table 3.39 presents the length of practice provided under each of the five criteria. In brief, the average length of practice was 10.6 years (sd = 5.8). For those assessed in criteria A and B, for whom evidence of clinical practice was compulsory, the means were 13.9 (sd = 5.8) and 9.8 (sd = 5.1).

The number of years elapsed after graduation for each practitioner was also calculated. Thus, the average length of time since that practitioner had graduated from a Chinese medicine course could be much higher than the average length of practice (as determined by the evidence submitted to the Board). For example, the mean length since graduation for criteria A and B were 24.0 (sd=87) and 18.6 (sd = 7.4) compared to 13.9 and 9.8 years of practice respectively (Table 3.39).

Table 3.39 Evidence of length of practice and time elapsed since graduation

	Length of practice			Time since graduation		
	n	Mean (years)	SD	n	Mean (years)	SD
Criterion A	112	13.9	5.8	98	24.0	8.7
Criterion B	224	9.8	5.1	227	18.6	7.4
Criterion C	7	3.3	2.7	116	7.3	2.9
Criterion D	5	4.8	3.3	8	7.3	1.3
Criterion E	17	4.4	3.2	25	7.9	3.3
Passed by exam	1	9.0	--	1	12.0	--
Total	**366**	**10.6**	**5.8**	**475**	**16.2**	**9.2**

SD: standard deviation

<u>Evidence of clinical practice</u>

Details of the evidence assessed under each of the criteria A, B and E are summarised in Table 3.40. With criterion A, applicants were more likely to provide, in descending order of popularity, membership of Chinese medicine professional association (89.3%), non-identifying patient records (62.5%) and, invoices/statements from suppliers of Chinese herbs (57.1%). Consistently, the most popular evidence provided to the Board among those assessed under criteria B and E was membership of a Chinese medicine professional association (84.1% and 85.2% respectively). The next most popular category of evidence provided by these two groups of practitioners was professional indemnity insurance, being 55.9% and 53.0% respectively.

In summary, the least popular evidence provided to the Board was health provider rebate status. Thus, for practitioners who were assessed under any one of the three criteria, approximately one in seven (13.7%, 14.1% and 14.3%) provided evidence of health provider rebate status. On the other hand, only about one third of the practitioners assessed under criteria D (31.3%) and E (33.6%) provided evidence of non-identifying patient records. This is much less than the practitioners assessed under criterion A (62.5%) but this is mainly due to length of practice not being a key feature of assessment under criteria D and E.

Table 3.40 Evidence of practice provided by Existing Practitioners

Evidence	Criterion A	Criterion B	Criterion E
Tax records	42.0	23.8	28.8
Health provider rebate status	14.3	14.1	13.7
Proprietor of premises registered for skin penetration	34.8	22.5	25.3
Invoices/statements from supplier of Chinese herbs	57.1	41.9	46.6
Professional indemnity insurance	50.9	55.9	53.0
Membership of Chinese medicine professional association	89.3	84.1	85.2
Written record from employer	47.3	50.2	47.8
Non-identifying patient records	62.5	31.3	33.6
Statement from Chinese medicine professional association	33.0	15.0	21.1
Statement from employer	20.5	16.7	17.3

3.3.4 Comparison of the Existing Practitioners with the New Graduates

Among 639 registered practitioners, 148 applied as New Graduates and 491 as Existing Practitioners. The mean age for the Existing Practitioners was 45.9 (sd=9.7) and for the New Graduates, it was 35.8 (sd=10.3).

3.3.4.1 Comparing the Demographic Characteristics

The gender composition of these two categories of practitioners is worthy of note. The male to female ratio among the Existing Practitioners was 3:2, while it was 2:3 among the New Graduates (Table 3.41). On the other hand, nearly two thirds of the Existing Practitioners were aged 35 to 54 while more than half (54.7%) of the New Graduates were aged 18 to 34.

Some eighty percent of the New Graduates spoke English as their first language (80.4%) and had at least a bachelor degree (83.2%). However, just under half of the Existing Practitioners were native English speakers (46.8%) and over half (56.0%) of the Existing Practitioners had at least a bachelor degree. However, only 4.1% of the New Graduates had a postgraduate degree while nearly one in five (17.7%) of the Existing Practitioners had a postgraduate degree.

Almost all of the New Graduates (99.3%) obtained their Chinese medicine qualifications in Australian institutes, compared to about three fifths (59.4%) of the Existing Practitioners. In addition, Existing Practitioners were more likely to register for both divisions (59.9%), while the New Graduates were more likely to register in the division of acupuncture only (54.7%).

Table 3.41 Demographic information for Existing Practitioners and New Graduates

Characteristic	Existing Practitioners n=491		New Graduates n=148	
	n	%	n	%
Gender				
Male	287	58.5	61	41.2
Female	204	41.5	87	58.8
Age group				
18 – 34*	70	14.3	81	54.7
35 – 54	324	66.0	61	41.2
55+	97	19.8	6	4.1
Mean age (years)	45.9		35.8	
Highest Qualification				
Postgraduate	87	17.7	6	4.1
Bachelor degree*	188	38.3	117	79.1
Diploma /advanced diploma	193	39.3	25	16.9
Short courses	5	1.0	0	0
Apprenticeship	11	2.2	0	0
No qualification	7	1.4	0	0
First Language				
English*	229	46.8	119	80.4
Chinese*	227	46.4	15	10.1
Other languages	33	6.7	14	9.5
Divisions registered				
Acupuncture only	177	36.0	81	54.7
Chinese herbal medicine only	20	4.1	13	8.8
Both divisions	294	59.9	54	36.5
Location				
Metropolitan area	441	90.4	130	87.8
Rural Victorian region	47	9.6	18	12.2

* Significant difference between the proportions of Existing Practitioners and of New Graduates

3.3.4.2 Comparing the Disciplines of Training in Chinese Medicine

Table 3.42 shows the disciplines of training for Existing Practitioners and New Graduates. Compared to the Existing Practitioners, a significantly higher proportion of the New Graduates had received training in Disciplines 3, 4, 6 and 9, while Existing Practitioners had more training in Discipline 7. Specifically, 81.8% of the New Graduates had received training in professional development related subjects while only 36.0% of the Existing Practitioners had received training in professional development ($p < 0.05$). In contrast, 58.4% of the Existing Practitioners had received training in Chinese medicine clinical subjects while only 45.9% of the New Graduates had received such training ($p <0.05$).

Table 3.42 Training disciplines in Chinese medicine

	All practitioners		Existing Practitioners		New Graduates	
	n	%	n	%	n	%
Discipline 1	551	99.8	403	99.8	148	100.0
Discipline 2#	519	97.9	386	97.7	133	98.5
Discipline 3*^	289	91.2	223	89.2	66	98.5
Discipline 4*	239	43.3	153	37.9	86	58.1
Discipline 5	215	38.9	157	38.9	58	39.2
Discipline 6*	525	95.1	377	93.3	148	100.0
Discipline 7*	304	55.1	236	58.4	68	45.9
Discipline 8	445	80.9	333	67.8	112	76.2
Discipline 9*	277	50.3	145	36.0	121	81.8

*P < 0.05 between Existing Practitioners and New Graduates (chi square test);

% among those registered in the division of acupuncture;

^ % among those registered in the division of Chinese herbal medicine

3.3.5 Regulatory and Disciplinary Matters

3.3.5.1 Examination

Under section 94(1) (c) of the Chinese Medicine Registration Act 2000, applicants under the category of Existing Practitioner were asked (although it was not compulsory to answer) if they did not qualify for registration on the basis of their qualifications and experience, would they be willing to sit an examination (or examinations), as determined by the Board.

Overall, 298 of the 491 (60.7%) Existing Practitioners answered yes, while 89 (18.1%) indicated that they would not take the examination. The other 104 (21.2%) practitioners did not respond to this question. Among those with an affirmative answer (387), the proportions of the Existing Practitioners who were willing to take an examination if required by the Board were 67.5% (criterion A), 78.5% (criterion B), 82.9% (criterion C), 80.0% (criterion D) and 76.2% (criterion E).

Table 3.43 presents the demographic information of those who were willing to take a Board examination and those who were not. Compared to the native English speakers (70.3%), non-native English speakers were less agreeable to taking an exam (51.1% – 60.6%, $p<0.05$).

Table 3.43 Whether or not agree to sit for a Board exam for registration

Characteristic	Agree to take exam			Statistical difference	
	Yes n (%)	No n (%)	Not indicate n (%)	Chi Square	p value
Gender				1.0	0.61
Female	169 (58.9)	55 (19.2)	63 (22.0)		
Male	129 (63.2)	34 (16.7)	41 (20.1)		
Age				4.5	0.35
18-34	44 (62.9)	12 (17.1)	14 (20.0)		
35-54	204 (63.0)	54 (16.7)	66 (20.4)		
55+	50 (51.5)	23 (23.7)	24 (24.7)		
Highest qualification				7.9	0.25
Postgraduate	51 (58.6)	12 (13.8)	24 (27.6)		
Bachelor degree	116 (61.7)	32 (17.0)	40 (21.3)		
Adv. Diploma or Diploma	120 (62.2)	37 (19.2)	36 (18.7)		
Short course/apprenticeship /no formal qualifications	11 (47.8)	8 (34.8)	4 (17.4)		
Location				2.8	0.25
Metropolitan area	264 (59.9)	80 (18.1)	97 (22.0)		
Rural Victorian region	34 (72.3)	6 (12.8)	7 (14.9)		
First Language				28.3	0.00
English	161 (70.3)	29 (12.7)	39 (17.0)		
Chinese	116 (51.1)	59 (26.0)	52 (22.9)		
Other language	20 (60.6)	1 (3.0)	12 (36.4)		

3.3.5.2 Medical Negligence, Complaints and Related Issues

There are a number of grounds that the Chinese Medicine Registration Board may take into account when deciding whether to grant or refuse general registration to an applicant. Besides English proficiency, issues like medical negligence claims, revocation of health fund provider rebate status, complaints to the health services commissioner, alcohol and drug dependency, indictable and other offences, un-finalised proceedings, and fitness to practise could be taken into consideration. These categories and the number of responses are summarised in Table 3.44.

Three negligence claims were reported that related to Chinese medicine practice and three for other types of medical negligence but in one case both categories applied to the one practitioner. In addition, there were two instances of reports to the health Services Commissioner, one of which also overlapped with medical negligence claims relating to Chinese Medicine. Therefore, in total six practitioners had had medical negligence or other health care claims made against them. These six practitioners were all male, all in the metropolitan area but each was in a different age group. Three were in the highest age group (55 years and over) and three had Chinese as a first language (Table 3.45). Three had applied in criterion A and of these two did not provide evidence of a qualification that met Board criteria. Of the assessable qualifications, three were diploma / advanced diploma and one had a bachelor degree. The length of Chinese medicine practice evidence ranged from 8 to 41 years. In two cases where there were complaints in more than one category, but it is not possible to determine from the data whether these were different complaints or the same complaint. All six practitioners achieved registration with five of the six being registered in two divisions (Table 3.45).

In addition, there were a number of complaints relevant to registration: health fund provider rebate status (2 claims) and indictable and other offences (5 claims) (Table 3.44). There was no overlap between the types of complaints specified in Table 3.45 and issues relating to health funds or indictable and other offences so these issues appear unrelated and the details are not known.

Table 3.44 Issues relevant to registration

Issues relevant to registration	Question	No. of claims*
Chinese medicine related medical negligence	Have you ever been the subject of any claim for damages or other compensation for alleged negligence in the course of practising Acupuncture or Chinese herbal medicine or dispensing Chinese herbs?	3
Other medical negligence claims	Have you ever been the subject of any other claim for damages or other compensation for alleged negligence in the course of providing health care services?	3
Health fund provider rebate status	Have you ever had your provider rebate status withdrawn by a private health fund?	2
Complaints to health services commissioner	Have you ever been the subject of a complaint to the Health Services Commissioner of Victoria or to any similar health complaints body in Victoria or elsewhere?	2
Alcoholic and drug dependent persons	Are you an alcoholic or drug-dependent person within the meaning of the Alcoholics and Drug-dependent Persons Act 1968?	0
Indictable and other offences	Are there any charges pending against you, or have you ever been convicted or found guilty of any indictable offence (or any other offence) in Victoria (or in any other jurisdiction)?	5
Un-finalised proceedings	Are there any unfinalised proceedings against you under Part 3 of the Chinese medicine Registration Act 2000 as a result of any previous or current registration under the Act?	0
Fitness to practise	Do you have any physical or mental incapacity?	0

* Claims may be overlapped, see Chapter 3.3.5.2 and Table 3.45.

Table 3.45 Negative reports related to registered practitioners

Practitioner	Application criterion (Registration division)	Age (years)	First language	Length of practice	Highest qualification level	Complaint category
1	Criterion A (CHM† / Acupuncture)	55 and over	Chinese	41**	No qualification provided	CM# & HSCγ
2	Criterion B (CHM† / Acupuncture)	35-54	Chinese	10*	Diploma / Advanced Diploma	CM# & Other^
3	Criterion C (CHM† / Acupuncture)	18-34	English	8*	Bachelor Degree	CM#
4	Criterion A (CHM† / Acupuncture)	55 and over	English	21*	Diploma / Advanced Diploma	Other^
5	Criterion B (Acupuncture)	35-54	Somalian	14*	Diploma / Advanced Diploma	Other^
6	Criterion A (CHM† / Acupuncture)	55 and over	Chinese	11**	No qualification provided	HSCγ

*Since graduation, or **length of evidence (whichever is longer)
†CHM: Chinese herbal medicine
#CM: Chinese medicine related medical negligence,
^Other: Other medical negligence claims
γHSC: Health services commissioner

3.3.5.3 Professional Indemnity and Availability of First Aid

On initial application, 451 (71.0%) of all practitioners had taken out professional indemnity insurance, or were covered as an employee to the approved level of cover specified by the Board. This included 56 New Graduates (37.8% of total graduates) and 395 Existing Practitioners (80.9% of total existing practitioners). At the final stage of approval, all practitioners had provided evidence of professional indemnity. In addition, satisfactory completion of First Aid, level 2 (advanced level) is mandatory when applying for registration.

3.4 Discussion

This is the first study to provide an in-depth analysis of the total registered Chinese medicine workforce in Victoria since the Chinese Medicine Registration Act 2000 took effect. With permission from the Chinese Medicine Registration Board of Victoria, the researcher was able to access the original application documents. Through a predefined data extraction protocol, critical data were systematically analysed. Thus, findings on the demographic characteristics of the registered practitioners, the location of the practitioners, the qualification including the detailed training disciplines in Chinese medicine, proficiency in English language as well as competency of communication with patients and other health professionals have been presented in this chapter. In addition, we also produced a comprehensive profile of the Existing Practitioners and compared their characteristics with those of the total registered practitioners and of the New Graduate Practitioners.

This study provides an accurate data file of all registered Chinese medicine practitioners in the state of Victoria as of December 2004. Overall, the Board had approved for registration over three quarters of all applicants (970 of 1264) who applied under the Grandparenting policy. Among the approved applicants, 81.4% came from Victoria. It is of interest to note that 12.9% of the approved applicants were from Australian states other than Victoria in which mandatory registration had not been implemented. In addition, applications were received from a number of overseas countries.

At the time of conducting this study, a total of 151 inactive Victorian registrants were identified, leaving a population of 639 active Chinese medicine practitioners for valid analysis. This active Victorian Chinese medicine workforce comprised of 386 practitioners who were eligible to practice both acupuncture and Chinese herbal medicine, 225 qualified as acupuncturists only and 28 qualified Chinese herbal medicine practitioners only.

3.4.1 Demographic Characteristics of the Practitioners

Nearly all practitioners were in the division of acupuncture (94.8%) with 59.6 % in the division of Chinese herbal medicine. While there was little difference in gender across the divisions there was a marked effect for age. In general the older practitioners were much more likely to practice both acupuncture and Chinese herbal medicine and the younger practitioners to practice acupuncture only. This difference is mainly due to the practitioners who were educated in China, and tended to be older and had completed training in both these areas, whereas a considerable number of Australian courses were acupuncture only and graduates of these courses were more numerous in the younger age groups. In recent years, however, there has been a trend in Australia towards including both acupuncture and Chinese herbal medicine in courses so it could be expected that the gap between the numbers in these two divisions will narrow over time. Consistent with the above interpretation, there was a larger proportion of Chinese speakers in the Chinese herbal medicine group (58.4%), compared with the 36.3% of English speakers. Also, those registered in the Chinese herbal medicine division tended to have a higher level of qualification. This is most probably due to a combination of factors. One is the tendency for overseas trained practitioners (mainly from China) to have a bachelor qualification or above and to have included both acupuncture and Chinese herbal medicine in the training. On the other hand, a number courses in Australia that offered acupuncture only were accredited at diploma or advanced diploma level. In the future, it can be expected that this difference will narrow since all Australian courses accredited by the Board are now at bachelor level or higher.

At the end of 2006, the mean age of the Victorian Chinese medicine practitioners was 43.6 years old which is almost the same (44 years old in 1996) as that found in the national Chinese medicine workforce study conducted over ten years ago (A Bensoussan & Myers, 1996). No breakdown of age groups was reported for the 1996 survey but it appears likely that the situation remained largely unchanged until 2006.

Australia has an ageing health workforce (Australian Government Productivity Commission, 2006). The National Drug Strategy Household Survey in 2002 (2002) considered professionals aged 45 or older to be members of an ageing workforce. Within the health and community services sector labour force, 38% of workers are aged 45 years and over (Australian Institute of Health and Welfare, 2003). With respect to the Chinese medicine practitioners in Victoria, we found that a considerably higher percentage, 46.9%, of the workforce were aged 45 or older and 16.1% practitioners were aged 55 or older.

For the sake of comparison, it is of interest to examine the age profile of other health professionals in Australia. For example, the average age for nurses was 41.6 years (Britt et al., 1996), and the Australian Institute of Health and Welfare (AIHW) estimated that the average age of physiotherapists nationwide was 39.1 years in 2002 (Australian Institute of Health and Welfare, 2006). The ageing of the general practitioner population is also worrisome, especially for internists and cardiac surgeons. It was estimated that thirty-five percent of internists were over 55 years of age (i.e. within 10 years of retirement) (Higginson, 2005).

For Chinese medicine, the relatively low numbers in the 25-34 (22.5%) and 35-44 (29.4%) age brackets are of particular concern. These show that a relatively small proportion of young people were entering or staying in the profession. Thus, between 1996 to 2006, despite the fact that many graduates had entered the Chinese medicine profession, the Chinese medicine workforce in Victoria remained an ageing one.

There was a marked demographic change in the gender composition of the Chinese medicine workforce. In 1996, 32% of practitioners were female but since then there has been a large increase in the proportion of female practitioners to 45.5% in 2006. Similar findings were reported in the medical profession in a number of countries including the United States (Knaul F, Frenk J, & Aguilar AM, 1999), the United Kingdom (United Kingdom Department of Health, 2004) and Canada (Williams AP, 1999). For example, in the United Kingdom in 2003, 60% of GP registrars were female while only 29% GPs were female in 1993 (United Kingdom Department of Health, 2004). More women in the medical profession will impact significantly for workforce planning as it has been suggested that women are more likely to work part time and take career breaks (Kilminster, Downes, Gough, Murdoch-Eaton, & Roberts, 2007).

Research has also shown that female health providers see more female patients and manage more psychological problems than their male counterparts (Deveugele, Derese, van den Brink-Muinen, Bensing, & De Maeseneer, 2002), contemporaneously with a longer consultation time (Britt, Valenti, & Miller, 2002). In a 2003 survey of two CAM therapies in Australia, western herbalism and naturopathy, found that 76% of respondents were female (A. Bensoussan, Myers, Wu, & O'Connor, 2004). A recent Australian survey on CAM (C. C. Xue et al., 2007) found that female patients were more likely to consult a Chinese medicine practitioner. This change corresponded with the practitioner needs for the community (Anderson, Ellis, Williams, & Gates, 2005).

In the Chinese medicine workforce age and gender were strongly correlated with 58.3% of those aged 25-34 years compared with 38.6% in those aged 45-54 years. This shows that a profession that was once predominantly male is shifting to one that is predominantly female. It is probable that this shift will continue because females make up an increasingly greater proportion of the recent graduates of Chinese medicine. For example, in the Chinese Medicine program at RMIT University in Victoria, the biggest Chinese medicine education provider in Australia, the female to male ratio of undergraduate students has been approximately 4:1 for the past few years. While the reasons for this feminisation of the Chinese medicine workforce cannot be determined from this data, the higher level of CAM usage amongst females is likely to be a factor.

It was interesting to note that there was no significant difference in the gender of those registered in the divisions acupuncture and Chinese herbal medicine. So, neither tends to be a practice favoured by males or females.

3.4.2 Location of Practice

Only 10.2% of Victorian Chinese medicine practitioners worked in a rural region compared with 89.8% in metropolitan Melbourne. This figure is similar to that for other health professions in various states. For example, in New South Wales, the majority of registered physiotherapists worked in the metropolitan areas and the figure has remained relatively stable since 1987 at approximately 83%. The situation is also similar in Queensland (79.6%) and South Australia (86.8%) (Anderson et al., 2005).

The imbalance between the number of practitioners in the metropolitan and rural areas is not surprising. As in other countries, access to a wide range of health and community services is limited in rural and remote areas in Australia. This applies particularly to general practitioners, dentists, physiotherapists and other services. Generally, such services are provided by rural hospitals and rely on government funding (Adams, Slack-Smith, Larson, & O'Grady, 2004; Kamien & Cameron, 2006; May, Jones, Cooper, Morrissey, & Kershaw, 2007; Williams, D'Amore, & McMeeken, 2007). More recently, a Productivity Commission report also expressed particular concern over the lack of access to health workers by indigenous communities (Kilpatrick, Johns, Millar, Le, & Routley, 2007) which are generally in outlying rural areas.

There is an increasing body of evidences that rural Australia has an ageing population that is experiencing restricted access to health services, as well as higher morbidity and mortality rates (Campbell, Manoff, & Caffery, 2006; Goodyear-Smith & Janes, 2008; Gregory, Armstrong, & Van Der Weyden, 2006). It is reasonable to assume that better healthcare services in these remote regions will help to lower those rates. To meet the demand of healthcare services in the rural regions the core challenge is the recruitment into rural and remote regions of more health professionals (Gregory et al., 2006). In recent years, the governments had put their effort to change the situation. For example, the first rural and regional medical school at Deakin University in Victoria starts its first recruitment from 2008. The medical school will offer a graduate entry program for mature-aged students with strong links to regional and rural Australia and will be located on the Geelong campus at Waurn Ponds. From 2012 it will be producing a new group of specially trained doctors who will begin to make improvements to the acute shortage of medical practitioners in regional Victoria (Deakin Regional and Rural Medical School, 2006). Another approach to dealing with the shortage of medical practitioners in rural areas has been the recruitment of overseas-trained doctors to fill rural postings for a defined period with the result that a considerable proportion (31.4%) are overseas trained (Australian Government Department of Health and Ageing, 2007).

In contrast, the present workforce study suggests that majority of the rural Chinese medicine practitioners were locally trained in Australia (85.9%) and from an English speaking background (89.2%). Although there was no significant difference in the age breakdown between rural and metropolitan, the there were few practitioners who had Chinese as a first language in rural areas, even amongst the older age groups. Also, even though females tend to dominate the younger age groups, the rural practitioners tended to be male in all groups. This shows that Chinese speakers and females tend not to be taking up practice in rural areas.

Data on the availability of CAM services in rural areas is limited. However, a survey on naturopathic and Western herbal medicine practice in Australia revealed that 26.8% of Western herbal medicine practitioners and 25.3% of naturopaths practiced in rural Victoria. In rural NSW the figures were higher – 35.9% for Western herbal medicine, and 37.0% of naturopaths (A. Bensoussan et al., 2004). These data, however, must be interpreted with caution as the survey has also indicated that almost one third of the practitioners had two or more different practice locations. Similarly, the present study also revealed that multiple practice locations was common among Chinese medicine practitioners. There is also the question of distribution within rural areas since it is likely that those practitioners who are in rural areas are located either in a major town or close to a metropolitan region, so the level of Chinese medicine service availability in more remote regions could be underestimated in this data. Even so, at 10.2% Chinese medicine practitioners appear underrepresented in rural areas compared with other comparable CAM professions. Therefore, there appears an opportunity for expansion into these areas. Besides this overall level of under representation, when Chinese herbal medicine is considered there were very few in rural areas (23), since most rural Chinese medicine practitioners were registered in acupuncture but not Chinese herbal medicine. Whether this was due to a lack of demand for Chinese herbal medicine, poor availability of the medicines or just due to the characteristics of the practitioners who had established themselves in rural areas is not possible to determine from this data, but this is a issue worthy of further investigation.

Within the Melbourne metropolitan area, the higher number of practitioners in the Eastern metropolitan area is consistent with the residential distribution of the traditional users of Chinese medicine in Victoria, namely the Chinese and the Asians. The Australian Bureau of Statistics data estimated that there are high Asian populations in certain Melbourne suburbs. For example, in the Eastern metropolitan area, in the City of Whitehorse there are strong Asian communities (www.whitehorse.vic.gov.au). Therefore, it is not surprising that several of the suburbs that had the highest numbers of Chinese medicine practices are located in the Eastern metropolitan area, such as Glen Waverley, Box Hill and Mount Waverley. Other suburbs where there are high densities of Asian migrants, such as Footscray, Richmond and Balwyn North also had 10 practitioners or more.

3.4.3 Educational Background of the Practitioners

Some practitioners already had higher educational qualifications prior to their entry into the Chinese medicine profession. For example, after receiving training in other disciplines, such as nursing, medicine, physiotherapy, chiropractic, naturopathy, and biomedical sciences, these professionals subsequently received training in acupuncture and/or Chinese herbal medicine. In the 1996 survey, 35% of primary Chinese medicine practitioners held a non-Chinese medicine qualification (A Bensoussan & Myers, 1996). These practitioners may have practiced in other health disciplines as their primary profession and acupuncture and/or Chinese herbal medicine as their secondary practice. Since the CMRBVic was primarily concerned with qualifications in Chinese medicine, data on prior qualifications or primary fields of practice was not systematically collected. Consequently, the present data do not allow conclusions to be drawn on these questions. Such important information is, however, available from the 1996 national survey on Chinese medicine (A Bensoussan & Myers, 1996). This found that 53% of the surveyed practitioners indicated their main health care practice was in another discipline such as general practice, physiotherapy or chiropractic. A comprehensive profile that considers these matters is considered to be essential for the Chinese medicine workforce.

Origins of training in Chinese medicine education

In this survey 37.9% (242) of practitioners had obtained their qualification in Chinese medicine overseas. This was equivalent to the percentage of Chinese native speakers. In contrast, in the 1996 survey only eleven percent of respondents (118 out of 1074) had obtained a primary Chinese medicine qualification overseas. Of the primary Chinese medicine practitioners 27.8% (120) had obtained a primary qualification overseas, and 23.6% had obtained this in China (A Bensoussan & Myers, 1996). While these proportions are similar, caution needs to be exercised in making any longitudinal comparisons due to the relatively small sample size in the 1996 survey. It is also possible that since the 1996 survey was national, there was variation across states in the proportions of overseas trained practitioners.

With regard to age, a greater proportion of the workforce aged 55 years and over held an overseas qualification only (55.3%) compared with those who had at least one Australian qualification (44.7%), but in the younger age group (18-34) the proportions were very different, being 10.6% and 89.4% respectively. There was a strong correlation between age and origin of qualification (Spearman correlation = 0.299, $p < 0.005$) indicating that the lower the age the more likely there was an Australian qualification. This indicates that over time the proportion who had obtained an Australian qualification can be expected to grow.

Approximately 85% of the overseas trained practitioners were native Chinese speakers. This reflects the fact that the majority of these practitioners received Chinese medicine training in China. Therefore the data on overseas trained practitioners mainly refers to those trained in China or Hong Kong. In terms of the divisions of registration, the overseas trained practitioners tended to be registered in both acupuncture and Chinese herbal medicine, whereas those registered in acupuncture only tended to have undertaken training in Australia. The Chinese herbal medicine practitioners were also more likely to be native Chinese speakers and be located in a metropolitan area.

Levels of training in Chinese medicine education

It is important to note that practitioners may have provided only the minimum educational qualification in Chinese medicine required to qualify them for registration in their prospective division of Chinese medicine practice. If practitioners had achieved a higher educational qualification than that supplied in their application or any additional Chinese medicine professional training, it was not essential for them to provide such evidence. Even so, it is likely that most practitioners provided evidence of their higher Chinese medicine qualifications to increase the likelihood of their gaining registration.

With the rapid growth of Chinese medicine tertiary education in Australia and overseas (Dower, 2003; Gensini & Conti, 2007; C. C. Xue, Wu, Zhou, Yang, & Story, 2006), new graduates and younger practitioners tend to have higher qualification in Chinese medicine than their older counterparts. For example, about 88% of practitioners aged 18 to 34 had at least a bachelor degree while only 40% of those aged 55 or older had a bachelor degree (p <0.05). Also, the gender difference in bachelor level training is worthy of note. Approximately 70% of female practitioners and only 56% of the male practitioners had a bachelor degree ($p <$ 0.05). This was most likely associated with the higher proportions of females in the younger age groups.

In the case of postgraduate qualifications, the picture was rather different with only 6% in the 18 to 34 age group compared with 17.1% and 17.5% in the age brackets 35-54 and 55 plus respectively. What this suggests is that graduates tended not to immediately move on to post graduate study but tended to take this up later in life. In contrast with the proportions for bachelor degree, more postgraduates (20.8%) had been trained overseas than in Australia (12.5%). This is likely to be another reason for the age difference. It was also evident that those registered in the division of Chinese herbal medicine were more likely to have a postgraduate and also have a higher undergraduate qualification than those registered in acupuncture only. This difference reflected a number of factors. The overseas trained practitioners were more likely to have trained in both divisions, be older and generally more likely to have undertaken postgraduate training. Conversely, those registered in acupuncture only were more likely to have trained in Australia and be younger.

Postgraduate training in Chinese medicine is a recent development in Australia with the first accredited courses being offered at RMIT between 2001 and 2003, whereas such courses have been available in China for a considerable period. It could be expected that as the profession matures in Australia these differences will smooth out.

Length of practice

Although the actual length of practice cannot be determined from the available data, the length of time elapsed since completion of the first main qualification for practice provides an estimate. Those practitioners who had graduated 15 or more years previously tended to be male, Chinese speakers, trained overseas, registered in both acupuncture and Chinese herbal medicine and have a lower level of qualification than their more recently graduated counterparts. Even so, almost half of those who had graduated ten or more years previously, held a bachelor degree in Chinese medicine or higher. In contrast, those who had graduated less than five years previously tended to be female, native English speakers, trained in Australia and registered in acupuncture only.

The Chinese medicine training disciplines undertaken

The disciplines of Chinese medicine in which applicants had received training and their experience of practice varied considerably between practitioners, especially among those Existing Practitioners. These factors support the approach taken by the Chinese Medicine Registration Board in assessing practitioner applicants according to five different assessment criteria. For example, those applicants in criterion A needed to have at least 10 years clinical practice. Thus, the practitioners approved for registration under this category were generally older but had a longer period of clinical experience than the applicants assessed under other categories. In addition, criterion A applicants had generally received less formal education and an large proportion of them came from overseas or had an overseas qualification only.

Of the disciplines in which there was considerable variation in training, classical literature, clinical subjects and professional development subjects are the most notable. Traditionally in China, Chinese medicine classical literature was a component in Chinese medicine training that received specific emphasis. This study found that more than half of those with only overseas qualifications had received training in classical literature. This proportion was significantly higher than the approximately one third of those with at least one Australian qualification. Consequently, in the Chinese Medicine Course Approval Guideline 2006, two classical literature textbooks: *Huang Di Nei Jing* and *Shang Han Lun* (Mao, 2003; Qiao, 2003; Zhen, 1995) are specified as core areas of study as part of the course approval requirements. This explains why more and more Chinese medicine training institutions in Australia are considering classical literature as an important component in the Chinese medicine curriculum, especially for bachelor level training. Consequently, this difference between overseas and locally trained practitioners can be expected to decline over time.

With regard to clinically focussed subjects (discipline 7), 84.0% of those with only overseas training had completed at least one of these compared with only 44.6% of those with an Australian qualification. This reflects the tendency for Australian course, especially those below bachelor level to focus on acupuncture and/or concentrate all the clinical subjects into a single subject on therapeutics. However, since the release of the updated version of the *Chinese Medicine Course Approval Guidelines* in 2006, such subjects have become essential inclusions so this discrepancy can be expected to decline over time.

Studies in professional and ethical issues, communication, business management and related areas tend not to be inclusions in course in China so only 10.4% of those with an overseas qualification only had completed any such students, compared with 66.1% of those with an Australian qualification. Considering the differences in the health care system between Australia and China, and the roles of Chinese Medicine within it, there is a strong argument that study about how the Australian system works, ethical requirements of practitioners and the expectations of consumers are essential for all practitioners.

Research has indicated that medical education needs to be individually tailored for different countries due to the diversity in workforce requirements (Ee-Ming & Kidd, 2002). However, despite differences in historical development, Chinese medicine education in China and Australia have common characteristics in curricula design, teaching modes, assessment and quality management (C. C. Xue et al., 2006). This is largely due to the common educational objectives of producing Chinese medicine professionals for safe and competent clinical practice, and promoting the development of evidence-based Chinese medicine. Differences mainly relate to different social and cultural contexts, healthcare systems and resources for Chinese medicine education and training. Nevertheless, in the case of Chinese medicine practitioners in Victoria, the difference in the disciplines of Chinese medicine education between the overseas trained and those trained with at least some Australian education are of concern. Some of these are being addressed by changes in Chinese medicine education in Australia but these can only be addressed to new graduates and will only effect change over time. With regard to Existing Practitioners gaps in their training will remain unless addressed via specific measures such as continuing education.

3.4.4 Proficiency and Competency of English

We found that nearly half (46%) of the practitioners came from a non-English speaking background (NESB). Of these, 83% spoke either Cantonese or Mandarin. Nevertheless, majority of the NESB practitioners provided evidence on their proficiency in English as required by the Board. The most common evidence was having completed study in a course in which the language of instruction was English, which was provided by nearly half of these applicants.

At least half to three quarters of the NESB practitioners considered their competency in English to be fluent in speaking, writing and reading. Most significantly, those aged 55 and older and those with an education background less than diploma level were less likely to consider their English competency to be fluent. In contrast to the NESB practitioners, the majority of New Graduates who had recently completed Chinese medicine education in Australia considered their English competency as fluent.

There is evidence to suggest that an increasing number of Australians whose native language is English are using complementary medicines including Chinese medicines (C. C. L. Xue, A. L. Zhang, V. Lin, C. Da Costa, & D. F. Story, 2007). Thus, proficiency in English language is an important skill for practitioners and is essential to improve the sustainability of the Chinese medicine profession in Australia.

Considering the importance of efficient communication between health professionals and fellow workers, a uniform minimum standard of English language assessment was proposed for the registration of overseas-trained doctors in Australia (McGrath, 2004). The CMRBVic has also introduced an English language requirement for applicants for registration in the post-Grandparenting phase.

The use of complementary medicine by those overseas-born Australians is not less common than those local-born Australians (C. C. L. Xue et al., 2007). In order to communicate effectively in a health care consultation a common language is required, either as a shared language or via a third party acting as an interpreter. In order to address this issue the CMRBVic issued a guideline on effective communication which requires practitioners, whatever their native language to ensure that they can communicate effectively with their patients. In the case of Existing Practitioners, one in two would treat a patient without a common language, whereas only one in four New Graduates Practitioners would do so. This difference is likely to be due to a larger NESB proportion in the Existing Practitioner group. Such practitioners would be familiar with the problems of communicating with patients with whom they do not share a language, particularly when they work in metropolitan areas with high migrant populations, and would be likely to have developed strategies to deal with such situations. Of course, the most apparent solution to the communication problem is obtaining an interpreter, but such services are not always readily available and can be costly, so other approaches may be needed.

Since the majority of the new entrants to the Chinese medicine workforce come from English-speaking-backgrounds the finding that they are not as willing to treat a patient without a common language could reflect a range of issues. On one hand, it may reflect an awareness of the need to obtain interpretation but it may also reflect a lack of confidence in dealing with NESB patients. With regard to practitioners in Victorian rural regions, our finding shows that only 20% (i.e., one in five) of the rural practitioners would be willing to treat a patient without a common language. Since interpretation services are less available in such areas this would seem to compound the difficulty NESB patients would have in finding a suitable practitioner.

In future as the older Existing Practitioners exit/retire from the profession, there will be a shrinking proportion of practitioners who are willing to consult patients without a common language and who have had experience in dealing with a range of cross cultural issues. Since it is likely that immigration into Australia will continue into the future and the range of language backgrounds of migrants with continue to diversify, there seems a need for specific training in how to deal with cross-cultural communication issues with patients to be included in undergraduate courses as aspects of professional development.

3.4.5 Profile of the Existing Practitioners and New Graduates

We found that certain characteristics of the Existing Practitioners were similar to the overall profile of all registered practitioners. For example, for both Existing Practitioners and all registered practitioners, about 4% were registered in the division of Chinese herbal medicine only and that the number of female practitioners was 10% more than male practitioners in either group. In addition, some 60% of the Existing Practitioners and of all registered practitioners were aged 35 to 54 and had a bachelor degree. The finding is not surprising as the Existing Practitioners constituted over three quarters of the total number of registered practitioners.

Perhaps the most striking finding is the differences in background of the Existing Practitioners who were assessed under the five different registration criteria. For example, more than half of the Existing Practitioners who were assessed under criteria A, B and E came from a Chinese speaking background and more than three quarters of the practitioners assessed under criteria C and D came from an English speaking background. This was mainly due to those in criteria A, B and E having had a longer period of practice and those in C and D being relatively recent graduates.

This language background is useful in assessing the profile of the language capabilities of the Victorian Chinese medicine practitioners, since the majority in the category of Existing Practitioners spoke Chinese as native language. However, since the cessation of Grandparenting policy on the 1st January 2005, all practitioners who wish to register with the CMRBVic and wish to practice in the state of Victoria must have graduated from an Australian Chinese medicine institution accredited by the Board, or pass an examination set by the Board. Therefore, after the end of the Grandparenting policy, the English language capability among the practitioners will rapidly improve because these new registrants will have higher English language skills. However, the capability in languages such as Chinese and Vietnamese may also decline.

In terms of evidence of practice for the different criteria, in many cases the experience of clinical practice provided far exceeded the minimum length / requirement set by the Board. For example, those assessed under criterion A provided an average of 14 years of clinical experience (a minimum of 10 years was required), while those assessed under criterion B provided an average of 10 years (a minimum of 5 years was required). Further, some 85% of the practitioners assessed under criteria A, B or E were able to provide evidence of their membership of professional Chinese medicine associations. Adding to this, approximately half of these practitioners were also able to supply evidence from their previous employer or from a supplier of Chinese herbs.

While a number of features of Existing Practitioners were similar to those of the total registered practitioners, we found that their demographic characteristics were somewhat different from the New Graduate Practitioners. Compared with the Existing Practitioners, the New Graduates were more likely to be female, aged under 35, have a bachelor degree, speak English as the first language, be registered in the division of acupuncture only and were slightly less likely to practice in a rural area. The majority of the New Graduates had recently completed their studies in Chinese medicine at Australian tertiary institutions and had graduated with a bachelor degree or higher.

Based on the current trends, it seems likely that the above characteristics will become dominant in the workforce over time, however, it is possible that there will be an increasing tendency for New Graduates to be trained in both acupuncture and Chinese herbal medicine as more courses include studies in Chinese herbs in their curricula.

3.4.6 Comparison with the 1996 Chinese Medicine Survey

Methodology and setting

A nation-wide Chinese medicine workforce study was commissioned by the Victorian, New South Wales and Queensland Departments of Health in 1995 and the results were published in 1996 (A Bensoussan & Myers, 1996). At the time this study was conducted, the profession of Chinese medicine in Australia was under self-regulation and administration by professional associations. Thus, postal questionnaires were sent to practitioners' mailing addresses provided by Chinese medicine associations and to medical practitioners who had made claims for acupuncture from the Health Insurance Commission (HIC) in the 12 months prior to the survey. Therefore, the 1996 survey was a sample of the practitioner populations that included both those who primarily practiced Chinese medicine and those who practiced acupuncture as an adjunct therapy.

In contrast to the situation in 1996, at the time of conducting the present 2006 workforce study, Chinese medicine practitioners in Victoria were fully regulated by the CMRBVic. With endorsement from the CMRBVic, this 2006 workforce study included all practitioners who were registered prior to the Grandparenting policy ending on 31st December 2004. Since application forms were used, the data collected in this study were limited to the information recorded in the registration forms. By the middle of 2007, a comprehensive profile of current status of registered practitioners was compiled. This study was a census of all registered practitioners in Victoria at that time but it did not include those who used acupuncture as an adjunct therapy. The differences between the 1996 and the 2006 studies in data collection methods and the information sought are summarised in Table 3.46.

Table 3.46 Methodological comparisons between the current Victorian Chinese medicine workforce study and the 1996 national Chinese medicine workforce study

Study	Location of practitioners	Data sources	Method	Information collected
1996 survey	Victoria, New South Wales and Queensland	Professional association memberships and Health Insurance Commission	Postal questionnaire	1. demographic 2. type of Chinese medicine practice 3. years in Chinese medicine practice 4. number of consultations 5. adverse events 6. referral systems 7. education and training 8. views on occupational regulation 9. membership of associations 10. costs of treatment and income.
2006 study	Victoria	The Chinese Medicine Registration Board of Victoria	Database of total population of registered practitioners	1. demographic 2. type of Chinese medicine registered 3. years in Chinese medicine practice 4. education and training 5. membership of associations 6. English proficiency 7. Professional indemnity and first aid

The trends from 1996 to 2006

The mean age of the Chinese medicine workforce in 2006 for the total Victorian practitioners was 44 years, which is the same as the 1996 figure for the total practitioners in Australia nationwide. The number of female practitioners, however, appears to have increased from 32% to 45%. In the 1996 survey 54% of respondents practiced acupuncture only versus 28% who practiced both acupuncture and Chinese herbal medicine. In the Workforce Study the reverse was found with 60.4% of practitioners being qualified in both acupuncture and Chinese herbal medicine and 35.2% practicing acupuncture only. However, the proportions of practitioners who practiced Chinese herbal medicine only were similar in 1996 and 2006 (3% and 4% respectively). There are, however, some difficulties with comparing the total proportions of the 1996 survey with the Workforce Study since the 1996 survey included a considerable proportion of respondents who used Chinese medicine as an adjunct rather than a primary practice. When the primary practice practitioners are considered separately the proportions are 37% for acupuncture only and 59% for both acupuncture and Chinese herbal medicine.

The average length of clinical experience appeared to be longer in the 2006 Victorian figures. In the 1996 study, respondents reported an average of 11.8 years of clinical practice experience for the three-state practitioners. Although there was no directly comparable question for the Victorian practitioners in the 2006 study, on average 13.3 years had elapsed since the main qualification in Chinese medicine was obtained.

Limitations of the comparison

The 1996 workforce was based on a postal survey conducted in three states (Victoria, New South Wales and Queensland) while the 2006 workforce study was based on the total number of practitioners registered with the Board in the state of Victoria only. Subset data for the 1996 workforce study is not directly available so it is not possible to extract the 1996 for the state of Victoria only. Consequently, the majority of the comparisons were made using the Victorian figures against the total figures for the three states. State regional variation cannot been taken into consideration.

Another limitation is that between a sample and a census. In 1996, only data received from respondents to the survey could be analysed so there was likely to be a degree of bias in who was willing to respond to a postal survey. However, in 2006, the data were from files that represented the total population of registered Victorian practitioners. Also, there were notable differences in the target populations. In the 1996 survey, a considerable proportion of medical practitioners who used acupuncture as an adjunct practice were included but this group was not represented in the 2006 survey.

3.4.7 Study Limitations

It is important to acknowledge the limitations of this study. Perhaps the most important limitation is that data collected in this study is based on the original application form that was designed for registration purposes rather than for demographic data collection. Data was extracted on basic demographic, nature and standards of education, compliance with current registration and regulations requirements, proficiency of English communication skills, professional indemnity, and training in first aid. However, some critical data such as the workload, consultation length, consultation fee and income range, patient management and referral processes, private health fund rebate status, level of utilisation of Western diagnosis, and detailed educational background rather than the minimum educational background that is relevant to satisfy the requirement for registration were not available from the original application form.

The data in the registration form used in this study did not contain information on work setting. This prevents us from knowing much about how clinical practice among Chinese medicine practitioners might have changed over the years, particularly after the 1996 national workforce survey. Nevertheless, some of these critical data were subsequently obtained in a separate study on registered practitioner capability conducted in 2005 through a postal questionnaire survey (see Chapter 5). This allows us to estimate that 65% of the survey respondents practiced full time (C. C. Xue et al., 2008).

Secondly, some practitioners may have registered in both divisions but may have practiced primarily in one division. This situation is unique in the profession of Chinese medicine, as other registration boards mainly register one division of practice (e.g. chiropractic and osteopathy). Thirdly, details on professional association memberships and on the equivalent right to register in other jurisdictions were optional information in the registration form. Thus, a considerable proportion of the practitioners omitted to answer these questions. A recent study concerning the workforce in naturopathic and Western herbal medicine in Australia revealed that there were over 100 small professional associations, and many practitioners are members of more than one association (A. Bensoussan et al., 2004) Similarly, there are many large and small Chinese medicine associations, both in Victoria alone and nationwide, each representing either both Chinese herbal medicine and acupuncture practices, or acupuncture practice alone. Future investigation into the nature of the services provided by such associations to their members may be beneficial to understand why such a large number of associations exist in a relatively small profession and the nature of their functions.

In summary, as a retrospective study based on the existing data available from the registration Board, this study is not subject to the common limitations of postal survey such as response rate, incorrect or subjective responses and, vulnerability to recall bias, since the Board data are legally true and accurate information on all (i.e., 100%) Chinese medicine workforce at the time.

3.4.8 Conclusion

The findings of this study update and extend the workforce information on the Chinese medicine profession in the state of Victoria, Australia by providing demographic and geographic portraits of a growing health profession that is newly regulated for the first time in a Western country. Demographically, the mean age of the Chinese medicine workforce in Victoria was 44 years and 55% were male. Within the approved jurisdictions of practice 35% of practitioners were approved to practice acupuncture only, 4% to practice Chinese herbal medicine only, and the remaining 60% to practice both acupuncture and Chinese herbal medicine. The entire Chinese medicine workforce in Victoria is a unique cohort with a somewhat diverse educational and ethnic background. Thus, approximately 62% of practitioners had completed at least a bachelor degree and a further 34% had completed diploma training in Chinese medicine. Of the diploma holders, 69% had received their training from an Australian institution. Furthermore, over half of the practitioners spoke English as their first language and a further 38% spoke Chinese. Practitioners predominately (90%) worked in the metropolitan areas. Excluding New Graduate Practitioners, the Existing Practitioners provided an average of 10.6 years of practice evidence for registration purposes but had graduated on average 16.2 years prior to 2006.

No previous survey has been conducted that directly compares the profiles of Existing Practitioners and New Graduate Practitioners. It has found considerable diversity within the profession. Chinese medicine has relatively long history in Australia since the gold rush days. However, its revival is relatively recent and it is newly regulated. It has grown in recent decades fed by both graduates of training courses in Australia as well as having a large representation within its workforce of practitioners who had long periods of work experience in China or Vietnam prior to migrating to Australia to continue their practice over the past several decades. Given the kinetic nature both in health care services, and in the ethic mix as well as population distribution in Australia, how the Chinese medicine profession will rise to meet the challenges of contributing to national primary health care at a high level especially for rural and other under-serviced populations, is yet to be determined. To address these issues fully, further studies on the workforce should be undertaken from other perspectives.

In summary, data such as the geographical distribution of the practitioners and the practitioner to population ratios in different regions are especially valuable for workforce analyses. Such information will inform health practitioners, government agencies, policymakers, and human resources and workforce managements about future planning for optimal availability and accessibility of Chinese medicine services in Victoria. These data also provide useful information for current Chinese medicine students, new graduates as well as potential aspirants to a Chinese medicine career when they make their career decisions. The present study and its numerous findings, therefore, lay the groundwork for much needed further studies on the composition and supply of the Chinese medicine workforce in Australia.

CHAPTER 4. CHINESE MEDICINE EDUCATION AND CAPABILITY-BASED CURRICULUM

4.1 Introduction

As a worldwide trend in medical education, there has been a growing emphasis on the learning process and learning outcomes, shifting from the traditional focus on course content and hours of tuition (Baum & Axtell, 2005). The capabilities required of practitioners have been identified and used to guide curriculum design in a number of health practitioner education programs (Leach, 2000; Smith et al., 2003; Swider et al., 2006). Under this viewpoint, the focus of education is on developing students' capabilities that are required in professional practice. Thus, this chapter can be divided into two parts. The first part examines the concepts of competency and capability based education in general and leads on to an overview of curriculum developments for health professionals in Australia. The second part provides an overview of Chinese medicine education in China and Australia and examines developments competency and capability-based curriculum development for Chinese medicine in Australia.

Prior to examining the specific case of curriculum development for Chinese medicine education, one must understand the definitions of competency and capability as well as the associated terminologies that are commonly used in health professional education: competency-based education, competency-based curriculum, capability-based education and, capability-based curriculum.

4.2 Definitions of Competency and Capability

Generally speaking, both competency and capability refer to the ability to perform tasks and actions. Sometimes these terms are also used to refer to the summation of expertise and capacity in a particular field.

The term competency is synonymous and sometimes similar to that defined as competence, capability, proficiency, expertise, and performance. The terms "competency" and "capability" have been widely used in occupational and educational settings for many years, but there is no consensus on whether competency represents a greater degree of ability than capability or *vice versa* (Eraut, 1998). Yet, recently the term "capability" has been considered to be a broader concept than of competence, and has become more frequently used in the literature (Stephenson & Yorke, 1998).

In 1992, Stephenson defined capable people as those who: know how to learn; are creative; have a high degree of self-efficacy; can apply competencies in novel as well as familiar situations; and work well with others (Stephenson & Yorke, 1998). In comparison to competency, which involves the acquisition of knowledge and skills, capability is a more holistic attribute.

4.3 Competency and Capability Based Education and Curricula

The development of competency-based frameworks for vocational education in the United Kingdom, Australia and other countries expanded during the 1980s and 1990s (W. J. Burke, 1989; Hager & Gonczi, 1993). The concept of competency-based education became widely accepted by medical training providers in many countries (Cate, 2007). Instead of a structure or process based mode of teaching, competency-based education places more emphasis on outcomes. A competency-based model for course design starts with what the health workers actually do on the job. Specification of objectives for instruction and content will then be derived once this question is answered (Vanderschmidt et al., 1979). Recent studies have shown improvement in the healthcare services provided by medical practitioners who had been trained in outcome based courses (Koh, Khoo, Wong, & Koh, 2008; Wickramasinghe, Ishara, Liyanage, Karunathilake, & Samarasekera, 2007).

Focusing on the outcomes of teaching, Van der Horst defined six critical components for **competency-based education** (Van der Horst & MacDonald, 1997). These include 1) explicit learning outcomes with respect to the required skills and concomitant proficiency (standards for assessment); 2) a flexible time frame to master these skills; 3) a variety of instructional activities to facilitate learning; 4) criterion-referenced testing of the required outcomes; 5) certification based on demonstrated learning outcomes, and 6) adaptable programmes to ensure optimum learner guidance. Therefore, a **competency based curriculum** was delivered through a series of desired outcomes of the training programme. It's the critical first step in the integration of these six competencies into educational programs, particularly for health profession training (Sandison, O'Leary, & Roberts, 2005).

Capability-based education is another type of outcome based education that shares many features with competency-based education. It has been defined as "*an holistic concept that describes how an individual or organisation applies their ability in a confident manner to problems in new and unfamiliar circumstances as well as familiar situations*" (Townsend, 2003). A **capability-based curriculum** aims to deliver this type of education. According to Leung (2002) "*the basic essential elements of capability-based curriculum consist of functional analysis of the occupational roles, translation of those roles ("competency/capability") into outcomes, and assessment of students' progress in these outcomes on the basis of demonstrated performance*". Thus, the basic essential elements of capability-based curriculum consist of functional analysis of the occupational roles, translation of those roles ("capabilities") into outcomes, and assessment of students' progress in these outcomes on the basis of demonstrated performance (Leung, 2002).

The differences between capability and competency were summarised by Fraser in 2001. Competence is what individuals know or are able to do in terms of knowledge, skills, and attitude; while capability extends to how individuals can adapt to change, generate new knowledge, and continue to improve their performance (Fraser & Greenhalgh, 2001). In health education, it is expected that by the time students graduate they will have developed defined capabilities which will meet the expectations of the public for safe and effective clinical practice.

4.3.1 Competency-based Nursing Education

To protect the health and safety of members of the public, health practitioner competence assurance mechanisms have been set up by the health authorities to ensure that health practitioners are competent and safe to practise in their respective jurisdictions. The increasing complexity of health care has been the driving force behind the need to ensure a competent nurse workforce (Tzeng & Ketefian, 2003). Most commonly, relevant registration boards are required to define their professions explicitly in one or more discipline of practice. On initial application and ongoing assessment, a practitioner needs to demonstrate that he/she has gained or maintained competence in order to obtain/renew the status of practicing registration (Nurses Board of Victoria, 2007).

Competency-based training has become a key feature of nursing profession in recent decades and it is arguable that this development has led to a new class of nurses – the nurse practitioner (H. Chapman, 1999; Fey & Miltner, 2000). Remarkably, the Quality Use of Medicines (QUM) for Nurse Practitioners program is in well progress and when the QUM program is fully implemented, prescribing medicines will no longer be the sole privilege of medical practitioners and dentists (The Australian Nurse Practitioners Association, 2008). However, the value of competency based approach to nursing education has been extensively debated in the past two decades. Some have argued that competency standards are a necessary balance against an overly intellectual approach to education and practice in nursing (Eraut, 1998). It has also been argued that there are limitations to the use of competencies to assess clinical nursing skills (Gardner, Hase, Gardner, Dunn, & Carryer, 2008).

In Australia, competency standards for nurses were initially developed by the Nursing and Midwifery Board of New South Wales in the 1980s but these were used in New South Wales only (Nurses and Midwives Board New South Wales, 2007). In the 1990s, it was believed that competency-based education should play an important role in undergraduate nurse education curriculum in Australia (H. Chapman, 1999). A project to develop competency standards for registered nurses and enrolled nurses for all states and territories was conducted by the Australasian Nurse Registering Authorities Conference (ANRAC)

The term competence is a vague concept which is defined in different ways by different people (Watson, Stimpson, Topping, & Porock, 2002). A systematic review of 61 papers on literature relating to clinical competence in cancer nursing, palliative care and clinical competence in nursing (Watson et al., 2002) concluded that evidence of the reliability and validity of assessment methods for nursing clinical competencies is absent in the published literature. This stimulated the development of competencies in clinical nursing education. Consequently, in 2005, a set of defined competency standards for nurses in general practice (the Standards) was developed by the University of South Australia and Royal College of Nursing Australia (Gibson & Heartfield, 2005). Endorsed by the Australian Nursing and Midwifery Council, a *National Competency Standards for the Registered Nurse* was published in 2005 (Australian Nursing and Midwifery Council, 2005). Now the Standards (which include 49 competencies in areas such as professional practice, critical thinking and analysis and provision and coordination of care) are applied to all registered nurses in general practice and as a framework for course development purposes for education providers in both higher education and vocational education settings.

4.3.2 Competency and Capability-based Curricula in Medical Training

Medical educators face great expectations from society to provide high quality teaching which can keep abreast of the continuing growth in scientific knowledge (Batalden, Leach, Swing, Dreyfus, & Dreyfus, 2002). Process of learning and methods of instruction are keystones in medical education (Dowton, 2005). Medical and nursing schools around the world have emphasised the attainment of genuine graduate outcomes. Outcome-based education emphasises that, by the time of graduation, students will have developed defined capabilities and every aspect of the educational design should be directed towards attaining the defined capabilities (Dowton, 2005). However, a criticism is that outcome-based education has been driven largely by the perceived political need to make the national workforce more competitive in the global economy (Leung, 2002)

The need of change in medical education drew the attention of not only education providers but also government and communities. In recognition of the need of the rapid change of medicine practice, the Institute of Medicine (IOM) in the US reported that the medical care will improve by being safe, effective, patient centred, timely, efficient, and equitable to cope with the stresses on effective operation of the current health care system (Institute of Medicine, 2001).

A competency-based approach has been applied in medical schools in many countries (Leung, 2002). The development of competency-based medical education has been in parallel with developments in vocational training in many countries, such as the national qualifications framework in New Zealand, the national training board in Australia, the national skills standards initiative in the United States and the national vocational qualifications in the United Kingdom (Department of Education, 1986).

The “minimum essential competencies” that all graduates must have if they wish to be called medical physicians were determined by the Institute for International Medical Education (IIME) (Core Committee; Institute for International Medical Education, 2002). The IIME defined the minimum essential core competences of medical education under seven domains: 1) Professional values, attitudes, behaviour and ethics; 2) Scientific foundation of medicine; 3) Clinical skills; 4) Communication skills; 5) Population health and health systems; 6) Management of information; and, 7) Critical thinking and research.

The mechanism of how competency-based medical education works has been described (Leung, 2002). The essential elements consist of functional analysis of the occupational roles and that the process is the translation of these competences into outcomes. In summary, the outcome assessment is based on demonstrated performance of the trainee, and that competency based medical training is usually developed in four steps (Leung, 2002):

1. determine what the appropriate competencies are;
2. devise training programmes;
3. devise appropriate assessment methods, and
4. set minimum pass standards.

In 1999, six core competencies for resident medical doctors were approved by the Accreditation Council for Graduate Medical Education (ACGME) in the United States (Accreditation Council for Graduate Medical Education, 1999). The six competencies are patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism and systems-based practice. Each competency has been minutely dissected into five to twenty detailed clauses, thus a total of fifty-three sub-competencies were defined. By the year 2002, these have been used as a benchmark principle for curriculum design in medical courses and it was a big step to implement the outcome and general competencies into medical training (Schroeder et al., 2007).

Besides general medical curricula some medical specialties in the USA such as emergency medicine (D. M. Chapman et al., 2004), family medicine (King, Murphy-Cullen, Krepcho, Bell, & Frey, 2003) has embraced the six core competencies in their faculty development or to inform the curriculum.

In 2005, the Australian Council for Safety and Quality in Health Care listed a set of competencies for health care in a report on *The National Patient Safety Education Framework* (NPSF) (The Australian Council for Safety and Quality in Health Care, 2005). The NPSF is designed to help medical schools, vocational colleges, health organisations and private practitioners develop curricula to enable health professionals to work safely (Walton & Elliott, 2006).

4.3.3 Competency and Capability-based Training for Other Health Professions

Other health professions have adopted competency-based training and competency assessment as integral parts of professional practice and necessary components to the professionalism. For example, the primary purpose of schools of physiotherapy in Australia is to train their students as competent practitioners immediately on graduation, with the capability to continue to lean and develop (Crosbie et al., 2002). Competency statements have also been integrated into a clinical course in conservative dentistry (Yip, Smales, Newsome, Chu, & Chow, 2001). However, some studies have suggested that competency statements alone are not sufficient to deal with all practical objectives (Chambers & Gerrow, 1994) and, that ongoing and consistent assessments are required (O'Neill, 1994).

In the field of CAM, osteopathic medicine is one of the commonly used complementary medicines in Australia and most other developed countries. Currently, the practice of osteopathic medicine in all states and territories in Australia is subjected to statutory registration. In contrast, osteopathic medicine in the United States (US) is one of the well-defined professions. Thus, an osteopathic doctor (OD) is considered as physician with similar status to a conventional medical doctor (MD).

The National Board of Osteopathic Medical Examiners in the United States (National Board of Osteopathic Medical Examiners (NBOME), 2006) released a standard consisting of seven core competencies for the osteopathic profession. These include osteopathic philosophic and osteopathic manipulative medicine, medical knowledge, patient care, interpersonal and communication skills, professionalism, practice-based learning and improvement, and system-based practice. The Board further states that the educational goal is to train a skilled and competent osteopathic practitioner who remains dedicated to life-long learning and to practice habits in osteopathic philosophy and manipulative medicine (National Board of Osteopathic Medical Examiners (NBOME), 2006). This statement set by the NBOME is consistent with the philosophical view held by Chinese medicine profession that the training and practice of Chinese medicine should preserve its traditional culture and Chinese medicine confusion theory but open to the challenge and meet the competitions of the rapidly changing health environment in the society (see below Chapter 4.4).

4.4 Chinese Medicine Education in China

Chinese medicine is a unique medical system that has been taught and practised in China for more than 2000 years. Over the last several decades, Chinese medicine has been increasingly used in the Western world, including Australia (C. C. L. Xue et al., 2007). In parallel, Chinese medicine education has been introduced in public and private institutions in a number of Western countries. While the expansion of education programs in Chinese medicine in the West has been welcomed, the consistency of educational quality is an ongoing concern.

The history of formal Chinese medicine education in China can be tracked back 624 A.D in the Tang Dynasty, when the *Tai Yi Shu* (Imperial Medical Bureau) was established to guide the education in various fields of medicine for the training of imperial physicians (Mao, 2003; Zhen, 1995). In the Song Dynasty (960-1279), the Imperial Medical Ministry (*Tai Yi Ju*) was set up as the highest health authority to regulate the training of medical professionals. It has been documented that, during this period of time, teaching methods were greatly improved (Mao, 2003; Zhen, 1995).

In 1913, the All-China Society for Traditional Chinese medicine was founded and a Central College of Chinese medicine was established in 1930 (Qiao, 2003; M. Roy Schwarz, Wojtczak, & Zhou, 2004; Zhen, 1995). Subsequently, tertiary education for Chinese medicine in modern China began in 1956 when the first four Chinese medicine colleges in the cities of Chengdu, Beijing, Shanghai, and Guangzhou were established within the public funded higher education system (A Bensoussan & Myers, 1996).

In 1962, the first edition of standardised Chinese medicine textbooks was published and used as the national core curriculum for Chinese medicine education (Zhen, 1995). There were ten years of disruption during the Cultural Revolution period (1966-1976), then the Chinese medicine undergraduate and postgraduate courses were reopened to the public in 1978. Five years later in 1983, doctoral programs were introduced into a number of Chinese medicine higher education institutions such as the Beijing University of Chinese Medicine (Fruehauf, 1999).

Over fifty years of development (post 1900s), perhaps the most noteworthy innovation in Chinese medicine education in China was the introduction of integration between Chinese medicine and modern western medicine in 1958 (Xinhua News Agency, 2004). Under such an integrated framework, western medical sciences were a major component of Chinese medicine education and western medical doctors were expected to complete a minimal level of training in Chinese medicine. However, until recently, the training in Chinese medicine provided in most western medical schools is mainly in the form of electives. In contrast, students enrolled at Chinese medicine institutions who major in Chinese medicine will normally receive approximately 30-40% of western medicine subjects.

In China, until recently, nearly all universities or colleges of Chinese medicine were established by the government. High school graduates must to pass a national university-entry test before entering into Chinese medicine tertiary education. Chinese medicine tertiary education in China has undergone 50 years of development since the first establishment of Chinese medicine universities in 1956. Currently, there are a series of programs on offer: three-year diploma; five-year bachelor degree; seven-year combined bachelor and master-degree; and, postgraduate research programs. Students may major in a wide range of specialties such as Chinese herbal medicine, acupuncture, traditional Chinese *tuina* (massage), Chinese medicine surgery, Chinese medicine orthopedics and traumatology and traditional Chinese pharmacy.

The most common Chinese medicine training in China is five years full time study for a degree of Bachelor of Medicine. In the first four years of this five-year program, students study all the medical science subjects for both conventional western medicine (e.g. modern physiology, pharmacology, pathology and biochemistry) and Chinese medicine (e.g. acupuncture, Chinese herbal medicine and Chinese therapeutic massage). After 4 years extensive study, students will enter their university teaching hospitals as interns. These hospitals are often equipped with the latest modern diagnostic and treatment technologies and exposure to a large cohort of patients is guaranteed for all interns. Similar to the training that is provided to the western medical students, an intern who has graduated from an accredited Chinese medicine university is also entitled to specialist training. Thus, in the year of internship, one may choose to receive supplementary specialist training in a specific area, such as surgery or gynaecology.

In 2005, there were 32 specialist Chinese medicine universities in China, with a total annual intake of approximately 16,000 students (State Administration of Traditional Chinese Medicine, 2005a). In addition, 58 other tertiary institutions had Chinese medicine departments (State Administration of Traditional Chinese Medicine, 2005b). Furthermore, 25 institutions provided masters degree programs; 14 provided doctorate degree programs; and 15 offered postdoctoral research training in Chinese medicine (State Administration of Traditional Chinese Medicine, 2005b). In addition to tertiary institutions, 51 technical colleges across the country provided Chinese medicine studies (Xinhua News Agency, 2004).

4.5 Chinese Medicine Education in Australia

In the early 1970's, acupuncture colleges were established in Sydney, Brisbane, and Melbourne (Australian Acupuncture and Chinese Medicine Association, 2007). In the 1980s, with the introduction of the multiculturalism policy in Australia, Chinese herbal medicine began to win acceptance in Australia and an increasing number of Chinese migrants settled in the country. Formal Chinese medicine tertiary education in Australia was not established until the 1990s.

In 1992, the Victoria University of Technology (currently, Victorian University) founded its Bachelor of Health Science (Acupuncture) program and, in 1994, the University of Technology, Sydney (UTS) College of Acupuncture was founded on the experience and educational expertise of Acupuncture Colleges (Australia) in accord with the growth in acceptance and use of acupuncture in Australia, and the need to provide a standard of education at a level expected by the community (University of Technology Sydney, 2007). In 1996, RMIT introduced the first comprehensive double degree program in Chinese medicine, which included training in both acupuncture and Chinese herbal medicine. This trend was followed with the setting up of Chinese medicine divisions or schools in several other educational institutions (e.g. the University of Western Sydney).

In addition to the public universities, by 1998 at least ten private institutions (Victorian Ministerial Advisory Committee, 1998) offered diploma and degree programs in Chinese medicine producing hundreds of Chinese medicine graduates each year. In 2001, more than 20 institutions in Australia provided degree or diploma level education in Chinese medicine (National Academic Standards Committee for Traditional Chinese Medicine [NASC], 2001).

Of these, four publicly funded Australian universities offered degree programs in acupuncture and/or Chinese herbal medicine. Information on the length of full time study, the contact hours and prerequisites and other characteristics is summarised in Table 4.1. In addition, the curriculum structure of these four universities is also summarised in Table 4.2.

With the exception of RMIT University where the Chinese medicine course is offered as a five year double degree, the three universities offered four years of study (Table 4.1). The total credit points for the award of the degree ranged from 192 (UTS) to 480 (RMIT). This reflects a combination of course length and differences in the course credit systems between universities. All universities accepted both international and local students. Mature age applicants were welcome but prerequisites, such as chemistry and English, were commonly required (Table 4.1).

The subjects offered for the degree study can be broadly summarised into a number of areas (Table 4.2): 1) Chinese medicine theory; 2) acupuncture; 3) Chinese herbal medicine; 4) Chinese medicine related subjects such as Chinese medicine therapeutic massage and cupping; 5) Chinese medicine classical literature; 6) the biomedical sciences; 7) Chinese medicine clinical subjects; 8) clinical training; 9) professional development and related subjects (Table 4.2).

In contrast to Chinese medicine education in China, integration of Chinese medicine and Western medicine is still in its infancy in Australia. Nevertheless, over the last few years, acupuncture has been introduced as a routine clinical care option for patients with acute pain and other clinical conditions attending the Emergency Departments of two major Melbourne hospitals, the Northern Hospital and the Epworth Hospital. In 2005, RMIT senior Chinese medicine students started providing acupuncture services to appropriate patients (mainly acute pain patients) attending the emergency department of the Northern Hospital in Melbourne. This acupuncture service has been well received by both patients and physicians in the hospital (Herald Sun, 2007).

It is important to note that the 1996 Australian national Chinese medicine workforce study revealed that the educational background of Chinese medicine practitioners in Australia was variable (A Bensoussan & Myers, 1996). It concluded that the length of the first Chinese medicine qualification for practitioners ranged from 50 hours to 8 years, with an average for primary Chinese medicine practitioners of 1.5 years and for non-primary Chinese medicine practitioners of 8 months (A Bensoussan & Myers, 1996). As a result, the educational quality and its quality assurance process are of concern (see below Chapter 4.6).

Although acupuncture and Chinese herbal medicine are not part of the standard medical curriculum in Australia (Easthope et al., 1998), a high level of interest in these therapies have shown among medical students (Hopper & Cohen, 1998). There is increasing number of universities provide training in acupuncture. Acupuncture is well accepted by general practitioners, and nearly half have considered using it themselves (Pirotta, Cohen, Kotsirilos, & Farish, 2000). Further, it was estimated that one in four (23%) general practitioners in Victoria had some forms of acupuncture training and 12% of them had been trained in herbal medicine (Pirotta et al., 2000).

In summary, Chinese medicine training is delivered in Australia in the following ways: 1) Bachelor, Master or doctoral degrees in public universities; 2) Diploma or Bachelor degrees in private Chinese medicine institutions; and; 3) Various short courses for conventional professionals or for continuing education of Chinese medicine practitioners.

Table 4.1: Chinese medicine degrees in four Australian public universities

University	Title of course	Full-time Study Duration	Total Credit Points	International and local students	Clinic Practice	Prerequisites	Affiliated hospital overseas
RMIT University (RMIT)	Bachelor of Applied Science (Chinese Medicine and Human Biology)	5 years	480	√	One semester	English, chemistry, mathematics	Nanjing University of Chinese Medicine
University of Western Sydney (UWS)	Bachelor of Applies Science (Traditional Chinese Medicine)	4 years	320	√	400 hours		Nanjing University of Chinese Medicine
University of Technology, Sydney (UTS)	Bachelor of Health Science in Traditional Chinese Medicine	4 years	192	√	√#	English, science, biology	Guangzhou University of Chinese Medicine
Victoria University (VU)*	Bachelor of Chinese medicine (Acupuncture and Herbs)	4 years	384	√	√#	Biology, chemistry, psychology, Asian studies	Liaoning University of Chinese Medicine

Data source: Chinese medicine courses of each university (online accessed 20 November 2007)
* The university ceased new student intake in 2008.
# Hours of clinical practice not indicated in the course introduction.

Table 4.2: Chinese medicine subjects in four Australian public universities

Disciplines		RMIT University	University of Western Sydney	University of Technology, Sydney	Victoria University
Chinese medicine theoretical paradigm	History and philosophy of CM	√	√	√	√
	Basic theory of CM			√	√
	Traditional Chinese diagnostics			√	
Acupuncture	Acupuncture theory	√	√		√
	Points location			√	√
Chinese herbal medicine	Pharmacology of Chinese herbs		√	√	√
	Formula study	√		√	√
	Traditional Chinese pharmacy		√		
Traditional Chinese *Tuina*					
Chinese medicine classic literature		√	√	√	√
Basic and biomedical sciences	Human medical science		√	√	
	Human biology	√			
	Anatomy	√			√
	Microbiology/immunology/genetics	√	√		√
	Pathology/physiology	√	√		√
	Diagnosis in Western medicine	√			
Clinical Chinese medicine	Chinese internal medicine		√		√
	Specialties in CM		√		
	Obstetrics and gynaecology	√			
	CM paediatrics				√
	CM dermatology				√
Clinical training – general description	Clinic features of disease			√	
	Clinical practicum	√	√	√	√
Professional development and other areas of study	Professional issues	√		√	√
	Research method		√	√	√
	First-aid				√

Data source: online introduction of Chinese medicine courses of each university.

4.6 Education Quality Assurance

Traditionally in China, education quality assurance relied on the teaching staff who report feedback from students to the university registrar for ongoing teaching improvement and planning. Concerning the teaching performance of individual staff and the team effort, a higher education committee has been established by authorities within the Ministry of Education. In the field of Chinese medicine, the most significant movement in recent year is the establishment of the Higher Education Committee of Chinese Medicine (HECCM), a branch of the Higher Medical Education Committee, under the Ministry of Education at the end of 2006. It was founded to provide consultancy, guidance, research and other services in the undergraduate education of Chinese medicine (State Administration of Traditional Chinese Medicine, 2007b).

Specifically, the main functions of HRCCM are:

1. to standardise Chinese medicine education;
2. to promote academic events in order to enhance national co-operation between education institutes;
3. to regulate the standards of professional education;
4. to conduct professional assessment;
5. to organise national continuing professional education and workshops;
6. to ensure the examination of competency and authentication of qualifications (Tianjin University of Traditional Chinese Medicine, 2007).

On 21-22 June 2007, “The Symposium on Undergraduate Education Standards in Chinese Medicine” was held in Tianjin, China to promote the quality of Chinese medicine tertiary training in China (Cao, 2007). This was an important step in the establishment of the first "education standard" in the Chinese medicine tertiary education in China.

In Australia, the number of Chinese medicine graduates has increased over the last few decades. Responding to this trend, the Victorian Ministerial Advisory Committee was set up by the Victorian Government Department of Human Services and published a report, "*Traditional Chinese Medicine: Report on Options for Regulation of Practitioners*" in July, 1998 (Victorian Ministerial Advisory Committee, 1998). Following a comprehensive workforce study in 1996 (A Bensoussan & Myers, 1996), the Chinese medicine Registration Act 2000 was introduced by the Victoria Parliament in May, 2000. Subsequently, one of the key responsibilities of the CMRBVic was to approve Chinese medicine practitioner training programs. In August, 2002, the CMRBVic promulgated the document, "*Guidelines for the Approval of Courses of Study in Chinese Medicine as a Qualification for Registration*" (CMRBVic, 2002).

Generally speaking, educational program development in Australian universities is guided by *Universities and Their Students: Principles for the Provision of the Education by Australian Universities* that was developed by the Australian Vice-Chancellor's Committee in December 2002. For professional health-provider programs, universities also need to meet the requirements of relevant statutory health practitioner registration boards. As Victoria is the only state with a Chinese medicine registration board in Australia, the abovementioned CMRBVic guideline of "*Guidelines for the Approval of Courses of Study in Chinese Medicine as a Qualification for Registration*" is effective in the state of Victoria only. Nevertheless, the guideline stipulates the requirement of specific subjects, for example, the mandatory requirement of certain subjects such as professional development and ethical issues in clinical practice.

There is no nationally recognised standard for Chinese medicine educational programmes, although there have been publications produced by Chinese medicine professional associations. For example, in 2001, the *Australian Guideline for Traditional Chinese Medicine Education* was published by the National Academic Standards Committee for Traditional Chinese Medicine which comprised 30 professional associations and Chinese medicine training institutes (National Academic Standards Committee for Traditional Chinese Medicine [NASC], 2001). The guidelines outlined the broad principles and minimum requirements for Australian primary qualifying courses in Chinese medicine. For example, The Guideline recommend that 30-35% be allocated to Chinese medicine principles and philosophy, 25-35% to practical studies and clinical practicum, 25-35% to biomedical sciences and 7.5-10% to ethics and professional issues (National Academic Standards Committee for Traditional Chinese Medicine [NASC], 2001).

Consistent with training in other disciplines in Australia, students receiving Chinese medicine training are expected to evaluate their lecturers' performance and teaching quality by completing a Course Experience Survey (CES) at the end of each semester. In addition, Student Staff Consultative Committees (SSCC) and Program Advisory Committees (PAC) are mandatory for all programs. Moreover, three months after graduation, all graduates of all universities in Australia assess the overall quality and learning experience through a national Course Experience Questionnaire (CEQ), the outcomes being freely available on the World Wide Web and being used as a universal measure of good teaching by the Commonwealth Government.

4.7 Capability-based Curriculum Development for Chinese Medicine

In Australia, some medical schools have introduced the concept of capability based training into their curriculum. For example, the University of New South Wales has developed a new curriculum in which the capabilities of medical graduates are central to its design (Toohey, Ham, Hughes, Harris, & McNeil, 2005). At RMIT University, all undergraduate and postgraduate programs are required to apply a capability-based curriculum approach. This approach was adopted in the design of the recently introduced postgraduate Chinese herbal medicine program in the School of Health Sciences (O'Brien et al., 2005).

While outcomes-based (including competency-based or capability-based) curricula are widely used at most stages of undergraduate and postgraduate medical trainings, capability-based curriculum in Chinese medicine education is a new concept. As in most developed countries, Chinese medicine is a form of a non-conventional therapy in Australia. So, there are no Chinese medicine hospital training facilities and most graduates of Chinese medicine training programs work as primary contact health practitioners in private Chinese medicine clinics. Consequently, gaining familiarity with the broader Australian healthcare context is particularly vital for Chinese medicine practitioners.

Through the traditional approach of describing the general outcomes of knowledge, skills and attributes of graduates of the approved course, the CMRBVic issued its guidelines for Chinese medicine training programs, "*Guidelines for the Approval of Courses of Study in Chinese*

Medicine as a Qualification for Registration". However, the guidelines did not define clearly demonstrable Chinese medicine practitioner capabilities.

Currently, capability-based curriculum development for Chinese medicine education in Australia is mainly limited to the Chinese medicine courses offered by the RMIT University, Melbourne. In 1996, RMIT introduced its double degree Chinese medicine program which is intended to produce graduates who meet the professional requirements necessary for the safe practice of acupuncture and Chinese herbal medicine in a multi-cultural and multi-ethnic community, and in a context in which Chinese medicine is considered to be a complementary health service. The recently restructured curriculum at RMIT is capability-driven with the key objectives being to produce graduates with high levels of technical and communication skills, who are capable of responsible and sustainable practice, and who have research and information management capabilities.

In developing the RMIT Chinese medicine programs, the researchers classified the Chinese Medicine Registration Board's course guideline (CMRBVic, 2002) into four categories of desired capabilities, namely, the technical capabilities, communication capabilities, response and sustainable capabilities, and research and information management capabilities. The process of developing and validating these capabilities will be discussed in detail in Chapter five.

CHAPTER 5. DESIRED CHINESE MEDICINE PRACTITIONER CAPABILITY: A SURVEY IN VICTORIA

5.1 Introduction

As mentioned earlier (Chapter 4.5), currently, there are more than 20 public and private institutions that provide degree or diploma level education in Chinese medicine in Australia (National Academic Standards Committee for Traditional Chinese Medicine [NASC], 2001). In the state of Victoria alone, there are at least five institutions offering training in Chinese medicine. Standardised educational guidelines with capability-based curriculum to guide Chinese medicine training are desirable but yet are available in Australia. In addition, there is limited information on what practitioners consider to be the essential capabilities required for quality Chinese medicine practice in Western countries such as Australia.

Critically, it has been demonstrated that inadequate training in Chinese medicine is one of the contributing risk factors to a higher adverse event rate among health care professionals (A. Bensoussan et al., 2000). In the Australian community, the general public expects high quality, safe, efficient, and effective health services including Chinese medicine. The quality of undergraduate education plays a critical role in determining the quality of clinical services in Chinese medicine (D. Owen & Lewith, 2004).

To date, Victoria is still the only state in Australia, and was also the first jurisdiction outside China, to have established and enforced standards of education and practice in Chinese medicine through the establishment of the Chinese Medicine Registration Board of Victoria. These *Course Approval Guidelines* (CMRBVic, 2002) use a traditional approach by describing the general outcomes of knowledge, skills and attributes of graduates of the approved courses, but they fail to define clearly demonstrable Chinese medicine practitioner capabilities. Therefore, program approval is still largely based on general principles, rather than on more objective and measurable criteria.

Over nine hundred of Chinese medicine practitioners were registered under the grand-parenting or transitional arrangements between 1 January 2002 and 31 December 2004. These transitional arrangements allowed a more flexible approach, involving multiple pathways (see Chapter 3.1.2) to determining eligibility for registration that the requirements that came into effect after this date (see above Chapter 3.1.2.1). From January 1 2005, the principal pathway to registration was via completion of a course approved by the Board for the purposes of registration. Such courses were approved based on the *Board's Course Approval Guidelines* developed by the Board for the purposes of assessing courses submitted to the Board by educational institutions for approval.

Within the Chinese medicine profession in Australia there is considerable variation in the type and level of qualifications, educational background, and length and scope of practice (see Chapter 3.3.2). The education standards developed by the CMRBVic, which are operationalised in the *Board's Course Approval Guidelines*, aimed to establish a uniform minimum standard of education for entrants to the Chinese medicine profession from 2005 onwards. These Guidelines were based on a combination of existing course curricula, expert opinion and the responses to a consultation process with regards to the course components and education outcomes that are essential for safe, effective practice in the Australian healthcare context. This approach can be considered an example of the traditional procedure for developing an education standard in comparison with the competency or capability focussed approaches. In line with developments in other healthcare professions, there appears a need to focus on the key capabilities required of practitioners in the workforce, however, these has as yet been no systematic attempt to gain input from practitioners themselves regarding which capabilities are required for Chinese medicine practice in Australia.

In developing the postgraduate Chinese herbal medicine program mentioned above, RMIT University, the largest Chinese medicine provider in Australia, classified the *Board's Course Approval Guidelines* (CMRBVic, 2002) into four broad categories of desired capabilities form a desired capability map which was used to guide the development of the new master degree program. Details of the process have been described elsewhere (O'Brien et al., 2005). This capability map was subsequently revised and used as the basis for a bilingual (English/Chinese) questionnaire developed to seek practitioner views of the capabilities desired for Chinese medicine practice.

5.2 Methodology

Human Research Ethics approval was obtained from the RMIT University's Human Research Ethics Committee prior to the commencement of the survey. The methodological approach is discussed below under the headings of: instrument development, the survey population, the data collection method and the statistical analysis techniques used.

5.2.1 Instrument Development

A Chinese medicine practitioner capabilities chart was generated as the basis for the development of the questionnaire. This involved a number of stages with the *Board's Course Approval Guidelines* being the point of departure (CMRBVic, 2002). In October 2001 RMIT introduced a new capability based curriculum framework which classified the desired capabilities of graduates under four broad categories: technical; communication; sustainability; and, research (RMIT University, 2003). In order to develop new capability-based post graduate courses in Chinese medicine at RMIT in 2001-2003 (C. L. Xue, 2004), the outcomes and graduate attributes specified in *Board's Course Approval Guidelines* were grouped under the above four categories.

The stages in development of the capability study are summarised in Table 5.1. In summary, a literature review of Chinese medicine educational standards (Chapter 4) was undertaken to inform the revision of the capabilities required for Chinese medicine practice. A revised version of the capability map that comprised 28 capabilities was developed (see Appendix 3). The capabilities were grouped under four categories of capabilities required for competent Chinese medicine practice, namely, technical capability (TC), communication capability (CC), responsible and sustainable practice capability (RSC) and research and information management capability (RIMC).

These 28 capabilities were used in the development of the survey questionnaire (Appendix 4). To ensure that the full breadth of Chinese medicine capabilities was included, input from Chinese medicine educators and regulators in Victoria were also sought through structured face-to-face interviews (Appendix 5). The questionnaire was translated into Chinese by academic staff at RMIT University who were native speakers of Chinese.

This survey was designed to gather existing practitioners' views on the desired capabilities for Chinese medicine practice. Since the categories of capabilities can be matched to the *Board's Course Approval Guidelines*, which outline the knowledge and skills required for registration, the results of this questionnaire can inform future educational and curriculum development and any future revision of the *Board's Course Approval Guidelines*. Also, since the questionnaire was administered to a broad range of the Chinese medicine profession in Victoria, which comprises practitioners from a wide range of educational backgrounds practitioners, it can identify gaps in training and additional training needs. Consequently, professional development programs and strategies could be developed by the CMRBVic, educational providers and/or the profession to fill or narrow these gaps to ensure consistency in standards of practice.

The survey questionnaire consists of two sections (Appendix 4). The first section is "Practitioner Capabilities", including 28 predefined capabilities. The second section is "Demographic Information" which collected important demographic characteristics of the survey participants including gender, age, educational background and Chinese medicine clinical experience.

Table 5.1: Stages in development of the capability study in Chinese medicine

Stages	Year and reference
RMIT University framework for a capability-d riven curriculum	October 2001 (RMIT University, 2003)
“Guidelines for the Approval of Courses of Study in Chinese Medicine as a Qualification for Registration” (Board’s Course Approval Guidelines)	August 2002 (CMRBVic, 2002)
A capability map was developed in the division of Chinese medicine for the new capability-based post graduate courses in Chinese medicine at RMIT	2003 (C. L. Xue, 2004),
A literature review of Chinese medicine curricula at RMIT	2004-2008 (Chapter four)
Revision of capability map for Chinese medicine with inputs from Chinese medicine educators and regulators	April – September 2005 (Chapter five)
Development of questionnaire comprised 28 capabilities	October 2005 (Chapter five)

5.2.2 Survey Participants

All Chinese medicine practitioners registered under the CMRBVic were eligible to participate. However, since it was a state-wide survey, registered practitioners living outside the state of Victoria were excluded (based on registered clinic address) from recruitment.

Recruitment of survey participants

In October 2005, the bilingual questionnaire (a 32K, 11-page booklet, printed in English and Chinese), with a plain language statement (PLS, Appendix 6) was sent to all registered Chinese medicine practitioners in Victoria (n = 714). The plain language statement explained the purpose of the study, invited participation, and indicated that responses were confidential and that the data would be analysed and presented anonymously. To increase the participation rate and facilitate the reply process, a reply-paid envelop with the address of the study investigator was also enclosed. A reminder letter (Appendix 7) was sent to all practitioners three weeks later to encourage participation. No further attempt was made to collect information from non-respondents. In all, participation in this study was completely voluntary.

5.2.3 Data Collection

Survey participants were instructed to rate each of the twenty-eight predefined capabilities in the questionnaire, using a five-point scale (i.e. 1=not important; 2=little important; 3=moderately important; 4=important; 5=very important). Additional capability or further comments could also be provided for each domain. Socio-demographic information on gender, age, educational background and, experience of practice were collected. All questionnaires were sent back to the principal investigator by mail. Data were then entered systematically into an Excel file, and double checked by a biostatistician.

5.2.4 Data Analyses

Data were transferred from a Microsoft Excel spreadsheet and then analysed using the Statistical Package for Social Sciences (SPSS) for Windows, version 15.0. Descriptive statistics were calculated for all listed capabilities. When comparing participant responses across each of the four capability categories (Chapter 5.3.3), the traditional approach (i.e. Chi-square analysis) was used.

One innovative analytical approach employed in this thesis was that, the significance level for multiple comparisons was adjusted by a modified Holmes-Bonferroni procedure (the results are presented in Chapter 5.3.4). This was considered necessary due to the fact that statistical analyses approaches have evolved considerably over last two decades (Jaccard & Guilamo-Ramos, 2002). Thus, many social scientists have argued the need to adjust the probability level when conducting multiple comparisons (Holm, 1979).

In brief, the traditional Holmes method is a "step-down" method in that the critical value is first adjusted for the smallest p value, then the second smallest, and so on until the largest one is reached and evaluated against an alpha level of 0.05 (Holm, 1979). To achieve slightly more statistical power than the Holmes method (Westfall, Tobias, Rom, Wolfinger, & Hochberg, 1999), we adapted the Hochberg method, a "step-up" procedure that is identical to the Holmes procedure, but works in the reverse direction (Hochberg, 1988). Thus, the largest *p* value is adjusted against 0.05 for significance, the next largest one is against 0.05/n (n is the remaining number of contrasts in the multiple comparisons minus one) in order to declare a statistically significant conclusion, and so on.

5.3 Results

Thirteen questionnaires were returned due to invalid addresses. Two hundred and twenty eight (228) completed questionnaires were returned before the due date, representing a response rate of 32.5%.

5.3.1 Demographic of the Survey Participants

General demographic information

Figure 5.1 and Table 5.2 summarise the characteristics of survey participants. The vast majority (98.2%) of the participants practiced acupuncture. In addition, nearly three quarters (71.0%) of them practiced Chinese herbal medicine and, nearly two thirds (60.3%) also practiced Chinese therapeutic massage. Nearly half (45.7%) of the participants had also used Chinese medicine dietary therapy in their practice.

Nearly two-thirds (61.4%) were aged 35 – 54 years and just over half (55.8%) were males. There were very few (5) participants younger than 25 years old and only seven practitioners aged 65 and older responded to the survey. Approximately two thirds (65.0%) of the total were practicing full time. In addition, 41% of the participants had overseas practice experience. Of these, one third (37.4%) had more than ten years overseas experience. All except two participants (99.1%) had practiced in Australia. Of these, approximately two in five (43.4%) had practiced for more than 10 years.

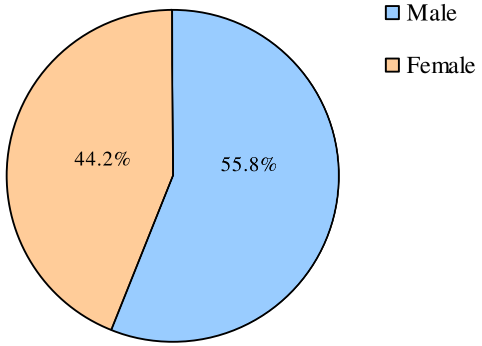
Table 5.2: Demographic characteristics of survey participants

Characteristic (n=228)		*n* (%)
Gender	Male	125 (55.8)
	Female	99 (44.2)
Age	18-24	5 (2.2)
	25-34	50 (22.4)
	35-44	66 (29.6)
	45-54	71 (31.8)
	55-64	24 (10.8)
	65+	7 (3.1)
Forms of practice*	Acupuncture	220 (98.2)
	Chinese herbal medicine	159 (71.0)
	Chinese therapeutic massage	135 (60.3)
	Chinese medicine dietary therapy	102 (45.7)
Type of practice	Full-time	145 (65.0)
	Part-time	78 (35.0)
Years of practice in Australia	Never	2 (0.9)
	< 5 years	79 (35.4)
	5-9 years	46 (20.6)
	10-14 years	44 (19.7)
	≥ 15 years	52 (23.3)
Years of practice overseas	Never	131 (59.0)
	< 5 years	32 (14.4)
	5-9 years	25 (11.3)
	10-14 years	13 (5.9)
	≥ 15 years	21 (9.5)
Australian Chinese medicine qualification	None	67 (29.9)
	< Bachelor	45 (20.1)
	≥ Bachelor	112 (50.0)
Overseas Chinese medicine qualification	None	111 (49.5)
	< Bachelor	38 (17.0)
	≥ Bachelor	75 (33.5)

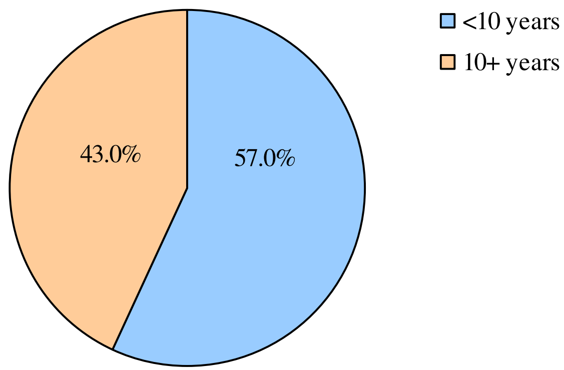
*Multiple choices applied, total number does not add up to 228

Figure 5.1: Characteristics of the survey participants

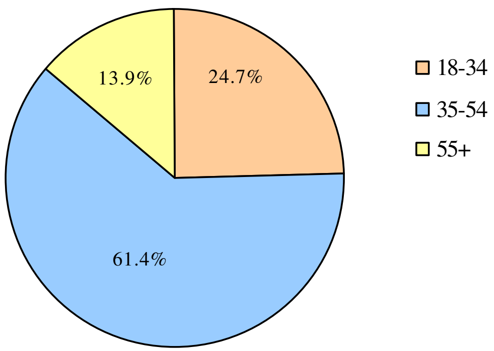
1. Gender



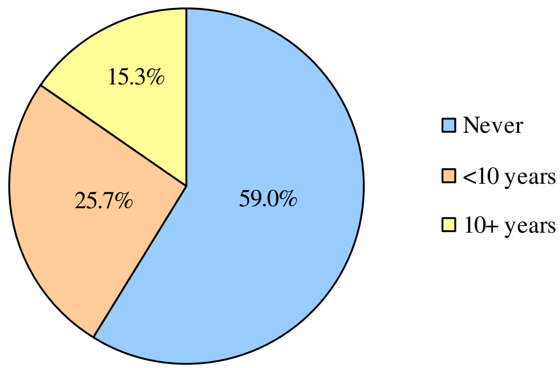
3. Clinical experience in Australia



2. Age



4. Clinical experience overseas



Participants were asked to provide information on all their qualifications related to Chinese medicine. The majority of them provided more than one such qualification. Nearly one in five (19.2%) participants had received Chinese medicine training in both Australia and overseas, and more than half of the participants (52.2%) stated they had more than one qualification in Chinese medicine. In all, over two-thirds (70.1%) of participants had trained in Australia. Of these, almost three quarters (71.3%) had been awarded at least a bachelor degree in Chinese medicine. Among those who had received Chinese medicine training overseas (50.5%), approximately two-thirds (66.4 %) had a bachelor degree or above. Overall, 73.7% of all respondents had a bachelor degree or above from either Australia or overseas. The details of the Chinese medicine qualifications are shown in Table 5.3.

Table 5.3 Educational background of the survey participants

Chinese medicine qualification	Australian qualification n (%)*	Overseas qualification n (%)#
Short course (non-award)	0 (0)	6 (5.3)
Certificate	6 (3.8)	13 (11.5)
Diploma	17 (10.8)	6 (5.3)
Advanced diploma	22 (14.0)	13 (11.5)
Bachelor degree	75 (47.8)	46 (40.7)
Postgraduate certificate/diploma	17 (10.8)	5 (4.4)
Master degree	17 (10.8)	16 (14.2)
PhD degree	3 (1.9)	8 (7.1)
Total	157 (100.0)	113 (100.0)

Missing=4, participants may have claimed for multiple qualifications
* % of participants with Australian qualification (n=157)
# % of participants with overseas qualification (n=113)

5.3.2 Ranking the Desired Capabilities

Table 5.4 presents the overall mean score and standard deviation of participant responses to each of the four categories of capabilities. Using a five-point scale (i.e. 1=not important; 2=little important; 3=moderately important; 4=important; 5=very important), three of the four categories were rated higher than four, which indicates that these capabilities were considered "important" or "very important".

Mean score and standard deviation for each of the 28 capabilities is shown in Table 5.5. Overall, 19 capabilities were rated 4.0 or higher. The mean scores for all technical capabilities (12 in total) were rated higher than four. Of these, the ability to perform acupuncture treatment and/or prescribe a Chinese herbal prescription were the highest (mean = 4.76), followed by the ability to formulate an appropriate Chinese medicine prescription (mean = 4.75). In contrast, all of the six capabilities under research and information management were rated lower than four, with the ability to develop a research protocol being the lowest (mean = 3.05, Table 5.5).

Table 5.4: Overall means of the four categories of capabilities

Category (number of items)	Mean (standard deviation)
Technical capability (12)	4.37 (0.49)
Communication capability (4)	4.00 (0.73)
Responsible and sustainable capability (6)	4.25 (0.60)
Research & information capability (6)	3.49 (0.79)
Total 28 capabilities	4.09 (0.52)

Table 5.5: Description, mean value and standard deviation of each capability

	Capability	*M (SD)*
	Technical Capabilities (TC)	
TC1	Describe human structure and functions & their relevance to CM practice	4.33 (0.79)
TC2	Apply knowledge of Chinese and western medicine principles and diagnosis skills in diagnosis of disease	4.33 (0.89)
TC3	Formulate an appropriate CM prescription	4.75 (0.52)
TC4	Develop specific (individualised) treatment plans	4.73 (0.48)
TC5	Diagnose and differentiate diseases/ disorders according to both western and CM principles and techniques	4.34 (0.86)
TC6	Formulate a treatment plan including timelines for treatment and review	4.08 (0.85)
TC7	Give nutrition and dietary and preventive medicine advice in terms of CM knowledge for all areas of CM	4.01 (0.94)
TC8	Review and monitor patient's health and modify treatment accordingly	4.43 (0.71)
TC9	Refer to other practitioners, particularly medical practitioners, when appropriate in a timely manner	4.28 (0.86)
TC10	Perform acupuncture treatment and/or prepare and dispense a Chinese herbal prescription	4.76 (0.49)
TC11	Independently acquire technical knowledge about other diseases	4.25 (0.77)
TC12	Modify herbal formulae and/or treatment plan	4.13 (0.94)
	Communication Capabilities (CC)	
CC1	Appropriately apply Chinese and western medical terminologies	3.93 (0.91)
CC2	Communicate effectively with patients and other health professionals	4.07 (0.86)
CC3	Refer patients to medical and other allied health professionals	4.00 (0.88)
CC4	Communicate effectively with fellow workers	3.99 (0.91)
	Responsible and Sustainable capabilities (RSC)	
RSC1	Educate consumers of CM matters in order to promote sustainability	4.04 (0.93)
RSC2	Practise within regulatory/ ethical/ safety frameworks	4.62 (0.66)
RSC3	Remain financially viable	4.11 (0.96)
RSC4	Identify key business issues & draw on appropriate professional resources	3.75 (1.01)
RSC5	Participate to continue to learn (lifelong learning)	4.37 (0.79)
RSC6	Learn through experience (reflective learning)	4.62 (0.60)
	Research and Information Management capabilities (RIMC)	
RIMC1	Keep up-to-date with CM research	3.94 (0.88)
RIMC2	Apply knowledge of methodological issues to CM clinical research	3.48 (1.00)
RIMC3	Critically review research publications relevant to CM	3.59 (0.93)
RIMC4	Apply knowledge in ethical issues surrounding CM research	3.67 (0.99)
RIMC5	Develop a research protocol	3.05 (1.09)
RIMC6	Disseminate research outcomes to different audiences	3.21 (1.02)

Note: all capabilities were rated on a five-point scale (i.e. 1=not important; 2=little important; 3=moderately important; 4=important; 5=very important)
SD: standard deviation

5.3.3 Practitioners' View on the Importance of the Capabilities

The frequency and proportion of practitioner's ratings of each capability according to the level of importance is presented in Table 5.6. These are listed in order of technical (TC), communication (CC), responsible and sustainable (RSC), and research and information management (RIMC).

Generally speaking, technical capabilities were ranked the highest in importance among the four categories. The findings of the cross-tabulation analyses in four categories of capabilities are presented separately in Chapters 5.3.3.1, 5.3.3.2, 5.3.3.3, and 5.3.3.4.

Table 5.6: Frequency and proportion of responses to each capability by importance

Capability	Number (%) of practitioners considering each capabilities as:				
	Not important	Little important	Moderately important	Important	Very important
TC 1	1 (0.4)	1 (0.4)	35 (15.7)	73 (32.7)	113 (50.7)
TC 2	1 (0.5)	10 (4.5)	26 (11.7)	63 (28.4)	122 (55.0)
TC 3	--	1 (0.5)	6 (2.7)	40 (18.0)	175 (78.8)
TC 4	--	--	3 (1.4)	52 (24.2)	160 (74.4)
TC 5	2 (0.9)	3 (1.4)	33 (15.6)	57 (27.0)	116 (55.0)
TC 6	1 (0.5)	9 (4.2)	37 (17.2)	93 (43.3)	75 (34.9)
TC 7	1 (0.5)	11 (5.1)	54 (25.2)	67 (31.3)	81 (37.9)
TC 8	--	1 (0.5)	24 (11.2)	72 (33.6)	117 (54.7)
TC 9	--	9 (4.2)	31 (14.4)	66 (30.7)	109 (50.7)
TC 10	--	--	6 (2.8)	40 (18.7)	168 (78.5)
TC 11	--	3 (1.4)	34 (15.8)	85 (39.5)	93 (43.3)
TC 12	1 (0.5)	13 (6.1)	36 (17.0)	69 (32.5)	93 (43.9)
CC 1	3 (1.3)	9 (3.9)	57 (25.0)	90 (39.5)	69 (30.3)
CC2	1 (0.4)	8 (3.5)	46 (20.3)	91 (40.1)	81 (35.7)
CC 3	1 (0.4)	9 (4.0)	54 (23.8)	86 (37.9)	77 (33.9)
CC 4	1 (0.4)	11(4.8)	55 (24.2)	83 (36.6)	77 (33.9)
RSC 1	4 (1.8)	8 (3.5)	47 (20.6)	86 (37.7)	83 (36.4)
RSC 2	1 (0.4)	1 (0.4)	14 (6.2)	52 (22.9)	159 (70.0)
RSC 3	3 (1.3)	11 (4.8)	42 (18.4)	75 (32.9)	97 (42.5)
RSC 4	6 (2.6)	17 (7.5)	64 (28.2)	80 (35.2)	60 (26.4)
RSC 5	1 (0.4)	3 (1.3)	29 (12.8)	71 (31.3)	123 (54.2)
RSC 6	--	--	14 (6.1)	59 (25.9)	155 (68.0)
RIMC 1	2 (0.9)	9 (4.1)	54 (24.3)	92 (41.4)	65 (29.3)
RIMC 2	9 (4.1)	21 (9.6)	79 (36.1)	76 (34.7)	34 (15.5)
RIMC 3	4 (1.8)	17 (7.6)	86 (38.6)	76 (34.1)	40 (17.9)
RIMC 4	5 (2.3)	14 (6.3)	84 (37.8)	65 (29.3)	54 (24.3)
RIMC 5	17 (7.7)	50 (22.6)	84 (38.0)	45 (20.4)	25 (11.3)
RIMC 6	10 (4.5)	44 (19.9)	77 (34.8)	69 (31.2)	21 (9.5)

5.3.3.1 The Technical Capabilities

Numerous significant differences are evident from participants with different demographic characteristics (Table 5.7).

A higher proportion of females than males considered the five technical capabilities (TC5, TC8, TC9, TC10, and TC12) to be "very important or important" (hereafter, important) (p< 0.05, Table 5.7). For example, a significantly lower proportion (73.7%) of male participants considered the capability to "refer patients to health practitioners in a timely manner" (TC9) to be important, compared with the proportion among female participants (91.6%, p< 0.05).

For most technical capabilities, in particular "diagnose and differentiate diseases" (TC5), "refer patients to health practitioners in a timely manner" (TC9) and "modify herbal formulae" (TC12), participants aged between 18–34 provided a higher score than those aged 35–54 or those aged 55 or older. Specifically, it is worth noting that a significantly lower proportion (75.4%) of participants aged 35–54 considered TC5 to be important, compared with the proportions among younger participants (aged 18–34, 92.0%, p< 0.05) and older participants (55+, 90.0%, p< 0.05, Table 5.7).

Participants with at least one Australian qualification were more likely to appreciate TC6, TC7, TC8, TC9 and TC12 (Table 5.7). The majority of people with an Australian qualification (96.2% of those with a bachelor degree or above, 97.7% of those with less than a bachelor degree) considered the ability to "review and monitor patient's health" to be important. This proportion was significantly lower among those without any Australian qualifications (70.8%, p< 0.05). Similarly, the majority of people with an Australian qualification (74.0% of those with a bachelor degree or above, 81.4% of those with less than a bachelor degree) considered the capability to "provide nutrition and dietary advice" to be important. This proportion was significantly lower among those without any Australian qualifications (53.8%, $p < 0.05$).

Compared to people without overseas Chinese medicine experience, participants who had practiced overseas gave significantly lower scores on five technical capabilities (TC6, TC8, TC9, TC11 and TC12). For example, TC11, the capability to "acquire technical knowledge of diseases", was reported to be important by 85.5% of people without overseas experience, compared to only 66.1% of people who had less than 10 years overseas experience and to 60.6% of people who had 10 years or more overseas experience ($p < 0.05$, Table 5.7).

Overall, there were no significant differences found for ability to diagnose disease (TC2) and ability to formulate an appropriate Chinese medicine prescription (TC3) with regard to any of the demographic characteristics of participants. In contrast, significant differences were found for TC12 for all demographic characteristics and, for TC8 and TC9 in nearly all of the demographic characteristics of participants.

Table 5.7: Cross-tabulation analyses of technical capabilities

Demographic information		Percentage of practitioners rating each of the capabilities as important or very important (%)											
		TC1	TC2	TC3	TC4	TC5	TC6	TC7	TC8	TC9	TC10	TC11	TC12
Gender	Male	80.0	81.7	96.6	97.5	75.9*	73.7	64.1	82.2*	73.7*	95.8*	83.1	68.1*
	Female	86.9	86.7	97.0	100.0	89.2	84.2	75.8	96.8	91.6	100.0	83.2	86.2
Age	18-34	87.3	87.3	96.4	100	92.0*	80.0	80.0	94.0	92.0*	95.9	86.0	84.0*
	35-54	80.6	81.3	97.1	98.4	75.4	79.8	65.9	86.8	76.7	99.2	82.2	73.0
	55+	89.7	82.1	96.6	96.8	90.0	71.0	66.7	83.3	80.6	90.3	77.4	77.4
Australian CM qualification	None	77.3	81.8	97.0	97.0	81.8	63.6*	53.8*	70.8*	65.2*	97.0	74.2	56.9*
	< Bachelor	90.5	83.3	95.2	100.0	76.2	88.4	81.4	97.7	90.7	100	90.7	85.7
	≥ Bachelor	83.8	85.5	97.3	99.0	84.2	83.7	74.0	96.2	88.5	97.1	85.6	84.5
Overseas CM qualification	None	86.1	85.2	97.2	99.0	79.2	84.5	78.6*	97.1*	90.3*	98.0	88.3	85.1*
	< Bachelor	73.7	78.4	94.7	97.3	88.9	73.0	56.8	83.8	73.0	97.3	78.4	69.4
	≥ Bachelor	83.6	84.9	97.3	98.6	81.9	72.6	62.5	79.2	74.0	97.3	78.1	67.1
Years of practice in Australia	< 10 years†	88.7*	85.4	98.4	99.2	84.3	80.5	71.2	93.2*	83.1	96.6	84.7	82.6*
	≥ 10 years	76.6	79.8	94.7	97.8	78.0	76.1	67.0	81.3	78.3	97.8	79.3	68.5
Years of practice overseas	Never	86.7	83.5	96.9	99.2*	82.8	85.7*	74.8	96.6*	89.9*	97.5	88.2*	85.5*
	< 10 years	75.0	78.6	96.4	100.0	75.0	68.4	57.9	78.9	61.4	98.2	77.2	66.1
	≥ 10 years	87.9	87.9	97.0	93.9	87.9	69.7	68.8	71.9	81.8	93.9	69.7	60.6
Type of practice	Full-time	82.3	80.0	96.5	97.8	79.4	76.9	67.2	85.7	76.9*	97.8	79.9	70.7*
	Part-time	87.0	88.3	97.4	100.0	85.3	81.6	73.3	92.1	89.5	96.0	86.8	87.8

*: Significant difference between groups (χ^2 test)

†: Including participants who had never practiced in Australia (n=2)

5.3.3.2 The Communication Capabilities

The views on communication capabilities differed considerably among participants with different socio-demographic backgrounds, in particular between participants with and without Chinese medicine qualification or practice from overseas. Thus, for all communication capabilities, participants who had overseas experience were less likely to consider these capabilities to be important (range from 41.1% – 52.6%), while a significantly higher proportion of respondents who had no overseas experience fell into the same category (range from 84.6% –90.1%, $p < 0.05$, Table 5.8). In addition, approximately half (40.3% – 55.2%) of the people without an Australian Chinese medicine qualification considered these four capabilities to be important, while these proportions increased to some 71.1% – 87.4% among people with at least one Australian Chinese medicine qualification ($p < 0.05$, Table 5.8).

The only gender difference in responses to the communication capabilities was for CC3 (i.e. "refer patients to medical and other allied health professionals"). That is, over four fifths (80.8%) of female participants considered this capability to be important, whereas less than two thirds (65.3%) of male participants considered this to be important ($p < 0.05$, Table 5.8). There was no statistically significant difference among participants in different age groups in their response to any of the four communication capabilities.

5.3.3.3 The Responsible and Sustainable Capabilities

The pattern of responses to the six responsible and sustainable capabilities (RSC) was somewhat similar to those responses to the four communication capabilities. Thus, there was no statistically significant difference among participants in different age groups in responding to any of the six RSC. The gender difference in responses to the responsible and sustainable capabilities was for RSC2 (i.e. "practise within regulatory and safety frameworks") and RSC5 (i.e. "lifelong learning"). Female participants were more likely to appreciate these two capabilities than the male participants ($p < 0.05$, Table 5.8).

Participants with at least one Australian qualification and/or had never practiced overseas were more likely to appreciate responsible and sustainable capabilities. Thus, the majority of people with an Australian qualification (83.9% of those with a bachelor degree or above, 84.4% of those with less than a bachelor degree) considered "remain financially viable" (RSC3) to be important. This proportion was significantly lower among those without any Australian qualifications (56.7%, $p< 0.05$ Table 5.8). Supporting this finding, more than two thirds (70.0%) of people without an overseas qualification considered "remain financially viable" to be important, whereas much smaller proportions were observed among those holding an overseas qualification (50.0% among people with less than a bachelor degree or, 56.0% among people with a bachelor degree or higher, $p< 0.05$ Table 5.8). Similarly, significantly lower proportions of those without an Australian qualification appreciated the importance of "identifying business issues" and "lifelong learning" (RSC4 and RSC5, respectively, Table 5.8).

Table 5.8: Cross-tabulation analyses of communication capabilities and responsible and sustainable capabilities

Demographic information		Percentage of practitioners rating each of the capabilities as important or very important (%)									
		CC1	CC2	CC3	CC4	RSC1	RSC2	RSC3	RSC4	RSC5	RSC6
Gender	Male	64.8	72.6	65.3*	67.7	74.4	88.8*	72.0	61.3	80.8*	93.6
	Female	74.7	79.8	80.8	74.7	73.7	98.0	80.8	62.6	90.8	93.9
Age	18-34	81.8	87.3	83.3	81.8	74.5	92.7	87.3	81.5	92.7	98.2
	35-54	64.2	71.3	70.8	68.4	75.2	92.6	71.5	55.5	83.8	92.7
	55+	71.0	74.2	61.3	61.3	67.7	93.5	71.0	51.6	80.6	93.5
Australian CM qualification	None	55.2*	49.3*	46.3*	40.3*	67.2	88.1	56.7*	41.8*	70.1*	85.1*
	< Bachelor	71.1	86.7	84.4	86.4	80.0	97.5	84.4	68.9	93.3	95.6
	≥ Bachelor	76.8	87.4	82.9	83.0	75.9	93.7	83.9	71.2	91.0	98.2
Overseas CM qualification	None	73.0	89.2*	85.5*	82.0*	74.8	95.5	85.6*	70.0*	91.8*	97.3
	< Bachelor	60.5	65.8	60.5	57.9	81.6	92.1	68.4	50.0	81.6	89.5
	≥ Bachelor	68.0	60.8	58.7	60.8	69.3	89.3	65.3	56.0	77.3	90.7
Years of practice in Australia	< 10 years†	74.0	77.8	73.0	73.2	78.0	95.2	81.1*	69.0*	90.5*	96.1
	≥ 10 years	63.5	72.9	71.9	67.4	68.8	89.6	67.7	51.0	79.2	91.7
Years of practice overseas	Never	75.6*	90.1*	84.6*	84.6*	77.9	96.2*	87.8*	70.0*	93.8*	98.5*
	< 10 years	57.9	55.4	52.6	56.1	70.2	86.0	63.2	52.6	71.9	89.5
	≥ 10 years	64.7	52.9	58.8	41.2	64.7	91.2	50.0	41.2	76.5	85.3
Type of practice	Full-time	65.5*	70.8*	70.1	66.2*	72.4	91.0	73.1	59.0	82.1*	92.4
	Part-time	78.2	84.6	78.2	79.2	78.2	96.1	80.8	66.7	92.2	97.4

*: Significant difference between groups (χ^2 test)

†: Including participants who had never practiced in Australia (n=2)

5.3.3.4 The Research and Information Management Capabilities

As noted above, research and information management capabilities were generally considered less important compared to the other three domains of capabilities, across participants with different demographic characteristics. The only exceptional significant difference was found for RIMC3 "critically review research publications relevant to Chinese medicine". Specifically, nearly two-thirds (61.6%) of people without an Australian Chinese medicine qualification considered RIMC3 to be important, whereas approximately half (48.9%) of people with less than an Australian bachelor degree and just over one-third (37.9%) of people with an Australian bachelor degree or higher responded in the same way ($p< 0.05$, Table 5.9).

Table 5.9: Cross-tabulation analyses of research and information management capabilities

Demographic information		Practitioners rated each of the capabilities as important or very important (%)					
		RIMC1	RIMC2	RIMC3	RIMC4	RIMC1	RIMC2
Gender	Male	71.8	50.8	53.2	51.6	33.1	46.3
	Female	69.4	49.5	50.5	56.1	29.9	33.7
Age	18-34	69.8	60.4	60.4	60.4	32.1	52.8
	35-54	73.3	47.7	48.9	52.2	28.4	35.8
	55+	63.3	46.7	53.3	53.3	46.7	40.0
Australian CM qualification	None	60.6	46.2	37.9*	41.5	33.3	35.4
	< Bachelor	75.6	47.7	48.9	60.0	26.7	37.8
	≥ Bachelor	74.8	53.6	61.6	58.0	32.7	45.0
Overseas CM qualification	None	73.4	51.4	60.0*	60.9	27.8	42.6
	< Bachelor	71.1	43.2	50.0	45.9	34.2	39.5
	≥ Bachelor	66.7	52.0	41.3	46.7	36.0	38.7
Years of practice in Australia	< 10 years†	73.4	55.7	58.1	60.2	32.5	41.1
	≥ 10 years	68.1	45.1	44.7	46.8	30.9	39.8
Years of practice overseas	Never	75.8	52.4	58.6	60.2	31.5	43.8
	< 10 years	63.2	47.4	45.6	43.9	24.6	35.1
	≥ 10 years	65.6	48.4	37.5	48.4	43.8	35.5
Type of practice	Full-time	71.6	48.9	50.0	51.4	31.2	36.4
	Part-time	71.1	53.4	57.9	61.3	33.3	47.4

*: Significant difference between groups (χ^2 test)
†: Including participants who had never practiced in Australia (n=2)

5.3.3.5 Summary of the Characteristics and the Capabilities

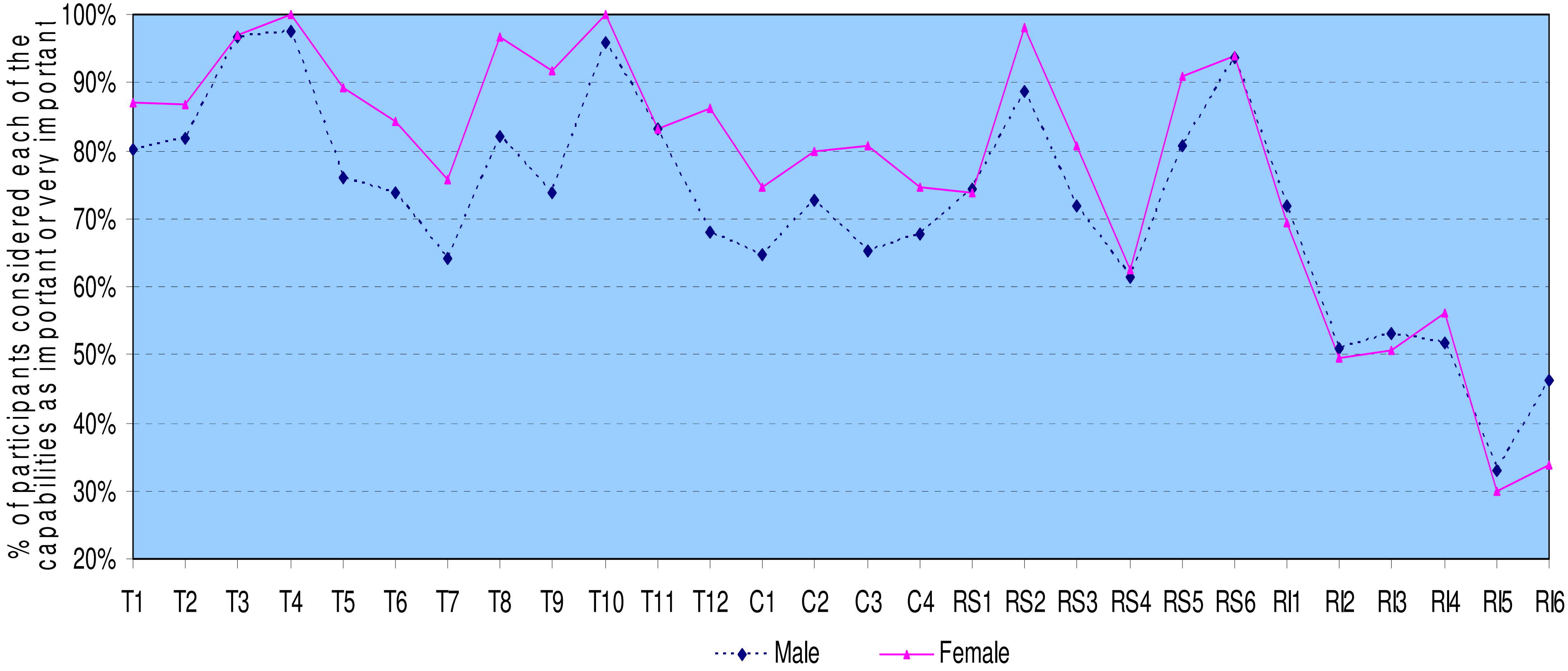
Figure 5.2 to Figure 5.6 illustrate the results of all capabilities that were considered to be important or very important by all practitioners with different characteristics, namely gender, age range, educational background and clinical experience in Australia and/or overseas.

Overall, the biggest gender difference in responses to the 28 capabilities was found in TC9, the capability to “refer to other health practitioners”. Thus, 91.6% of the female participants considered this capability to be important, while only 73.7% of the male participants considered it so (p=0.001). The only statistically significant age difference in responding to the 28 capabilities was found in TC5 (i.e. “diagnose and differentiate disease”). Specifically, a significantly lower proportion (75.4%) of participants aged 35–54 considered TC5 to be important, compared with younger participants (aged 18–34, 92.0%, $p< 0.05$) and older participants (55+, 90.0%, $p< 0.05$). In addition, the difference in responding to RSC4, the capability to “identify business issues”, is worthy of note. A significantly higher proportion (81.5%) of participants aged 18–34 considered RSC4 to be important, compared with the proportions among older participants (aged 35–54, 55.5.0%; and 55+, 51.6%).

With respect to educational background, significant differences were noted among participants with and without Australian qualification in response to 14 of the 28 capabilities. Most noticeably, significant differences were evident in all communication capabilities. For example, less than half (40.3%) of practitioners without Australian qualification considered “an ability to communicate effectively with fellow workers (CC4)” to be important, while over four fifth of practitioners with Australian qualification (84.0%) considered this capability to be important ($p <0.01$).

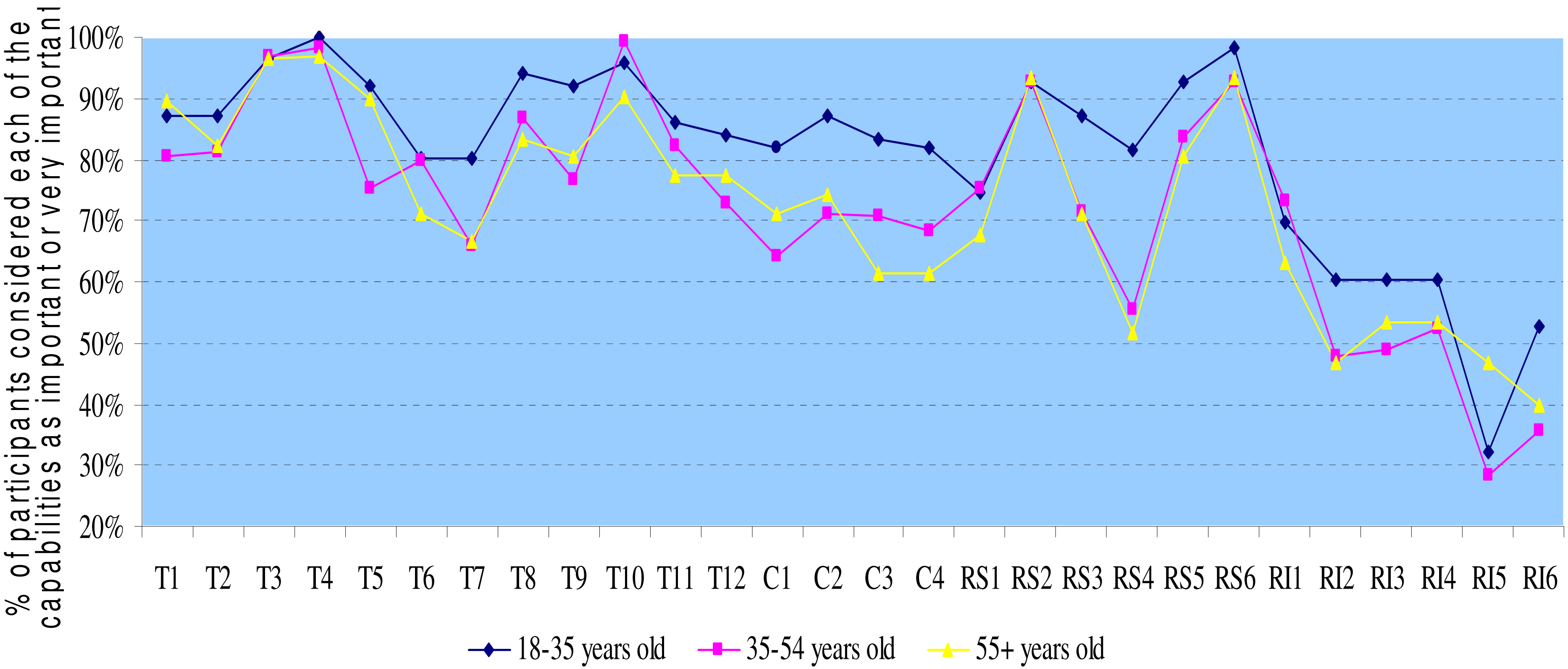
Fewer significant differences were found in participants regarding whether or not they had clinical experience in Australia (Figure 5.5). However, clinical experience in overseas seems to be an important factor related to at least 15 of the 28 capabilities including all Communication Capabilities, 5 of the 6 Responsible and Sustainable Capabilities, but none of the Research and Information Management Capabilities (Figure 5.6). Thus, for participants with various overseas clinical experiences, the largest differences were found in RSC4, TC5, TC9 and CC4. This was similar to that noted above in participants with different gender, age and educational backgrounds. In addition, the difference in responding to RSC3, the capability to "remain financially viable", is worthy of note. Thus, a significantly higher proportion (87.8%) of participants without overseas experience considered RSC3 to be important, compared with the proportions among those with less than 10 years practice overseas (63.2%, $p < 0.01$) and those with more than 10 years practice overseas (50.0%, $p < 0.01$) (Figure 5.6).

Figure 5.2: Gender and response to the importance of each of the 28 capabilities



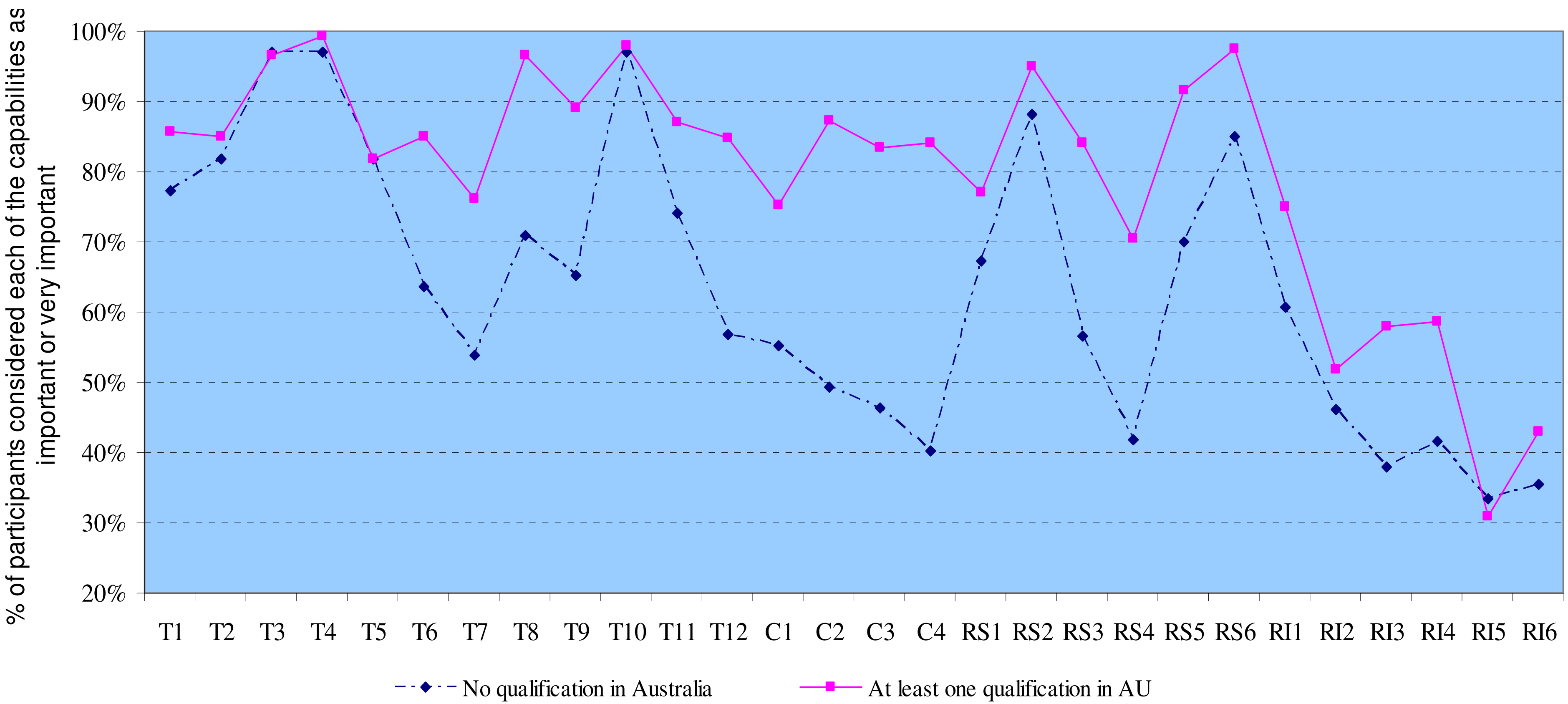
T=technical capability
C=communication capability
RS=responsible and sustainable capability
RI=research and information management capability

Figure 5.3: Age and response to the importance of each of the 28 capabilities



T=technical capability
C=communication capability
RS=responsible and sustainable capability
RI=research and information management capability

Figure 5.4: Educational background and response to the importance of each of the 28 capabilities



T=technical capability
C=communication capability
RS=responsible and sustainable capability
RI=research and information management capability

Figure 5.5: Australian clinical experience and response to the importance of each of the 28 capabilities

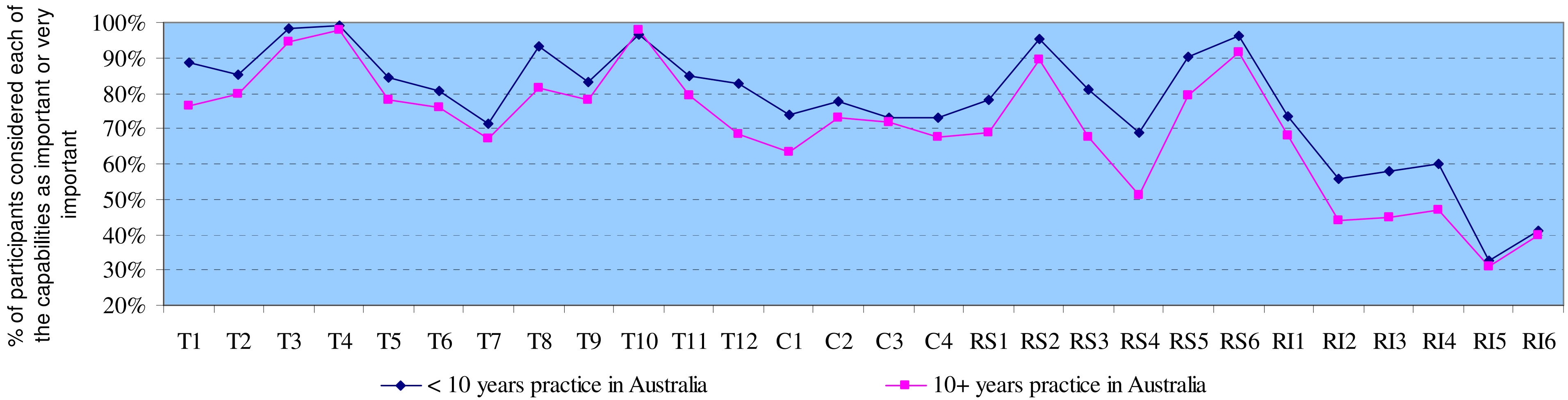
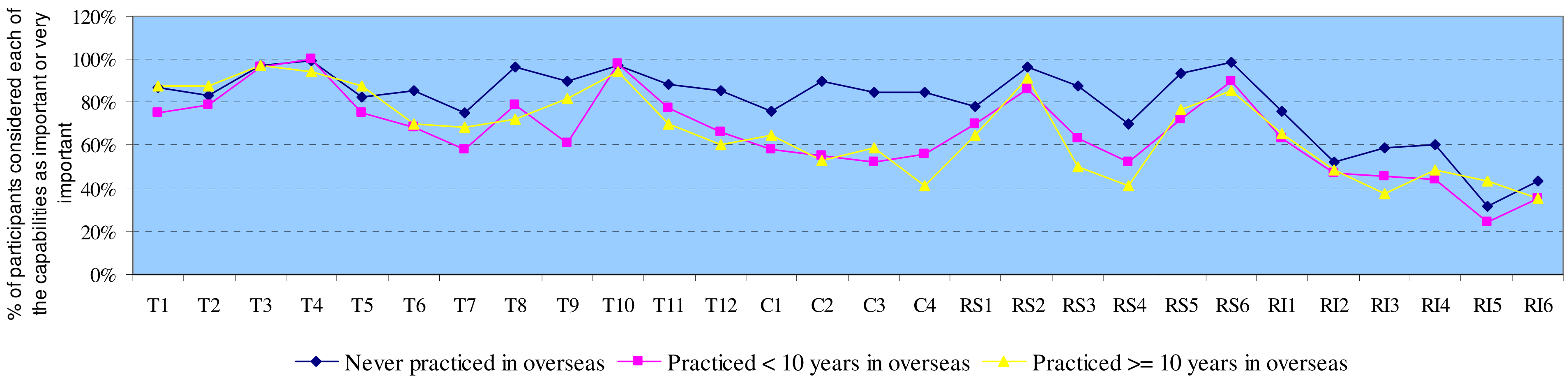


Figure 5.6: Overseas clinical experience and response to the importance of each of the 28 capabilities



5.3.4 Modified Holmes-Bonferroni Analyses

The cross-tabulation analyses presented in Table 5.7, Table 5.8, and Table 5.9 use multiple χ^2 comparisons. Under such conditions a more conservative approach to determining significance level for multiple repetitive comparisons is considered necessary. Therefore, in the following analyses a modified Holmes-Bonferroni procedure is used to adjust significant levels. The rationale and the procedure of the adjustment are discussed above in Chapter 5.2.4. In this section, the results are presented in two groups: items ranked highest on importance and items ranked lowest on importance.

5.3.4.1 Items Ranked Highest on Importance

Among all 28 capabilities, the 10 capabilities with the highest scores on importance are summarised in Table 5.10 and they are broken down according to practitioners' demographic characteristics. Of these, seven were technical capabilities (TC) and three were responsible and sustainable practice capabilities (RSC). Among these highest-ranked capabilities, statistically significant differences in demographic characteristics were noted in five capabilities: TC8, TC10, RSC2, RSC5 and RSC6.

For TC8, the capability to "review and monitor a patient's health and modify treatment accordingly", was reported as important by nearly all (96.8%) of the females, 96.6% of those who had practised less than ten years overseas, 97.1% of those without an overseas Chinese medicine qualification, or those who had an Australian qualification (88.5% for bachelor and above, 90.7% for less than bachelor, Table 5.10). On the other hand, a significantly lower ranking on this item was found among males (82.2%, $p = 0.001$), or participants with more than ten years overseas practice (71.9%, p = 0.000), or those without an Australian qualification (70.8%, p = 0.000, Table 5.10).

For TC10, the capability to "perform Chinese medicine treatment", the only significant difference among the demographic characteristics was for gender. Thus, 100% of female participants considered this capability to be important, compared to 95.8% of male participants (p = 0.043, Table 5.10).

Chinese medicine practice experience in Australia and/or overseas seems to have influenced the attitudes toward the importance of a number of capabilities. Compared to people with overseas Chinese medicine experience, participants who had never practiced overseas gave significantly higher scores on four capabilities (TC8, RSC2, RSC5 and RSC6). For example, RSC2, the capability to "practice within regulatory and safety frameworks" was considered important by 96.2% of people without overseas experience, compared to only 86.0% of people who had less than 10 years overseas experience and to 91.2% of people who had 10 years or more overseas experience (p= 0.043, Table 5.10).

Similarly, Chinese medicine qualification in Australia and/or overseas seems to have influenced the attitudes toward the importance of three capabilities (TC8, RSC5 and RSC6). Thus, just over two thirds (70.1%) of people without an Australian Chinese medicine qualification considered RSC5 (i.e. lifelong learning) to be important, whereas people with an Australian qualification gave a significantly higher score on this capability (91.0% of people with an Australian qualification of bachelor degree and above or 93.3% of people with an Australian qualification less than bachelor degree, p = 0.000, Table 5.10).

Table 5.10: Capabilities ranked highest on importance

Demographic information		Percentage of practitioners rating each capability as important or very important (%)									
		TC10	TC3	TC4	RSC6	RSC2	TC8	RSC5	TC5	TC2	TC1
Gender	Male	95.8	--	--	--	88.8	82.2	--	--	--	--
	Female	100*	--	--	--	98.0*	96.8*	--	--	--	--
Age	18-34	N/S									
	35-54										
	55+										
Australian CM qualification	None	--	--	--	85.1*	--	70.8*	70.1*	--	--	--
	< Bachelor	--	--	--	95.6	--	97.7	93.3	--	--	--
	≥ Bachelor	--	--	--	98.2	--	96.2	91.0	--	--	--
Overseas CM qualification	None	--	--	--	--	--	97.1*	91.8	--	--	--
	< Bachelor	--	--	--	--	--	83.8	81.6	--	--	--
	≥ Bachelor	--	--	--	--	--	79.2	77.3*	--	--	--
Years of practice in Australia	< 10 years†	--	--	--	--	--	--	90.5*	--	--	--
	≥ 10 years	--	--	--	--	--	--	79.2	--	--	--
Years of practice overseas	Never	--	--	--	98.5*	96.2	96.6*	93.8*	--	--	--
	< 10 years	--	--	--	89.5	86.0*	78.9	71.9	--	--	--
	≥ 10 years	--	--	--	85.3	91.2	71.9	76.5	--	--	--

*: Significant difference between groups (via $\chi2$ test, significance level for multiple comparisons was adjusted by Holmes-Bonferroni procedure).
†: Including participants who had never practiced in Australia (n = 2)

5.3.4.2 Items Ranked Lowest on Importance

The ten capabilities that ranked lowest on importance comprised all six items in the research and information management capabilities (RIMC), three out of the four communication capabilities (CC1, CC3 and CC4) and, one of the responsible and sustainable capabilities (RSC4, Table 5.11). None of the technical capabilities was on the list of "lowest-ranked" capabilities. Among these lowest-ranked capabilities, statistically significant differences in demographic characteristics were noted for five capabilities: CC1, CC3, CC4, RIMC3 and RSC4.

The only gender difference in responses to the ten "lowest-ranked" capabilities was for CC3 (i.e. "refer patients to medical and other allied health professionals"). That is, over one-third (34.7%) of male participants considered this capability to be less important, whereas only one in five (19.2%) female participants considered it to be less important (p= 0.010, Table 5.11). The only age difference in responses to the ten lowest-ranked capabilities was for RSC4 (i.e. "identify business issues and draw on appropriate professional resources"). Thus, a lower proportion (18.5%) of those aged 18 – 34 considered RSC4 to be less important, while nearly half of those aged 35 – 54 (48.4%) and those aged 55 or older (44.5%) considered this capability to be less important (p = 0.002, Table 5.11).

Noticeably, we found that younger participants (aged 18-34, 18.5%), those with an Australian qualification (approximately 30%), those without an overseas qualification (30.0%) and those with less than 10 years clinical experience in either Australia (30.0%) or overseas (30.0%)

were less likely to consider RSC4, the ability to "identify key business issues and draw on appropriate professional resources", to be less important (Table 5.11).

Significant variations were also observed in the perceived importance of communication capabilities. That is, for the capabilities to "appropriately apply Chinese and Western medical terminologies" (CC1), to "refer patients to other health professionals" (CC3) and, to "communicate effectively with fellow workers" (CC4), participants who had overseas experience were more likely to consider these capabilities to be less important (range from 35.3% – 58.8%), while a significantly lower proportion of respondents who had no overseas experience fell into the same category (range from 15.4% – 24.4%, $p < 0.01$, Table 5.11).

Table 5.11: Capabilities ranked lowest on importance

Demographic information		Percentage of practitioners ranking each capability as not important, less important or moderately important (%)									
		CC3	CC4	RIMC1	CC1	RSC4	RIMC4	RIMC3	RIMC2	RIMC5	RIMC6
Gender	Male	34.7*	--	--	--	--	--	--	--	--	--
	Female	19.2	--	--	--	--	--	--	--	--	--
Age	18-34	--	--	--	--	18.5*	--	--	--	--	--
	35-54	--	--	--	--	44.5	--	--	--	--	--
	55+	--	--	--	--	48.4	--	--	--	--	--
Australian CM qualification	None	53.7*	59.7*	--	44.8	58.2*	--	62.1	--	--	--
	< Bachelor	15.6	13.6	--	28.9	31.1	--	51.1	--	--	--
	≥ Bachelor	17.1	17.0	--	23.2*	28.8	--	38.4*	--	--	--
Overseas CM qualification	None	14.5*	18.0*	--	--	30.0*	--	--	--	--	--
	< Bachelor	39.5	42.1	--	--	50.0	--	--	--	--	--
	≥ Bachelor	41.3	39.2	--	--	44.0	--	--	--	--	--
Years of practice in Australia	< 10 years†	--	--	--	--	30.0*	--	--	--	--	--
	≥ 10 years	--	--	--	--	49.0	--	--	--	--	--
Years of practice overseas	Never	15.4*	15.4*	--	24.4*	30.0*	--	--	--	--	--
	< 10 years	47.4	43.9	--	42.1	47.4	--	--	--	--	--
	≥ 10 years	41.2	58.8	--	35.3	58.8	--	--	--	--	--

*: Significant difference between groups (via $\chi 2$ test, significance level for multiple comparisons was adjusted by Holmes-Bonferroni procedure).
†: Including participants who had never practiced in Australia (n = 2)

5.3.5 Additional Capabilities

A total of 189 additional capabilities were given by 66 participants, or 28.9% of the total participants. Participants provided an average of three additional capabilities per participant in this survey. The maximum number of additional capabilities suggested was eight. There was no clear relationship between the number of additional capabilities suggested and the demographic characteristics of the participants. Of the total 189 additional capabilities, 88 were suggested under the category of Technical Capability, 60 under the category of Communication Capability, 26 under the category of Responsible and Sustainable Capability and 15 under the category of Research and Information Management Capability.

Some common themes were identified among the 189 additional capabilities. Thus, those capabilities that were suggested by at least two participants are listed in Table 5.12. Most commonly, the additional capabilities were elaborations on the original 28 capabilities listed in the survey questionnaire. It is evident that nineteen participants considered that the capability to explain the treatment plans and how Chinese medicine works to patients to be extremely important. In addition, the capability to understand western medicine examination reports was mentioned by ten participants.

Table 5.12: Additional capabilities suggested by the survey participants

	Additional capability*	No. of participants	%#
1	Explain the treatment plans and how Chinese medicine works to patients	19	28.8
2	Understand western medicine examination reports	10	15.1
3	Perform diagnosis and develop treatment plan according to Chinese medicine theory	9	13.6
4	Search up-to-date information relevant to Chinese medicine	8	12.1
5	Communicate with patients in fluent English	5	7.5
6	Attend seminars and/or pursue further studies	5	7.5
7	Read Chinese medicine classical literature	4	6.0
8	Give patients advice on diet and energy exercises	4	6.0
9	Learn Chinese	3	4.5
10	Knowledge of psychology	3	4.5
11	Understand the safety procedures for emergency (first aid)	3	4.5
12	Use computer to manage business	3	4.5
13	Listen to the patients	2	3.0

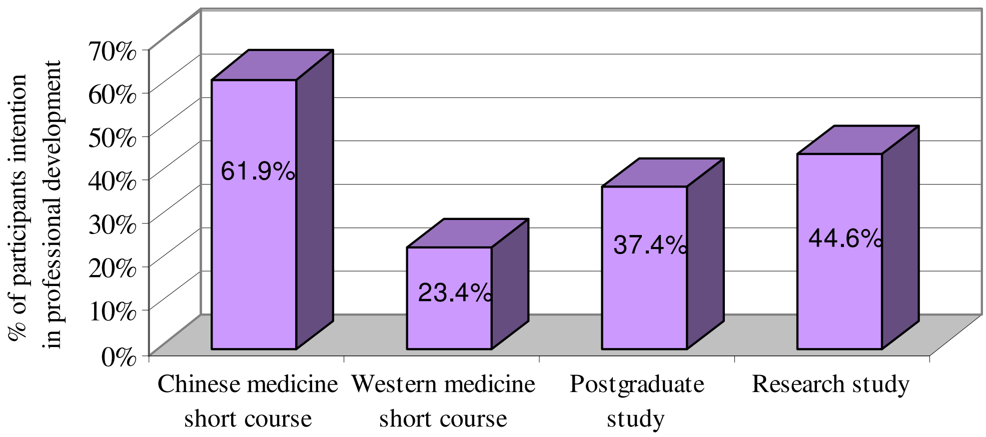
* only those capabilities that have been suggested by at least two participants are listed

\# of the total number of participants who had suggested additional capabilities (n=66)

5.3.6 Professional Development Needs

Participants were asked about their plans and needs for professional development in the next five years. As shown in Figure 5.7, nearly two-thirds (61.9%) of participants had considered a short course in Chinese medicine to update their clinical knowledge and skills. About half (44.6%) would like to conduct research studies to specialise in one or more clinical areas and to enhance practice. More than one-third (37.4%) had considered postgraduate studies to gain further qualifications. Undertaking short courses in Western medical sciences were also considered by nearly one-quarter of the participants (23.4%).

Figure 5.7: Professional development needs in the next five years



We found that the number of years of overseas practice experience and having an Australian qualification were significant factors which contributed to participants' intention to pursue professional development (Table 5.13). For example, those who had never practiced overseas were more likely to want to pursue postgraduate studies to gain further qualifications (45.8%) than those with less than 10 years overseas experience (31.6%, $p < 0.05$) and those had more than 10 years overseas experience (15.2%, $p < 0.05$). However, compared with the latter groups, participants without overseas experience were less likely to wish to pursue research studies (30.5%, 66.7% and 63.6% respectively, $p < 0 .05$, Table 5.13).

Similarly, those who had at least one Australian Chinese medicine qualification were more likely to pursue postgraduate studies (43.5%) than people without an Australian qualification (23.4%, $p<0 .05$), but less likely to pursue research studies (36.4% vs. 65.6%, $p<0.05$, Table 5.13). We also found that over half (56.4%) of participants aged 18 – 34 would like to engage in postgraduate studies, while less than one-third (32.8%) of people aged 35 – 54 and less than one-quarter (23.3%) of people aged 55 or older responded similarly ($p< 0.01$).

Significant variations were also observed in the professional development needs in undertaking short courses in Chinese medicine. That is, less than half (44.6%) of participants without an Australian qualification would consider short courses in Chinese medicine, whereas nearly two thirds (63.6%) of the participants with an Australian qualification higher than bachelor degree and more than four fifths (81.8%) of the participants with an Australian qualification less than bachelor degree would consider short courses in Chinese medicine ($p < 0.05$, Table 5.13). Similarly, compared to those with overseas practice experience, those who had never practiced overseas were more likely to want to take short courses in Chinese medicine for their future professional development needs (Table 5.13).

Table 5.13: Future professional development needs of the survey participants

Characteristic		Short courses in Chinese medicine (%)	Short courses in western medical sciences (%)	Postgraduate studies (%)	Research studies (%)
Gender	Female	66.7	28.4	43.2	41.1
	Male	57.7	19.5	33.3	48.0
Age	18-34	63.6	23.6	56.4*	36.4
	35-54	61.3	20.4	32.8	45.3
	55+	61.3	36.7	23.3	56.7
Qualification in Australia	None	44.6*	20.3	23.4*	65.6*
	< Bachelor	81.8	27.3	34.1	25.0
	≥ Bachelor	63.6	23.6	47.3	40.9
Qualification overseas	None	70.4*	25.0	44.4*	29.6*
	< Bachelor	63.2	10.5	50.0	47.4
	≥ Bachelor	47.9	27.8	20.8	66.7
Years of Practice in Australia*	<10 years†	63.0	24.4	48.8*	43.3
	10+ years	60.4	22.1	22.1	46.3
Years of Practice Overseas	Never	73.3*	22.9	45.8*	30.5*
	<10 years	49.1	24.6	31.6	66.7
	10+ years	38.2	21.2	15.2	63.6
Type of practice	Part-time practice	70.5	26.0	54.5	41.6
	Full-time practice	57.6	22.2	66.7	45.8

*: Significant difference between groups ($\chi 2$ test)

†: Including participants who had never practiced in Australia (n = 2)

% of total participants (n=228)

5.4 Discussion

There is no existing literature on practitioners' views of the importance of the desired Chinese medicine professional capabilities. The current study surveyed all registered Chinese medicine practitioners in the State of Victoria, Australia to obtain the views of existing practitioners regarding desired capabilities and to identify their continuing educational needs. The findings of this study may inform the development of Chinese medicine educational programs, and are of relevance to regulators who are increasingly concerned about mandating continuing professional development (such as the Victorian Health Professions Registration Act 2005) (The Parliament of Victoria, 2005) and ensuring that health professional education reflects the contemporary requirements of a changing health industry (Australian Government Productivity Commission, 2006). These findings may also be relevant to a broad range of health professionals beyond Chinese medicine practitioners, in particular regulators, CAM practitioners, medical and nursing practitioners and allied health workers.

The response rate of this postal survey study was 32.5%. The mailing list used in the current survey was provided by the Chinese Medicine Registration Board of Victoria and hence, the sampling frame was the totality of the eligible population.

5.4.1 Comparison between the Capability Survey and Workforce Study

The Workforce Study included all Victorian registrants as of December 2004 whereas the Capability Survey was conducted based on all Victorian registrants as of October 2005. During this time the number of registrants resident in Victoria had grown from 639 to 714. Although the Capability Survey was a sample taken ten months later, the basic demographic data of survey respondents did not differ appreciably from the profile of all Chinese medicine registrants found in the Workforce Study (see above Chapter 3). Specifically, males comprised 55.8% of the participants in the survey compared to 54.5% of registered Chinese medicine practitioners in Victoria ($p > 0.05$). In addition, the age profile of participants in the Capability Survey was almost identical to that of all Chinese medicine registrants in the Workforce Study, there being, 24.7% and 23.6% aged 18 – 34, 61.4% and 60.3% aged 35 – 64, and 13.9% and 16.1% aged over 64, respectively ($p > 0.05$). Therefore, it appears that the sample obtained in the Capability Survey can be considered representative of the population of Victorian registrants.

In relation to the educational background, approximately 70.1% of the Capability Survey participants had at least one Australian Chinese medicine qualification. This figure is similar to that reported in the 2006 Workforce Study which found that 66.4% of the current Chinese medicine practitioners who lived in the state of Victoria had at least one Australian qualification ($p > 0.05$). The proportions of the practitioners who had at least bachelor level training were also similar between these two studies, thus, 50% of the Capability Survey participants had at least a bachelor degree in Chinese medicine from Australia, while the 2006 Workforce Study found that 43.5% of the Victorian workforce had a qualification of bachelor degree or above from Australia ($p > 0.05$). The slightly higher figures in the Capability Survey were probably due the education characteristic of new graduates entering the profession but the differences were not statistically significant.

We also found a slightly higher proportion of the survey participants had received a qualification from overseas than that found in the 2006 Workforce Study. Specifically, 50.5% of the survey participants held an overseas qualification, with 66.4% of them holding a degree of bachelor and higher. These figures are somewhat higher than that in the Workforce Study, in which 34.9% held an overseas qualification and 61.0% of them held a degree of bachelor or higher. Therefore, overseas trained practitioners are somewhat overrepresented in the Capability Survey.

We were not able to compare the length of clinical practice of the surveyed participants with the existing workforce data. Nevertheless, the current workforce data suggest that up until the Transitional Arrangement period ended at the end of 2004, on average, practitioners who were required to provide evidence of clinical experience to support their registration had completed their primary qualification in Chinese medicine on an average of 13.3 years previously and 50.7% had graduated 10 or more years prior to 2006. In comparison, 43% of the current survey participants had more than 10 years clinical experience in Australia and 15.4% of them had more than 10 years overseas clinical experience. However, there is no combined figure for total length of practice. Since, the 52.0% of practitioners in the Workforce Study would not all have practiced continuously since graduation, the proportion of that had 10 or more years clinical practice would be considerably less and closer to the figure in the Capability Survey.

5.4.2 Practitioners' View on the Level of Importance of the Capabilities

Previous studies show that successful Chinese medicine practice in the West is underlined by the graduates' ability to integrate and consistently apply a number of capabilities beyond profession-specific skills and knowledge (C. C. Xue et al., 2006). We applied modified Holmes-Bonferroni analysis to reveal the significant differences in responding to the capability items that have been ranked as highest or lowest on importance (see above Chapter 5.2.4).

In relation to "very important" capabilities, seven technical capabilities and three responsible and sustainable capabilities were ranked the highest of importance, while none of the research and information management capabilities were ranked higher than four (i.e., important). On the other hand, communication capabilities were considered to be important, but not to the extent of very important.

It is important to note that young practitioners considered learning through experience and disease diagnosis capability particularly important, and lifelong learning was valued less by middle aged (35 – 54) participants. In addition, the country where practitioners' obtained their Chinese medicine education appears to be an important factor influencing their rating of the importance of a number of capabilities, in particular, communication capabilities. A much lower proportion of those without Australian qualifications considered communication capabilities to be important. This may be related to socialisation during the course of education, which in turn reflect differences in the value orientation in health professional education generally or in specific curriculum design (C. C. Xue et al., 2006). At the same time, it might also reflect self-selection, that is, Australian trained Chinese medicine practitioners choose to enter the profession because they consider it to offer a holistic approach to health-care in contrast to conventional health-care professions. These findings are consistent with a previous study comparing Chinese medicine tertiary education in Australia and China. They suggest that, Chinese medicine education in Australia shares a number of common features with that in China, but the location of education has an impact on its curriculum design as well (C. C. Xue et al., 2006). This is a matter that warrants additional exploration.

In relation to the "less important" capabilities, over one-third of male participants considered patient referral capability to be less important. This is a finding that will be of concern to health policy-makers, in the context of ensuring continuity of care and the most appropriate care. Young graduates rated higher identifying key business issues than did elderly practitioners. This may reflect their educational background and the early stage of their practice development. However, it is clear that participants without overseas experience would like to gain further qualifications, but were less willing to engage in research studies. In addition, participants with Australian qualifications would like to pursue postgraduate study, but not research. The motivation underlying selection of a particular course for professional development warrants further study.

5.4.3 Ranking of the Importance of the Capabilities within each Category

Technical Capabilities

Overall, technical capabilities were considered to be the most important aspects of clinical practice and the mean score of all twelve capabilities were over four, being a score of “important” or “very important”. It is understood that effective clinical practice is dependent on graduates' ability to integrate and consistently apply a number of capabilities beyond profession-specific skills and knowledge (Rochester, Kilstoff, & Scott, 2005). Thus, it is not surprising that technical capabilities (specifically, the ability to perform acupuncture treatment and/or prepare and dispense an herbal prescription) were considered to be the most important aspects of clinical practice, followed by the capability to formulate an appropriate Chinese medicine prescription.

We revealed numerous differences among participants with various demographic characteristics in their responses to these 12 technical capabilities. In general, the female participants, younger participants, those with an Australian qualification and those with less or no overseas experience considered each of the technical capabilities to be more important than their counterparts. Most noticeably, a significantly higher proportion of participants with at least one Australian qualification considered the technical capabilities to be important compared with the proportion of participants without any Australian qualification. Clearly, this finding reflects the diversity in the design of curriculum that exists between Chinese medicine training institutes in Australia and overseas.

As evidenced in the 2006 Victorian Chinese medicine workforce data, it is apparent that the Chinese medicine educational curricula and the disciplines in Chinese medicine training undertaken by the practitioners who had trained in Australia and overseas varied considerably. Only one third of Australian trained practitioners had undertaken courses in Chinese medicine classical literature, compared with over half of the overseas trained practitioners. In addition, the proportions of practitioners who had received specific training in the clinical Chinese medicine subjects including gynaecology, paediatrics, traumatology, dermatology, or ear, eye, nose and throat (ENT) disorders were diverse with a lower proportion of Australian trained practitioners having completed these subjects than their overseas counterparts. However, when rated for importance, it was the Australian trained practitioners who placed a higher value on capability in these technical areas. The reasons for this apparent anomaly probably lie in the relatively recent introduction of these clinical subjects into the curriculum in Australia and a consequent increased awareness of the need to undertake specific training in these areas. In the past, a lack of teaching resources and of highly-experienced teachers for these clinical courses in Australia were major contributing factors in these subjects not being specifically included in Australian curricula, but under the *Board's Course Approval Guidelines* these subjects became required components and educational providers have had to respond to these new requirements. Considering the level of awareness among practitioners of the need for capabilities in these clinical subjects, it would seem that ongoing professional education in these areas is warranted.

Those with an Australian qualification ranked TC8, the ability to "monitor the health of the patient and modify treatment accordingly" as more important than those without. Although this would seem to be a basic capability of all health care practitioners, and about 70% of oversees trained Chinese medicine practitioners also thought so, this discrepancy is notable. It is likely that this difference probably reflects a different emphasis in training between Australia and overseas (mainly China). In China, for example, a Chinese medicine practitioner is more like to work in a hospital setting and see a large number of different in-patients and out-patients. In such a practice setting the responsibility for monitoring patent progress would often fall to other staff and other healthcare workers. The main function of the Chinese medicine doctors is to diagnose and provide treatment. In Australia almost all practitioners are in private practise. In such a setting it is very important to maintain a connection with the clientele and follow up on the results of treatment. This result suggests that for overseas trained practitioners, professional development that focuses on monitoring a patient's health and the need for follow-up in the Australian context may be warranted. Moreover, from the point of view of providing effective treatment and quality health care, follow-up is a necessary component. Therefore, the introduction of measures that can encourage practitioners to follow-up on the results of their treatments would seem to be an effective approach to enhancing the general quality of Chinese medicine health care delivery.

Communication Capabilities

The four communication capabilities are considered important with a total average score of 4.0, being higher than the average score for research and information management capabilities but lower than the averages for the technical capabilities and the responsible and sustainable capabilities.

Since the 1970s it has been recognised that the quality of communication between doctors and their patients, and between fellow healthcare professionals and colleagues, influences the quality of healthcare (Kurtz, Silverman, & Draper, 2005). Many medical schools and medical continuing education providers have started to pay extra attention of the development of communication skills for medical students and doctors (Ladyshewsky & Gotjamanos, 1997; Levinson & Roter, 1993; van Dulmen & Holl, 2000; Winefield & Chur-Hansen, 2000). The focus on communication skills in medical training has been extended to form part of the United States Medical Licensing Examination (USMLE) (Makoul, 2003). Thus, the Examination requires students to demonstrate they can gather information from patients, perform a physical examination and communicate their findings to patients and colleagues (United States Medical Licensing Examination (USMLE)).

Similar to the findings for technical capabilities, the biggest variation in participants' response characteristics to the communication capabilities was with regard to the educational background. Specifically, it depended on where the participants had received their Chinese medicine training. Feedback provided by the survey participants suggested that communication skills have not been emphasised by the traditional teaching methods that are commonly employed in higher education settings in China. Indeed, recent research has indicated that role-playing as a teaching approach for health profession enhances the realism of technical skills training and leads to better patient-physician communication (Jacobsen, Baerheim, Lepp, & Schei, 2006; Nestel & Tierney, 2007; Nikendei et al., 2007). Such skill-focussed teaching has not been introduced into Chinese medicine higher education in China until relatively recently. Thus, our study suggested that less than half of those without an Australian qualification considered communication skills to be important, whereas the proportion was double in the Australian-trained survey participants.

The development of communication skills in an undergraduate curriculum is challenge, but many medical curricula do not introduce the teaching of communication skills until midway in the medical training (Humphris & Kaney, 2001). Accordingly, communication skills including patient interaction, managing information and working in teams were proposed by the Confederation of Postgraduate Medical Education Councils in 2006 as one of the three Australian curriculum frameworks for junior doctors (Graham et al., 2007). The need for communication skills has also been recognised in the *Board's Course Approval Guidelines* and also communication also forms part of the essential desired capabilities for Chinese medicine practitioners in the Capability Map (Appendix 3).

Three of the four communication capabilities (CC3, CC4, CC1) were included in the ten lowest ranked capabilities, and these were all ranked significantly lower by practitioners who had no Australian qualification (CC3 53.7%; CC4 59.7%). Therefore, over half of the practitioners in this group did not consider the ability to "refer patients to medical and other allied health professionals" and "communicate with fellow workers" to be important capabilities in their practice. The reasons for these differences cannot be clearly determined from the data but these responses suggest that these practitioners are relatively isolated in their practice with few connections with other Chinese medicine practitioners and other health care professionals and consequently few opportunities for consultation or referral. It is also probable that the results of this questionnaire underestimate the proportion of practitioners who have difficulties with communication since it is like that many such practitioners did not respond to the questionnaire. Whether this isolation is a result of language difficulties cannot be determined here but this warrants further investigation.

Since communication with other health care professionals, both within and without the Chinese medicine profession, is considered an important capability that also had implication for the delivery of safe, effective and responsible treatment. It appears that professional development activities that focus on these aspects of communication and target practitioners who have had no training in Australia are needed.

Responsible and Sustainable Capabilities

Those without an Australian qualification considered a number of capabilities within the category of responsible and sustainable capabilities to be less important than those with an Australian qualification. These include the capabilities to "remain financially viable" (RSC3 43.3%), to "identify business issues" (RSC4 58.2%), to "learn through experience" (RSC6 14.9%) and "lifelong learning" (RSC5 29.9%). Of these RSC4 was one of the ten lowest ranked capabilities.

Considering the importance of business related capabilities such as RSC3 and RSC4, the above finding appears surprising. However, it is likely to reflect differences in the working environment and employment status of Chinese medicine practitioners in China and in the developed countries including Australia. Thus, in China, most of the Chinese medicine practitioners are employed and work in hospitals with the status of registered medical doctor. In contrast, most Chinese medicine practitioners in Australia work as independent health service providers in the community, either self-employed or working within a multidisciplinary medical clinic.

The ability to understand multiple contexts in the lived experiences of patients and their communities is one of the key aspects of cultural competency in health care (Serizawa, 2007). Non-medically qualified Chinese medicine practitioners in Australia face an increasingly competitive healthcare market, particularly from those medical acupuncturists whose acupuncture treatments can be largely rebated by the universal Medicare coverage and from those manipulative therapies practitioners with nationwide statutory registration status such as chiropractic and osteopathic practitioners. Thus, in Australia, Chinese medicine is a business practice and the ability to maintain a viable ongoing business is a particularly important capability for Chinese medicine practitioners in Australia.

The field of academic medicine has clearly documented the need for medical education to prepare students for practice management (Hsu, Hosokawa, & Maria, 2007). Many of the Chinese medicine education providers in Australia have introduced relevant training in their undergraduate curriculum. Subjects such as small business management and professional issues are now part of the Chinese medicine curriculum. However, such subjects tend not to be inclusions in Chinese medicine training in China (see Chapter 3), so even though China-trained practitioners face the same business related issues as Australia-trained practitioners, they appear less conscious of the importance of these issues. From the point of view of professional development, the provision of training that focuses on developing and maintaining a private practice in Australia and responding to the challenges Chinese medicine practitioners face as members of a diverse healthcare workforce would appear warranted.

Almost 30% of those without an Australian qualification did not consider lifelong learning important. However, the importance of keeping up to date with developments in the various fields of health care would seem self-evident. Therefore it is likely that the lower level of importance attached to this aspect by this considerable proportion of practitioners is likely to reflect differences in learning experiences between Australia, where this concept is stressed, and China, where it is not. In addition, it may also represent an aspect of the isolation experiences by same overseas trained practitioners identifies above. It has been suggested that knowing how to learn is a more powerful indicator of capability than simple technical knowledge (Phelps, Hase, & Ellis, 2005). Consequently, measures that aim to raise awareness of the need for lifelong learning and foster an attitude of learning how to learn appear likely to assist such practitioners to extend their capabilities and may alleviate their isolation within the healthcare workforce.

Research and Information Management Capabilities

All six of the Research and Information Management Capabilities were included in the ten lowest ranked capabilities in terms of their importance to the practitioners surveyed. Of these capabilities, four can be considered closely linked to the procedures of research. RIMC5 "develop a research protocol" was considered less important by 68.3% of respondents; RIMC6 "disseminate research outcomes to different audiences" by 59.3%, RIMC2 "apply knowledge of methodological issues to Chinese medicine clinical research" by 49.8% and RIMC4 "apply knowledge of ethical issues surrounding Chinese medicine research" by 46.4% of respondents. There were no demographic differences in the responses to these items so there was general consensus among by practitioners regarding the relatively lower importance attached to these capabilities. Since the majority of practitioners are principally concerned with issues relating to clinical practice, these findings were not surprising.

Other capabilities are less specific and could be considered applicable to practitioners in clinical practice. The capability RIMC3 "critically review research publications relevant to Chinese medicine" was considered less important by 48.0% of respondents overall. However, significantly fewer of those who had an Australian post-graduate qualification (38.4%) took this view. This suggests that post graduate training results in an attitude change such that practitioners consider reading research publications to be more important to their practice. In addition, practitioners without post-graduate training may not lack interest in research but may not be confident in their ability to critically read such publications. In the case of RIMC1 "keep up to date with Chinese medicine research" the finding that only 29.3% considered this to be of lower importance does suggest that ability is the issue for around 20% of respondents but it remains a concern that almost 30% did not place a higher level of importance on keeping up with research in their field of practice.

As a clinically oriented workforce, practitioners principally seek to learn practical skills. So it was hardly surprising that most participants considered the ability to develop a research protocol, an element of the research and information management capabilities, to be only moderately important. In Chinese medicine, as with other clinically focussed disciplines, practitioners may disregard developing a research protocol as an essential capability, unless they are directly involved in research. Nevertheless, in recent years, there has been an increasing body of scientific evidence on Chinese medicine treatment from rigorously designed clinical research. Such research is of direct relevance to clinical practice and practitioners need to be able to avail themselves of the results of this research to inform their practice and improve the safely and efficacy of their treatments.

Critical thinking and research has been incorporated as a core component of the Royal Australian College of General Practitioners' training curriculum (The Royal Australian College of General Practitioners, 1999). In this survey, 30.7% of the Chinese medicine practitioners still considered the ability to develop a research protocol is important or very important, also, 44.6% indicated they were willing to undertake research studies to specialise in one or more clinical areas to enhance their practice. These data are similar to the findings reported among Australian general practitioners (GP), that 34% of the surveyed GPs expressed an interest in getting involved in general practice research (Silagy & Carson, 1989). A more recent study conducted in Queensland further suggested that some 84% of the GPs showed a positive attitude to research and 29% of them were willing to be involved (Askew, Clavarino, Glasziou, & Del Mar, 2002).

The application of theoretical knowledge in clinical management is a major challenge for medical undergraduates (Weller, 2004). However this challenge can be met by using appropriate teaching and learning methods (Kaufman, 2003). There is increasing discussion on the need for academic staff to take responsibility to promote and mentor research orientation in undergraduates (Blenkinsop, 2003). A survey in 2006 (Gartlan, Cooling, & Nelson, 2006) showed that 55% of Tasmanian general practitioner supervisors did not feel confident in supporting a registrar with a research project and that 53% of them were willing to improve their research skills. This study further recommended that GP supervisors without previous research experience may need assistance and resources to support their registrar medical doctors with research projects (Gartlan et al., 2006). This recommendation is particularly important for Chinese medicine training in Australia given the limited teaching and research resources are currently available.

In light of the increasing focus on evidence-based health practice around the world, a key present and future challenge for Chinese medicine education is to develop in Chinese medicine graduates research capabilities that not only enable them to undertake research as part of their studies but also tech them the skills required to access the research literature on an ongoing basis and read it critically to enable them to incorporate relevant findings into their clinical practice. Therefore, although the Chinese medicine profession is primarily clinically oriented, professional development in the research capabilities will need to be incorporated into the future core curriculum (C. C. Xue et al., 2008). Considering the relative recency of evidence-based developments in Chinese medicine, the provision of professional development training that aims at accessing and interpreting research findings and applying these in a clinical setting may also be of value to practitioners.

5.4.4 Additional Capabilities

Most of the additional capabilities suggested by respondents reiterated aspects of the 28 capabilities listed in the current survey. In general, participants were more likely to nominate technical capabilities and least likely to nominate research and information management capabilities. Respondents nominated 88 items which can be classed as technical capabilities and 60 items of communication capabilities. Of these, 13 were not specified in the original 28 capabilities and, mentioned by at least two participants as additional capabilities (see Table 5.12).

The most frequently nominated of the additional capabilities (by 19 participants) was a communication capability, namely, the ability to explain (to patients) treatment plans and how Chinese medicine works. The response reflects the nature of Chinese medicine as a relatively new therapeutic approach in Australia that many people have never been exposed to. In fact, for most patients, how acupuncture works remains mysterious. Anecdotally, the question "how does acupuncture work" is commonly asked by patients out of curiosity, even though they are unlikely to ask a medical doctor how aspirin or another western drug works. It appears that many participants have encountered such a situation and therefore consider this an important capability. While it could be expected that practitioners who have studied Chinese medicine should have little difficulty in explaining to their patients how Chinese medicine works, due the specific terminologies and concepts employed in Chinese medicine this is not necessarily straightforward, particularly for practitioners whose first language is not English. Previously, a number of communication capabilities were identified as requiring additional attention so this particular capability needs to be included in order that it receives sufficient focus in courses and in ongoing professional development.

Of the technical capabilities, 10 respondents identified "understanding western medicine examination reports" as an additional capability. Although this has been incorporated into the *Boards' Course Approval Guidelines* in recent years and consequently new graduates from Australian courses should have this capability, reading and interpreting the results of serological and other tests is likely to remain a challenge for many practitioners. Even those with training in Chinese hospitals could be expected to find difficulties in this area due to differences in terminologies and the format of test results. Consequently, this appears to be a gap in the technical capabilities of existing practitioners that could be filled by the provision of short courses in this area.

The third most frequently identified (9 respondents) technical capability "perform diagnosis and develop treatment plan according to Chinese medicine theory" is similar to TC2, TC4 and TC5 and suggests that some revision in the original capability map is required to more clearly delineate differences between these capabilities.

"Search up-to-date information relevant to Chinese medicine", which was identified by 8 participants, is similar to the research capability RIMC1 discussed above but since it does not specifically relate to research it would be more properly included under the category of Responsible and Sustainable capabilities. Compared with RIMC1 it could be expected that a broader range of practitioners would find this capability more relevant to their practice so it seems an important inclusion in future capability maps.

A number of the other less frequent additional capabilities should be used to inform revisions of the capability map but most can be considered as sub-sets or elaborations on already specified capabilities. For example, “attend seminars and/or pursue further studies” can be considered an aspect of RSC5.

5.4.5 Professional Development Needs

Reviews on the effectiveness of continuing medical education indicated that it appeared to be effective at the acquisition and retention of knowledge, attitudes, skills, behaviours and clinical outcomes (Marinopoulos et al., 2007). Short courses in Chinese medicine delivered by experts are already an important part of continuing education for Chinese medicine practitioners in Australia. Each year, experts from local or overseas are invited by professional associations to deliver seminars and short courses on a specific area of clinical practice or Chinese medicine classical literature (Federation of Chinese Medicine and Acupuncture Societies of Australia, 2007).

Short courses in Chinese medicine have been popular among practitioners and this trend seems to be continuing as nearly two thirds (61.9%) of the participants in the survey expressed an interest in such courses. Practitioners with a local Chinese medicine qualification, either lower than a bachelor (81.8%) or at least a bachelor degree and above (63.6%), and those who had never practised overseas (73.3%) were significantly more interested in participating in these specialised Chinese medicine short courses. While it not possible to determine the reason for this difference from the data derived from the questionnaire, the workforce survey found that many locally trained practitioners had not completed training in clinical subjects such as dermatology and paediatrics so it seem likely that there is an unfulfilled need for courses in these areas. However, further research is required to determine which of these clinical subjects are most in demand.

Less than one in four (23.4%) of the survey participants was interested in taking short courses in western medical sciences. Perhaps this reflects the fact that 93.3% of registered practitioners demonstrated evidence that they had received basic biomedical sciences training (see above Chapter 3.3.2.6). There was no association between participants' socio-demographic characteristic and their interest in pursuing western medical sciences training. Nevertheless, courses in some medically related areas, such as reading test results, seem to be required and there is a definite need to promote better communication between Chinese medicine practitioners and other health care professionals including western medical practitioners.

With regard to interest in undertaking postgraduate studies, it was gratifying but not surprising that this was strong among the younger practitioners (56.4% of those ages 18-34), those with less than 10 years practice in Australia (48.8%) and those with an Australian qualification of bachelor level or above (47.3%), most likely overlapping groups. It was also high among those who had an overseas qualification of less than a bachelor degree (50.0%) which suggests that these practitioners may feel the need to improve their skills by obtaining a local qualification.

However, respondents did not consider postgraduate study to be synonymous with research. Those most interested in research were older (56.7% of those aged 55 and over), tended not to have an Australian qualification (65.6%) but had an overseas qualification of bachelor level or above (66.7%) and had overseas practice experience (66.7% up to 10 years and 63.6% 10 years and over). Although research capabilities were not ranked highly overall, there was a high degree of interest in this group.

When considering the development of postgraduate courses in Chinese medicine, these results indicate that these fall into at least two different groups, those aimed at further developing clinically related capabilities and those focussed on research. Moreover, the demographic of those practitioners most interested in these kinds of courses vary considerably so educators will need to take these differences into consideration in both course development and recruitment.

5.4.6 Study Limitations

The current survey achieved a response rate of 32.5%, which is typical for most postal survey studies that do not use incentives. Even so, the most noteworthy shortcoming of the current survey is that two-thirds of the targeted population did not respond. This may have introduced a non-response bias towards the rating of the capability items. Despite the fact that the study sample was comparable to the target population on important demographic characteristics (see Results, Chapter 5.3.1), there may be non-demographic non-random variables that have influenced response that cannot be identified. For example, it has been proposed earlier that practitioners who tend to isolation may be less likely to respond to a survey. Therefore, interpretation of the findings from this study requires a degree of caution and a follow-up study in which additional measures to increase the response rate is needed.

Another issue the clarity of the meaning of postgraduate studies since it appeared to be understood differently by some participants. Some overseas-trained practitioners hold the view that postgraduate studies refer only to those beyond Masters' level training and this may have influenced their responses.

The list of 28 desired capabilities used in the questionnaire was considered comprehensive and representative of the *Chinese Medicine Course Approval Guideline* set by the Chinese Medicine Registration Board of Victoria. However, survey participants have pointed out that some capabilities needed to be better defined in order to be fully understood by all practitioners (e.g. the definitions of sustainability of Chinese medicine practice and the extent of the ability to develop a research protocol). It is also evident that the ability to refer to other health practitioners was initially listed as a technical capability, while in the questionnaire it was listed as an essential communication capability but this difference seems to be unlikely to have influenced responses.

While the capability survey has identified gaps in the capabilities of practitioners and pointed to the need for additional training via short courses or on-going professional development, these needs remain generally specified and further investigation is needed in order to ensure such courses satisfy all the needs of the various groups of practitioners.

5.4.7 Conclusions

Much educational research has been done for the Western medicine profession, however, in the USA, the concept of embedding desired essential capabilities into curriculum design is a recent development (Core Committee; Institute for International Medical Education, 2002). These essential capabilities are broadly similar to the capabilities included in the current study. For example, clinical (technical) skills, communication skills, information management and critical thinking and research skills have all been address in the current study. It has also been stated that such core competences (M. R. Schwarz & Wojtczak, 2002) would help to determine what teachers are supposed to teach, what students are expected to learn, and what educational experiences all physicians must have.

The literature review on Chinese medicine education (Chapter 4) revealed that limited research has addressed how Chinese medicine practitioners can meet the healthcare service needs of the community. An understanding of the desired capabilities of Chinese medicine practitioners in Australia or in other countries will become increasingly important for those educators and policy makers responsible for ensuring the provision of quality services that both meet the needs of consumers enhance linkages between the wide range of healthcare professionals who serve the community.

As noted earlier, the current project gathered input on the desired capabilities from existing Chinese medicine practitioners and aimed to identify their continuing educational needs. This study is the first conducted to inform the development of Chinese medicine educational programs by taking into account the perceptions of existing practitioners towards their professional capabilities and their needs for professional development. It has not only resulted in a capability map suitable for curriculum development it has also identified gaps in existing curricula and standards as well as providing indices of the importance placed on the various capabilities by professional practitioners. As such, the findings of this study represent a major step in the development of a capability-based undergraduate curriculum that can better meet the needs of the future Chinese medicine workforce. It also provides guidance on the differing needs of practitioners from a diversity of educational backgrounds which can inform the development and delivery of professional development programs and activities that can address capability gaps in the existing workforce and thereby enhance the safety and efficacy of practice.

In particular, communication has been identified as an issue both between practitioner and patient and between practitioners. The need for further education in the reading and interpreting of the results of medical tests and other laboratory investigations is another needs gap that, once addressed, could be expected to both improve communication and also enhance the accuracy and safety of treatment.

Inclusion, the current study surveyed all registered Chinese medicine practitioners in the State of Victoria, Australia and provides an in-depth perspective of the professional capabilities of Chinese medicine practitioners – a profession with increasing numbers of practitioners in other Western countries besides Australia. Since the practice settings of Chinese medicine practitioners in many other Western countries are similar to those in Australia, the views on capabilities reported by current practitioners can broadly inform educational curriculum design. However, the lack of recognition of the importance of research capabilities, particularly those associated with the application of research results to practice, will need to be addressed otherwise it may to hinder the development of Chinese medicine as an evidence-based healthcare profession.

CHAPTER 6. GENERAL CONCLUSION AND RECOMMENDATIONS

6.1 Overview

The sustainability of the health workforce has emerged as a major concern for policy makers worldwide (Chen, Evans, & Anand, 2004; Joyce, McNeil, & Stoelwinder, 2004). In order to inform workforce planning detailed data are periodically required on the demographic structure, distribution, and qualifications and nature of practice of the whole workforce. In addition, it is of crucial importance that healthcare practitioners be equipped to provide safe effective services that meet the needs of their clients as well as integrate into the overall health care framework of the state. Consequently, medical schools have begun to emphasise graduate outcomes and their capability as practitioners. To achieve these goals, the focus must be on the connection between the capabilities that need to be achieved by the end of the medical training and the learning and teaching techniques employed (Dowton, 2005). Therefore, an analysis of practitioner capabilities is not only of value to workforce planners but to educators, curriculum developers and educational administrators.

6.2 Limitations of this research

In previous chapters the limitations of Workforce Study (Chapter 3) and the Capability Study (Chapter 5) have been discussed separately. Therefore only the general limitations related to both studies are discussed in this Chapter.

Data collected in the Workforce Study and the Capability Survey were anonymous and personal information could not be identified. Thus, pooling data from these two studies and making cross-comparisons was not possible. In addition, one critical limitation of the Capability Study was that data were not collected on whether or not the applicant had applied for registration under the transitional arrangements, and on what category the participants had applied in (i.e. New Graduate Practitioner or Existing Practitioner). This limitation prevents comparison of the views on the desired capabilities held by different categories of practitioners.

Another shortcoming of the study is the workforce data are largely based on the original application forms provided by the practitioners for registration purpose, whereas the capability study is subjected to the common non-responder bias of a postal survey. The information available in the application forms was limited to the purpose of applying for registration. As a result, data on the practitioners' educational backgrounds was limited to their qualifications in Chinese medicine and the total length clinical experience was not requested. Nevertheless, the workforce data are digested from the registration board files thus are legally true records of all registered practitioners. Also, the capability data were obtained from a representative sample of the total registered practitioners.

6.3 General Discussion

The Workforce Study investigated the profile of all registered Chinese medicine practitioners in Victoria as of December 2004 using official records held by the Chinese Medicine Registration Board. It found that 639 practitioners were active at the time with acupuncture being practiced by almost all practitioners and Chinese herbal medicine by about 60%. Even though this was a newly regulated profession, the workforce was ageing. In contrast with many other health care and CAM professions it was male dominated but there was definite evidence of feminisation in the younger age groups. Practitioners were concentrated in urban areas, particularly those with high migrant populations of Asian origin. This reflected the origins of the considerable proportion of migrant practitioners. However, in the younger age groups, locally trained native English speaking practitioners tend to dominate so this pattern of distribution may change as the older, China trained practitioners retire. The availability of Chinese medicine in rural areas was low compared with other CAM especially for Chinese herbal medicine.

A diversity of qualifications and training backgrounds was evident, especially amongst those practitioners who has been registered by the Chinese Medicine Registration Board under the transitional ("grandparenting") arrangements. This was to be expected of a newly regulated profession. Even so, about 96% had received training of at least diploma level and almost 15% had postgraduate qualifications. Among recent graduates, over 83% had at least a bachelor degree. These figures tend to reflect a combination the maturity of this profession in China and its rapid professionalisation in Australia in recent decades. Since the present entry standard to the profession is bachelor degree, and those with lower level qualifications tend to be older, the overall standard of training in Chinees medicine can be expected to rise rapidly in coming decades.

To further explore to educational and training needs of the Chinese medicine workforce in Victoria a postal questionnaire survey was conducted to gather the views of the registered Chinese medicine practitioners' on the desired graduate capabilities and the needs for future professional development. The key findings were presented in Chapter 5 and have been recently published (C. C. Xue et al., 2008). A total of 228 Chinese medicine practitioners participated in this survey which represented a response rate of 32.5%. Based on the demographic characteristics of respondents, this survey was considered representative of the Victorian Chinese medicine practitioner population.

The basis for this survey was the development of a capability map that encompassed the knowledge, skills, learning outcomes and graduate attributes specified by the Chinese Medicine Registration Board in its *Course Approval Guidelines* and was additionally informed by other curriculum documents and comments from experts in Chinese medicine. The survey found that practitioners from all backgrounds rated their technical capabilities very highly while placing a lower value on research and information management capabilities. While it can be argued that a number of the research capabilities are less applicable to practitioners in clinical practice, there was also a relatively low awareness of the need to keep up to date with Chinese medicine research.

With regard to communication capabilities, these were less highly rated by overseas trained practitioners and probably reflect a combination of the language difficulties experienced by non English speaking background practitioners and differences in emphasis on these aspects in courses conducted in overseas and Australia. A similar difference was found for responsible and sustainable capabilities. This was most likely due to the absence of subjects such as professional development and small business management in many courses conducted in overseas. This conclusion was corroborated by the Workforce Study when academic transcripts from overseas courses were examined.

As a result of the Workforce Study and the Capability Survey a number of professional development needs were identified. As regards subjects in the Chinese medicine curriculum, the Australian trained existing practitioners tended to lack training in classical literature and had not completed the clinical specialty subjects. This reflects past curricula in Australia which tended to focus on acupuncture and treat clinical subjects a single curriculum item. As Chinese medicine education continues to develop in Australia more and more graduates will have completed these subjects but existing practitioners will need to study them as part of their continuing professional education. The absence of professional development and small business management subjects in many overseas Chinese medicine courses means that most overseas-trained practitioners have not completed these subjects and this was reflected in their relatively low awareness of the need for capabilities in these areas. Since these areas are key aspects of sustainable and responsible practice there is a clear need for professional development in these areas. In addition, it appears that overseas-trained practitioners require additional training in communication skills. This does not just include general English skills but more general professional capabilities with regard to communicating with other healthcare practitioners, patients and regulatory bodies.

6.4 Recommendations

The following specific recommendations emerge from the results of this research:

The aging of the Chinese medicine workforce needs to be addressed by encouraging new practitioners to enter the profession.

The proportion of practitioners qualified and registered in both the divisions of acupuncture and Chinese herbal medicine needs to be increased. This issue is also associated with workforce ageing since the Chinese herbal medicine practitioners are over represented in the higher age groups.

Practitioners need to be encouraged to establish practices in rural and remote areas and need to be encouraged to offer a wider range of Chinese medicine services, in particular Chinese herbal medicine.

Introduce training in professional issues for overseas trained practitioners, both existing practitioners and new registrants, in order to fill the skills gap identified, to promote the integration of these practitioners into the Australian health care system and ensure the sustainability of their practice.

Introduce professional development training that focuses on communication issues for overseas trained practitioners, both existing practitioners and new registrants.

Offer professional development training in clinical specialty subjects and classic literature which is aimed at locally trained practitioners who did not receive adequate undergraduate training in these subjects.

Promote awareness of the importance of research and the need for evidence based medicine in general. In particular, the importance of keeping up to date with Chinese medicine research and the need to apply the results of good quality research in clinical practice.

Further investigation of the Chinese medicine workforce is required with particular regard to scope and setting of practice, workload, systems of referral, other healthcare qualifications, income, rate of entry and exit from the profession, relative usage of different Chinese medicine practices (i.e. acupuncture, Chinese medicinal, traditional Chinese *tuina*), conditions treated, use of other therapies.

Based on the feedback received from practitioners with regard to desired capabilities, further development is required to refine the capability map to ensure it completely reflects the capabilities required of practitioners and keeps Chinese medicine curricula up-to-date with developments in the field.

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APPENDIX 1 PREDEFINED DATA TRANSFER SHEET

Items	Legends
Number	
Gender	
Age	
Postcode of principal clinic	
Postcode(s) of other clinics	
Division(s) applied for	
Practitioner/ New graduate	
Qualifications in CM	
Year of graduation	
Areas of study	
Criteria	
Length of practice	
Tax records	
Health provider rebate status	
Proprietor of premises registered for skin penetration	
Invoices/statements from supplier of Chinese herbs	
Professional indemnity insurance	
Membership of CM professional association	
Written record from employer	
10 non-identifying patient records	
Other evidence provided	
Statement from CM professional association	
Statement from employer	
20 non-identifying patient records	
Other evidence provided	
Examinations	
Claims for medical negligence in CM practice	

Other claims for medical negligence	
Health fund provider rebate status	
Complaints to health services commissioner	
Alcoholic and drug-dependant persons	
Indictable and other offences	
Unfinalised proceedings	
Fitness to practice	
First language	
Speaking English	
Writing English	
Reading English	
Competence in communicating in English	
Evidence of competence	
Effective communication with emergency services	
Effective communication with patients	
Availability of First Aid	
Equivalent right to practice in another jurisdiction	
Current registration with other professional boards	
Previous registration with other professional boards	
Professional associations	
Insurance details	
Other relevant information	
Approved for registration	
Date of data transfer	
Entered by:	
Signature:	
Registrar or her nominee sign:	
Date of data entry	
Entered by:	
Signature:	

APPENDIX 2 SPECIFICATION OF LEGENDS FOR THE VICTORIAN CHINESE MEDICINE WORKFORCE DATABASE

Part A: Applicant's Details

Personal Details
Gender

Legends	Description
1 = Male	Tick the 'Male' box
2 = Female	Tick the 'Female' box

Date of Birth (transfer to Age at 2006)

Other Names
Not required.

Division of Acupuncturists
Division of Chinese Herbal Medicine Practitioners

Legends	Description
1 = Division of Acupuncturists	Tick 'Yes' box in 3.
2 = Division of Chinese Herbal Medicine Practitioners	Tick 'Yes' box in 4.
3 = Both	Tick 'Yes' boxes in both 3 and 4

Legends	Description
1 = New Graduate	Tick the box of 'as a New Graduate' in 3 or 4.
2 = Existing Practitioner	Tick the box of 'as a Existing Practitioner' in 3 or 4.

Contact Details (Open to Public Inspection)
Contact Details (Not Open for Public Inspection)

Practice Details

'Post code of practice site' required only. If more than one practice places, the postcode shown in 'Clinic 1' will be given priority. All the other postcodes will be entered into the database in a separate column.

Details of any Current Registration
Not required.

Details of any Previous Registration
Not required.

Details of Unsuccessful Applications
Not required.

Part B: New Graduates (Qualifications)
See 'Qualifications in Chinese Medicine' table.

Part C: Existing Practitioners (Qualifications and Experience)

Division(s) of Register

Legends	Description
1 = Division of Acupuncturists	Tick 'Division of Acupuncturists'
2 = Division of Chinese Herbal Medicine Practitioners	Tick 'Division of Chinese Herbal Medicine Practitioners'
3 = Both	Tick 'Division of Acupuncturists' and 'Division of Chinese Herbal Medicine Practitioners'

Formal Qualifications in Acupuncture
Formal Qualifications in Chinese Herbal Medicine
Other Studies Relevant to the Practice of Chinese Medicine
Apprenticeship
Qualifications in Chinese Medicine

Legends	Description
1=Local Degree	Bachelor degree in Chinese herbal medicine or acupuncture awarded in Australia
2=Local Advanced Diploma	Advanced diploma in Chinese herbal medicine or acupuncture awarded in Australia
3=Local Diploma	Diploma in Chinese herbal medicine or acupuncture awarded in Australia
4=Overseas Degree	Bachelor degree in Chinese herbal medicine or acupuncture NOT awarded in Australia
5=Overseas Advanced Degree	Advanced diploma in Chinese herbal medicine or acupuncture NOT awarded in Australia
6=Overseas Diploma	Diploma in Chinese herbal medicine or acupuncture NOT awarded in Australia
7=Relevant Australian Postgraduate Qualification	Relevant postgraduate qualification awarded in Australia or overseas
8=Relevant Overseas Postgraduate Qualification	Relevant postgraduate qualification awarded in Australia or overseas
9=Other Relevant Qualification	Any other relevant qualification awarded in Australia or overseas
10=Apprenticeship	Training in Chinese herbal medicine or acupuncture with an experienced person
11=No Qualification	No qualification available

Areas of Study

Legends	Description
1=Chinese Medicine Theoretical Paradigm	Including Terminology of Chinese medicine, History of Chinese medicine, Principles of Chinese medicine, and Diagnosis in Chinese medicine.
2=Acupuncture	Including Channel and acupuncture point theory, Needling theory and practice, moxibustion and cupping theory and practice, and Acupuncture microsystem.
3=Chinese Herbal Medicine	Including Materia medica Chinese medicine, Chinese medicinal formulae, and Dispensing Chinese medicinal substances.
4=Tui Na (Chinese Therapeutic Massage)	Tui Na subject.
5=Chinese Medicine Classic Literature	Including Huang Di Nei Jing, Shang Han Lun, Jin Gui Yao Lue, Wen Bing Xue and Zhen Jiu Jia Yi Jing.
6=Basic and Biomedical Sciences	Including Cell biology, Biochemistry and molecular biology, Anatomy, Physiology, Microbiology, Pathology, Pharmacology and toxicology, Phyto-chemistry and pharmaceutics, Diagnosis in Western medicine, Radiology and imaging, Laboratory diagnosis, Clinical western and Clinical biomedicine.
7=Clinical Chinese Medicine	Including Internal Medicine, Gynaecology and obstetrics, Paediatrics, Traumatology, External medicine, Dermatology, and Ear, eye, nose and throat disorders.
8=Clinical Training – General Description	Including Managing patients and patient records, Managing equipment used in treatment, Assessing a patient, gathering clinical information and clinical decision-making, Performing acupuncture treatment, and Dispensing prescriptions.
9=Professional Development and Other Areas of Study	Including Research methods, Ethical and professional issues, First aid, Small business management, and Communication and counselling.

Professional Competence
'Approved Evidence' (Length of Practice)
'Approved Evidence' (Competence to Practice)
Experience in Chinese Medicine

Legends	Description
1=Yes	If the relevant evidence shown
2=No	If the relevant evidence not shown

Criteria for Application

Legends	Description
0=New graduate	Graduated end of 2001 academic year onwards and practiced zero years
1=A	'Proof of practice' applicant: minimum 10 years professional practice

2=B	'Proof of practice' applicant: qualification from Australia or overseas that meets the approval of the Board and minimum 5 years professional practice
3=C	'Accredited course' applicant: graduate of accredited course in Australia only, graduated between 1st January 97 and the end of the 2001 academic year
4=D	'Pre-accredited course' applicant: graduate of non-accredited course in Australia only, graduated between 1st January 97 and the end of the 2001 academic year where the course was not accredited at time of graduation but has since obtained accreditation
5=E	'Proof of practice' applicant: graduate of non-accredited course in Australia or overseas, graduated between 1st January 97 and the end of the 2001 academic year

Examination(s)

Legends	Description
1 = Yes	Tick 'Yes' box.
2 = No	Tick 'No' box.

Part D: Matters taken into Consideration

Claims for Medical Negligence in the Practice of Chinese Medicine

Legends	Description
1=Yes	Tick 'Yes' box.
2=No	Tick 'No' box.

Other Claims for Medical Negligence

Legends	Description
1=Yes	Tick 'Yes' box.
2=No	Tick 'No' box.

Health Fund Provider Rebate Status

Legends	Description
1=Yes	Tick 'Yes' box.
2=No	Tick 'No' box.

Complaints to Health Services Commissioner

Legends	Description
1=Yes	Tick 'Yes' box.
2=No	Tick 'No' box.

Alcoholic and Drug Dependent Persons

Legends	Description
1=Yes	Tick 'Yes' box.
2=No	Tick 'No' box.

Indictable and Other Offences

Legends	Description
1=Yes	Tick 'Yes' box.
2=No	Tick 'No' box.

Unfinalised Proceedings under Part 3 of the Act

Legends	Description
1=Yes	Tick ‘Yes’ box.
2=No	Tick ‘No’ box.

Fitness to Practise

Legends	Description
1=Yes	Tick ‘Yes’ box.
2=No	Tick ‘No’ box.

Proficiency in English

First Language

Legends	Description
0=English	First language is English
1=Mandarin	First language is Mandarin Chinese
2=Cantonese	First language is Cantonese Chinese
3=Vietnamese	First language is Vietnamese
4=Greek	First language is Greek
5=Italian	First language is Italian
99=Other	First language is not listed in 0-5

Question a), b) and c):

Legends	Description
0=English is first language	Question not answered
1=Fluent	Tick ‘Fluent’ box in a) or b) or c).
2=Average	Tick ‘Average’ box in a) or b) or c).
3=Minimal	Tick ‘Minimal’ box in a) or b) or c).

Question d):

Legends	Description
0=Question not answered	Question not answered
1=Yes	Tick ‘Yes' box.
2=No	Tick ‘No' box.

Legends	Description
0=Question not answered	Question not answered
1=I.E.L.T.S.	Tick ‘I.E.L.T.S.’ box.
2=A.S.L.P.R.	Tick ‘A.S.L.P.R.’ box
3=Education	Tick ‘Education’ box
4=TOEFL	Tick ‘TOEFL’ box
5=Immigration English course	Based on the information shown under ‘Other’
6=Other	Tick ‘Other’ box and nothing relevant to 1-5

Effective Communication with Emergency Services

Legends	Description
1=Yes	If tick the box.
2=No	If box not ticked.

Effective Communication with Patients

Legends	Description
1=Yes	Tick ‘Yes’ box.
2=No	Tick ‘No’ box.

Availability of First Aid

Legends	Description
1=Yes	Tick ‘Yes’ box.
2=No	Tick ‘No’ box.

Professional Conduct

Equivalent right to practice in another jurisdiction

Legends	Description
1=Yes	Tick ‘Yes’ box.
2=No	Tick ‘No’ box.

Current registration with other professional boards

Legends	Description
1=Yes	Tick ‘Yes’ box.
2=No	Tick ‘No’ box.

Previous registration(s) with other professional boards

Legends	Description
1=Yes	Tick ‘Yes’ box.
2=No	Tick ‘No’ box.

Professional associations

Legends	Description
1=Yes	Tick ‘Yes’ box.
2=No	Tick ‘No’ box.

Insurance Details (Professional Indemnity Insurance)

Legends	Description
1=Yes	The box, ‘I currently have, or am covered as an employed by, professional indemnity insurance to the approved level of cover specified by the Board in its guidelines. I have set out the required information in relation to my current insurance on the next page’, was ticked.
2=No	The box, ‘I am NOT currently covered by professional indemnity insurance to the approved level of cover specified by the Board in its guidelines’, was ticked.

Other Relevant Information

Legends	Description
1=Yes	Tick ‘Yes’ box.
2=No	Tick ‘No’ box.

APPENDIX 3 CAPABILITY MAP

DIMENSION OF CAPABILITY
TECHNICAL CAPABILITY
1.1 An ability to describe normal human structure and functions and their relevance to Chinese medicine practice
1.2 An ability to apply knowledge of Chinese and western medicine principles and diagnosis skills in diagnosis of disease
1.3 An ability to formulate an appropriate acupuncture and/or herbal prescription based on an understanding of the components, indications and contraindications of a number of commonly used acupuncture technique, herbs and formulae
1.4 An ability to develop specific treatment plans based on individual patients' condition/ presentation
1.5 An ability to diagnose and differentiate diseases/ disorders of internal medicine, gynaecology, paediatrics, ENT and ophthalmology, traumatology and dermatology, according to both western and Chinese medicine principles and techniques and formulate an appropriate acupuncture and/or Chinese herbal medicine treatment plan
1.6 An ability to formulate a treatment plan including time-lines for treatment and review
1.7 An ability to give nutrition and dietary and preventive medicine advice in terms of Chinese medicine knowledge for all areas of Chinese medicine covered in the program
1.8 An ability to review and monitor the health of the patient and modify treatment accordingly
1.9 An ability to refer to other practitioners, particularly medical practitioners, when appropriate in a timely manner
1.10 An ability to perform acupuncture treatment procedures and/or prepare and dispense a Chinese herbal prescription
1.11 An ability to independently acquire technical knowledge about other diseases not necessarily covered by the program
1.12 An ability to modify a herbal formulae and/or treatment plan based on an understanding of the components, indications and contraindications of currently used Western medications and potential interaction among these therapies
COMMUNICATION CAPABILITY
2.1 An ability to appropriately apply Chinese and western medical terminologies in practice
2.2 An ability to communicate (bilaterally) effectively with patients, other health professionals, regulatory bodies, herbal /acupuncture instrument suppliers and the general public
2.3 An ability to refer to medical and other allied health professionals
2.4 An ability to communicate effectively with fellow workers
RESPONSIBLE & SUSTAINABLE PRACTICE CAPABILITY
3.1 An ability to educate consumers of Chinese medicine matters related to sustainability of CM practice
3.2 An ability to practise within regulatory/ ethical/ safety frameworks
3.3 An ability to remain financially viable

3.4	An ability to identify key business issues and draw on appropriate professional resources
3.5	An ability to continue to learn (lifelong learning) and learn from experience (reflective learning)
RESEARCH & INFORMATION MANAGEMENT CAPABILITY	
4.1	An ability to describe methodological issues on Chinese medicine clinical research
4.2	An ability to remain informed about acupuncture and herbal medicine and advances in knowledge and apply it in clinical practice where appropriate
4.3	An ability to critically review research publications relevant to Chinese medicine
4.4	An ability to describe the steps involved in research into Chinese medicine within an ethical framework
4.5	An ability to describe the process of a grant application
4.6	An ability to disseminate or communicate research processes and findings to peers and other professionals, industry, community and government in an ethical manner

APPENDIX 4 QUESTIONNAIRE FOR CAPABILITY SURVEY

RMIT University

皇家墨尔本理工大学
Division of Chinese Medicine
中医系

Questionnaire:
Validation of Practitioner Capabilities in Chinese Medicine

合格中医师必备能力问卷

2005

You are invited to participate in this survey on “Practitioner Capabilities in Chinese Medicine”. This survey is part of a project that aims to gather information about practitioners’ expected capabilities in Chinese medicine. Your participation and input as a registered Chinese medicine practitioner will contribute greatly to the development of a common framework of graduate capabilities for Chinese medicine education in Victoria.

This questionnaire consists of two sections, the first section is “Practitioner Capabilities”, including problem solving, communication, sustainability of practice, information management and other skills. The second section is “Demographic Information”.

“Practitioner capabilities” refer to the abilities to provide safe and competent Chinese medicine clinical service to the public within Australian health care system.

Your participation is completely **voluntary**. There will be no personal identifiable information of the participants included in future publication or presentation from this study. Please answer all questions from a practitioner’s perspective and return it by **25 November 2005**, using the enclosed reply-paid envelope, to:

Chinese Medicine Education Project - Capability

RMIT Chinese Medicine Research Group

Division of Chinese Medicine

School of Health Sciences

RMIT University

P O Box 71, Bundoora, VIC. 3083

Thank you for your time and participation!

Regards,
Chinese Medicine Research Group

感谢您参与“合格中医师必备能力问卷”。这次调查的目的是为了明确合格中医师的必备能力。作为一名注册中医师，您的参与对于维州中医教育的未来和毕业生能力的评估是极有帮助的。

此问卷分为两部分，第一部分是“合格中医师必备能力”，其中包含解决问题的能力、语言及书面沟通能力、可以持续行医的能力、信息管理及其他的能力。第二部分是“注册中医师一般情况”。

“合格中医师必备能力”是指在澳大利亚医疗保健系统内向民众提供安全和高水平中医诊疗的综合能力，

参与本项研究是**完全自愿**的**。**本项研究的有关论文或演讲都不会提供任何参与者的个人信息。请您从注册中医师的角度回答所列出的问题，并在 **2005 年 11 月 25 日**前回复。请使用已付邮资信封寄至 RMIT 大学中医系，地址如下：

Chinese Medicine Education Project - Capability

RMIT Chinese Medicine Research Group

Division of Chinese Medicine

School of Health Sciences

RMIT University

P O Box 71, Bundoora, VIC. 3083

衷心感谢您的参与!

RMIT 大学中医研究组

Section A: Practitioner Capabilities

A 部分：合格中医师必备能力

The following is a suggested list of core practitioner capabilities that were elsewhere described. Please rate the importance of the following items/statements as graduate capabilities by using the following scale: **1=Not important, 2=Little important, 3=Moderately Important, 4=Important, 5=Very Important.** Please add additional capabilities that you consider important at the end of the relevant category and rate the importance. Note that capability statement is different from details of knowledge and skills.

以下是关于合格中医师必备能力的问卷。请用如下标准评估这些毕业生必须具备的能力：1=不重要、2=不太重要、3=比较重要、4=重要、5=非常重要。如有其他能力不包括在本问卷之内，请在每一类别之后添加您认为重要的能力并评估其重要程度。请注意这里所指的是总体能力，而不是具体的知识与技能。

Not Important 不重要	Little important 不太重要	Moderately Important 比较重要	Important 重要	Very Important 非常重要
1	2	3	4	5

1. Technical Capability 技能	1	2	3	4	5
1.1 An ability to describe normal human structure and functions and their relevance to Chinese medicine practice. 描述正常的人体结构与功能以及它们与中医临床的相关性的能力					
1.2 An ability to apply knowledge of Chinese and western medicine principles and diagnosis skills in diagnosis of disease. 应用中医和西医理论与诊断技能进行临床诊断的能力					
1.3 An ability to formulate an appropriate acupuncture and/or herbal prescription based on an understanding of the components, indications and contraindications of a number of commonly used acupuncture technique, herbs and formulae. 在理解常用的针灸技术、中药和方剂的组成、适应症和禁忌症的基础上开出合适的针灸和中药处方的能力					

Not Important 不重要	Little important 不太重要	Moderately Important 比较重要	Important 重要	Very Important 非常重要
1	2	3	4	5

1. Technical Capability 技能	1	2	3	4	5
1.4 An ability to develop specific treatment plans based on individual patients' condition/presentation. 依据每个病人的不同情况制定治疗方案的能力					
1.5 An ability to diagnose and differentiate diseases/ disorders of internal medicine, gynaecology, paediatrics, ENT, ophthalmology, traumatology and dermatology, according to both western and Chinese medicine principles and techniques and formulate an appropriate acupuncture and/or Chinese herbal medicine treatment plan. 应用西医和中医的理论与技术对内科、妇科、儿科、耳鼻喉科、眼科、骨伤科和皮肤科疾病进行诊断并制定适当的针灸和/或中药治疗方案的能力					
1.6 An ability to formulate a treatment plan including time-lines for treatment and review. 制定治疗方案包括安排治疗和复查的时间表的能力					
1.7 An ability to give nutrition and dietary and preventive medicine advice in terms of Chinese medicine knowledge for all areas of Chinese medicine. 根据中医理论提出食疗和预防建议的能力					
1.8 An ability to review and monitor the health of the patient and modify treatment accordingly. 复查和把握病人的健康状况，从而修正治疗方案的能力					
1.9 An ability to refer to other practitioners, particularly medical practitioners, when appropriate in a timely manner. 在适当的时候，及时将病人转介给其他临床医师尤其是西医师的能力					
1.10 An ability to perform acupuncture treatment procedures and/or prepare and dispense a Chinese herbal prescription. 施行针灸治疗和/或配中药处方的能力					

Not Important 不重要	Little important 不太重要	Moderately Important 比较重要	Important 重要	Very Important 非常重要
1	2	3	4	5

1. Technical Capability 技能	**1**	**2**	**3**	**4**	**5**
1.11 An ability to independently acquire technical knowledge about other diseases not necessarily covered by the college program. 独立学习治疗其他疾病的知识和技术的能力(课程之外的疾病)					
1.12 An ability to modify herbal formulae and/or treatment plan based on an understanding of the components, indications and contraindications of currently used western medications and potential interaction among these therapies. 在理解病人目前使用的西药的组成、适应症和禁忌症，以及治疗中的中西药潜在相互作用的基础上修正中药方剂和治疗方案的能力					
Please add additional capabilities that you consider are important and, rate the importance（either in English or Chinese）. 请添加您认为重要的能力并评价其重要程度(中英文填写均可)。					
Additional Capability 1: 其他能力 1：					
Additional Capability 2: 其他能力 2：					

Not Important 不重要	Little important 不太重要	Moderately Important 比较重要	Important 重要	Very Important 非常重要
1	2	3	4	5

2. Communication Capability 沟通能力	**1**	**2**	**3**	**4**	**5**
2.1 An ability to appropriately apply Chinese and western medical terminologies in practice 在行医时正确运用中西医医学术语的能力					
2.2 An ability to communicate (bilaterally) effectively with patients, other health professionals, regulatory bodies, herbal /acupuncture instrument suppliers and the general public 同病人、其他医务工作者、政府机构、中药/针灸用品供应商和公众进行有效沟通的能力					
2.3 An ability to refer patients to medical and other allied health professionals 转介病人去西医或其他相关医疗部门的能力					
2.4 An ability to communicate effectively with fellow workers 与同事进行有效沟通的能力					
Please add additional capabilities that you consider are important and, rate the importance（either in English or Chinese）. 请添加您认为重要的能力并评价其重要程度(中英文填写均可)。					
Additional Capability 1: 其他能力 1：					
Additional Capability 2: 其他能力 2：					

Not Important 不重要	Little important 不太重要	Moderately Important 比较重要	Important 重要	Very Important 非常重要
1	2	3	4	5

1. Responsible & Sustainable Practice Capability 可以持续行医的能力	1	2	3	4	5
3.1 An ability to educate consumers of Chinese medicine matters in order to promote sustainability of CM practice 向病人解说中医的内容，从而促进中医的可持续性发展 的能力					
3.2 An ability to practise within regulatory/ ethical/ safety frameworks 在法规、伦理和安全的规范内行医的能力					
3.3 An ability to remain financially viable 管理财务并保持生意发展的能力					
3.4 An ability to identify key business issues and draw on appropriate professional resources 找出生意发展的关键问题并能够寻求正确专业帮助的能力					
3.5 An ability to participate to continue to learn (lifelong learning) 继续学习的能力					
3.6 An ability to learn through experience (reflective learning) 从实践中学习的能力					
Please add additional capabilities that you consider are important and, rate the importance（either in English or Chinese）. 请添加您认为重要的能力并评价其重要程度(中英文填写均可)。					
Additional Capability 1: 其他能力 1：					
Additional Capability 2: 其他能力 2：					

Not Important 不重要	Little important 不太重要	Moderately Important 比较重要	Important 重要	Very Important 非常重要
1	2	3	4	5

2. Research & Information Management Capability 研究及信息管理的能力	1	2	3	4	5
4.1 An ability to keep up-to-date with Chinese medicine research and apply it in clinical practice where appropriate 跟进中医研究新进展并在实践中合理应用的能力					
4.2 An ability to apply knowledge of methodological issues to Chinese medicine clinical research 将方法论应用于中医临床研究中的能力					
4.3 An ability to critically review research publications relevant to Chinese medicine 批判地分析中医文献的能力					
4.4 An ability to apply knowledge in ethical issues surrounding Chinese medicine research 在中医研究上应用伦理知识的能力					
4.5 An ability to develop a research protocol 撰写中医研究方案的能力					
4.6 An ability to disseminate research outcomes to different audiences 向不同听众讲述研究成果的能力					
Please add additional capabilities that you consider are important and, rate the importance（either in English or Chinese）. 请添加您认为重要的能力并评价其重要程度(中英文填写均可)。					
Additional Capability 1: 其他能力 1：					
Additional Capability 2: 其他能力 2：					

Section B: Demographic Information

B 部分: 注册中医师一般情况

Please tick the box and/or write down details in the space provided.
请在方框内打勾或在空格内填写答案。

1. What is your gender?
您的性别是什么？

Male 男 ☐

Female 女 ☐

2. Do you have any academic qualification as a Chinese medicine practitioner?
作为一名中医师，您有相关中医学历教育背景吗？

Yes 有 ☐

No 无 ☐

If yes, please tick the appropriate box below (You may choose multiple answers):
如果有，请在相对应的空格内打勾

	In Australia 澳洲		Overseas 海外	
	Yes 有	No 无	Yes 有	No 无
Short course (non-award) 短期课程	☐	☐	☐	☐
Certificate 证书	☐	☐	☐	☐
Diploma 文凭	☐	☐	☐	☐
Advanced diploma 大专	☐	☐	☐	☐
Bachelor degree 学士学位	☐	☐	☐	☐
Postgraduate certificate/diploma 研究生证书/文凭	☐	☐	☐	☐
Masters degree 硕士学位	☐	☐	☐	☐
PhD degree 博士学位	☐	☐	☐	☐

3. What is your age?
您的年龄属于

18-24 ☐	25-34 ☐	35-44 ☐
45-54 ☐	55-64 ☐	65+ ☐

4. How many years have you been practising as a Chinese medicine practitioner in Australia?
您作为中医师在澳洲行医多少年了？

Never practised in Australia	还未在澳洲行医	☐
Less than 5 years	少于 5 年	☐
5-9 years	5-9 年	☐
10-14 years	10-14 年	☐
Over 15 years	15 年以上	☐

5. How many years did you practise as a Chinese medicine practitioner overseas prior to starting your practise in Australia?
来澳前您在其他国家执业中医多少年？

Never practised overseas	从未在其他国家行医	☐
Less than 5 years	少于 5 年	☐
5-9 years	5-9 年	☐
10-14 years	10-14 年	☐
Over 15 year	15 年以上	☐

6. In which division(s) of Chinese Medicine do you practise? (You may choose multiple answers)
您行医的范围包括（可多选）：

Acupuncture	针灸	☐
Chinese herbal medicine	中药	☐
Chinese therapeutic massage	中医推拿	☐
Chinese medicine dietary therapy	中医食疗	☐

Other (please specify):
其他（请注明）： ______________________

7. Do you practise full-time or part-time?
您是全职中医师还是兼职?

Full-time 全职 ☐
Part-time 兼职 ☐

If you practise part-time, how many hours do you work per week as a Chinese medicine __________ practitioner?

如是兼职，您平均每周工作_______小时。

8 What are your plans and needs for your professional developments within the next five years:
在未来的五年内，您有什么中医职业发展计划和需要?

Short courses in Chinese medicine to update my clinical knowledge and skills ☐
中医短期课程，以更新临床知识和技能

Short courses in western medical sciences to ensure safe practice ☐
西医短期课程，以确保安全行医

Postgraduate studies to gain further qualifications ☐
研究生课程，以获得更高的学历

Research studies to specialise in one or more areas to enhance practice ☐
专门对某一领域或多个领域进行研究，以加强临床实践

APPENDIX 5 INETRVIEW WITH CHINESE MEDICINE EDUCATORS

- Ask for agreement of using digital recorder.

- Introduce Ethics approval of the interview and ask for the agreement of using the recorder during the interview

- Introduce research outline, including (2-3 mins)

  Research objectives

  Methodology

  What outcome expected from the interview

- About questionnaire, (7 -10 mins)

  I know you have completed all the questions in the questionnaire, as an educator, I'd like to talk to you further on this issue.

  1) Do you think we have clearly described required capabilities of CM graduates in the questionnaire?

     If not, why?

  2) What is the most important aspect in each section to reflect the real capacity of a graduate?

     Technical:

     Communication:

     Sustainability of practice:

     Information management and other skills:

  3) Any other suggestion?

- What are the strengths of existing Chinese medicine education in Australia? (20-30 mins)

- What are the weaknesses of existing CM education in Australia?

- Would the recommended capabilities address the weakness?

- What are the challenges on implementing the capability-based-curriculum?

- What is your understanding of capability-based-curriculum?

- What is your general view on capability-based-curriculum?

- Would the capabilities listed in questionnaire have adequate resource and qualified academic staff to improvement the capability-based-curriculum?

- Is the current CM Registration Board in Victoria and course approval access regulation adequate?

  If yes, why? What is the evidence?

  If not, what improvement required?

- As an educator, what is your vision of future setting of CM clinical practice?

  That means if it should be practised independently or integrated with conventional Medicine?

- Is there any other questions you'd like me to ask?

APPENDIX 6 PLAIN LANGUAGE STATEMENT FOR THE CHINESE MEDICINE GRADUATE CAPABILITY SURVEY

Validation of Practitioners capabilities in Chinese medicine education

Dear Participant:

My name the Iris Zhou, a Master of Applied Science by research student at the Division of Chinese Medicine, School of Health Science, RMIT University. I am writing to invite you to participate in a study entitled **"Validation of core graduate capabilities in Chinese medicine education".** My supervisors are Associate Professor Charlie Xue and Professor Alex Radloff.

This study aims to validate the core practitioners capabilities needed for effective Chinese Medicine (CM) practice in Victoria that satisfy requirements set by the regulatory body and professional organisations. In addition, findings from this study may inform design and development of the CM curriculum in Victoria.

It is anticipated that a set of core capabilities for Chinese Medicine practitioners will be identified based on an analysis of the data collected through interviews and questionnaires. This project will therefore be of significant for stakeholders in Chinese Medicine profession and education institutes, especially for curriculum design and improvement.

Your participation in this study is completely voluntary and anonymous, and you may withdraw from the study at any time during the interview. Your participation will involve the completion of a questionnaire, which should take approximately 15 minutes. The information you provide to us will be treated in the strictest confidence. The only people who will have access to the information will be the research team members. Publication and presentation of finding from this study will not include any identifiers.

This study has been approved by the Human Research Ethics Committee of RMIT University. If you have any concerns about your participation in this research, you may contact directly the Secretary, RMIT Human Research Ethics Committee, University Secretariat, RMIT University, GPO Box 2476V, Melbourne, 3001 or by telephone on (03) 9925 1745.

For further information concerning the study, please contact: Research candidate, **Iris Wenyu Zhou** on Telephone: 03 9925 7176 or by email: s3092129@student.rmit.edu.au

A prepaid self-addressed envelope is enclosed for returning the questionnaire to the research group. Please complete and return the questionnaire by **25/11 2005**.

We appreciate your time and contribution to this study.

Sincerely,

Iris Wenyu ZHOU

“合格中医师必备能力”调查邀请信

尊敬的中医师：

我是周文妤(Iris Wenyu Zhou)，是 RMIT 大学中医系的研究生。这封信是邀请您参加 **“合格中医师必备能力”**的研究项目。我的导师是 RMIT 大学的薛长利(Charlie Xue)副教授和 Alex Radloff 教授。

这项研究的目的是明确一名合格中医师在维多利亚州（维省）职业中医所需要具备的能力，以符合中医注册委员会和中医专业协会的要求。研究包括问卷调查和采访中医教育界代表，这项研究的结果将会为维省中医课程的设计和发展提供参考，对中医药行业的发展具有深远意义。

您被邀请填写一份问卷，约需 15 分钟完成。您所提供的任何信息都是严格保密的，只有本课题的研究人员有机会阅读问卷原稿，所有相关的出版物或者演讲都不会透漏任何参与者的个人信息。

本课题已获 RMIT 大学道德伦理委员会的批准。如果在您参与时有任何与道德伦理相关的问题，请直接与 RMIT 大学道德伦理委员会秘书处联系，地址是 University Secretariat, RMIT University, GPO Box 2476V, Melbourne, 3001，或者致电(03) 9925 1745。

参与本项研究是完全自愿的，但我们真诚的希望您的参与，因为您所提供的信息将会对维省中医教育和中医药事业的发展起重要作用。请回答问卷所有的问题，并将完成的问卷表放入贴有回邮地址的已付邮资信封，并于 **2005 年 11 月 25 日前**寄回。

如果您想进一步了解更多关于此项研究的情况，请随时与我联系，周文妤(Iris Wenyu Zhou)，电话(03 9925 7176 或通过电子邮件： *s3092129@student.rmit.edu.au*

衷心感谢您的参与。

周文妤(Iris Wenyu Zhou)
RMIT 大学中医系

APPENDIX 7 REMINDING LETTER FOR THE CAPABILITY SURVEY

Wednesday, 16 November 2005

Dear Chinese medicine practitioner,

RE: RMIT University Chinese Medicine Education Survey-Graduate Capabilities

Approximately one month ago, we wrote to invite you to participate in a study entitled **"Validation of core graduate capabilities in Chinese medicine education".** Together with the letter, a questionnaire (A5 booklet) and a reply paid envelope were enclosed for you to return the completed questionnaire to us.

As I outlined in the previous letter, the survey is designed to validate the core graduate capabilities needed for effective and safe Chinese medicine practice in Victoria that satisfy the professional requirements.

You are among other 700 registered Chinese medicine practitioners in Victoria who have been invited to participate in this important survey. For those who have returned your questionnaire, thank you for your support. For those who have not returned the questionnaire, I understand how busy you are and this is just a gentle reminder to seek your support by providing your input back to us as soon as possible. It should take only 15 minutes to complete this questionnaire and please note the deadline for returning this is now Friday, 2 December 2005.

If you have not previously received the invitation for this survey or, you require another copy of the questionnaire, please contact the research candidate Ms Iris Wenyu Zhou on 03-99257176 or by email: s3092129@student.rmit.edu.au

I look forward to receiving your questionnaire. Thank you again for your time and participation!

Yours sincerely,

Professor Charlie Changli XUE

Head, Division of Chinese Medicine

Head of Centre, WHO Collaborating Centre for Traditional Medicine

RMIT University

尊敬的中医师：

大约一个月前，我们致信邀请您参加 “**合格中医师必备能力**”的研究课题。连同该邀请信，一份 A5 格式的问卷以及一个邮资已付的信封也一并附上。

这项研究的目的是明确一名合格的中医师在维多利亚州（维省）进行安全、有效行医所需要具备的主要能力，从而达到专业要求。

包括您在内的 700 多名维省注册中医师都被邀请参加这项重要研究。如果您已经寄回问卷，我由衷感谢您的支持。如果您尚未寄回问卷，我恳请您在百忙之中抽出大约 15 分钟时间填写问卷并寄回。我们新的截止日期是 **2005 年 12 月 2 日**。

如果您从未收到这项研究的邀请信及问卷，或者您希望收到另一份问卷及回邮信封，请与本课题研究生周文好中医师联系，电话 03-99257176 或通过电子邮件:

s3092129@student.rmit.edu.au

我们希望尽快收到您的回复。衷心感谢您的参与。

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