

Complementary Medicine Research

Activity & Capacity:
researcher audit update

September 2008

Highlighting complementary medicine research

NICM is an Australian Government initiative, supported by the
NSW Government and hosted by the University of Western Sydney



NICM

THE NATIONAL INSTITUTE OF
COMPLEMENTARY MEDICINE

www.nicm.edu.au

Contents

Introduction.....	2
Summary of findings.....	5
Methodology.....	7
Total research funds.....	9
Research funds x state.....	12
Research capacity x state.....	14
Major centres & infrastructure x state.....	16
Research focus: modalities & health areas.....	18
Research collaboration.....	20
Appendix One	
NICM Collaborative Centre human capacity outcomes.....	21
Appendix Two	
NHMRC special CAM initiative grants outcomes.....	22

Introduction

In 2005 the NSW Ministry (now Office) for Science and Medical Research commissioned a review of complementary medicine research to gain a better understanding of the sector and associated opportunities. The review included a national survey of complementary medicine researchers and government funding agencies, providing the first clear estimate of the level of funding from both industry and government bodies available for complementary medicine research in Australia. The review outlined the size and scope of the industry (nationally and internationally); usage rates; the national workforce; the nature of relevant research activities in Australia, including major funding mechanisms and quantum of research funds; and key issues affecting sector growth going forward. The summary report, *Complementary Medicine Research: a snapshot* is available at www.nicm.edu.au.

The purpose of this report is to update the core data from the 2005 survey and thereby maintain its value as a source document to inform relevant policy. It should be noted that this survey:

- Focuses primarily on updating researcher capacity, with only a limited survey of industry (with a separate industry update intended);
- Includes the global addition of the establishment of NICM but, due to timing of outcomes and availability of data, no further breakdown of NICM seeded initiatives (although human and infrastructure outcomes are provided in Appendix 1); and
- Did not capture the outcomes of the NHMRC special \$5.3 million complementary medicine research funding initiative, again due to timing, although this information is summarised at Appendix 2.

While comparisons can be made between the two periods, (2000-04 and 2005-07), there are some comparative limitations. These include differences in the periods surveyed, the initial survey mapping a five year period (2000-2004) whilst this survey covers the three (2005-2007) and some definitional changes, the current survey including activities not captured by the earlier report (such as fish oils and nutraceuticals).

Over the next 18 months, NICM will be reviewing the data set to regularise future processes and facilitate collection of trend data, including research activity relative to the burden of disease.

The drivers that led to the original survey being commissioned remain relevant today. These include:

- The extent of use of complementary medicine in Australia. An estimated 50-75% of the Australian adult population use at least one complementary medicine product and one in four Australians use complementary medicine services each year. There are over fifteen million consultations nationwide each year in herbal medicine, naturopathy, acupuncture, chiropractic and osteopathy alone.
- The size of the industry. Conservative estimates of industry turnover of complementary medicine products in Australia range from \$1-2 billion per annum; with complementary medicine services accounting for an additional \$600 million per annum. These figures exclude insurance, research and investment in infrastructure.
- A growing body of scientific evidence for the effectiveness of some complementary medicine interventions to address the burden of disease, particular chronic disease, and emerging evidence on cost-effectiveness, and savings through decreased hospitalisations and workforce support.
- Industry growth opportunities associated with clinical trials; herbal crop production and manufacturing.

The potential of complementary medicine to address national health and economic priorities is reinforced by the increased emphasis being placed by Government on prevention, early intervention and self care—all of which align with complementary medicine approaches. Initiatives reflecting this trend include the Australia 2020 Summit; the National Health and Hospitals Reform Commission and the Preventative Health Taskforce

Notwithstanding its potential and associated advances, there is a pressing need to build the evidence base for complementary medicine through well targeted and rigorous research. This research will help lay the foundation for other public policy issues, including regulatory structures; models of integration; access to reliable information sources and education and training of complementary medicine and other health professionals.

Australia is well placed to undertake this work and become an international leader in evidence-based complementary medicine products, treatments and services.

Australia enjoys a strong international reputation in mainstream health and medical research and has an internationally well respected regulatory approach to complementary medicine products. Its location in the Asia-Pacific, available expertise and infrastructure make Australia an attractive environment for undertaking clinical trials and as a stepping stone to the major US and European markets.

Australia also has internationally recognised strengths in complementary medicine research. However, it must be recognised that while many forms of complementary medicine have had a long tradition of use, in some cases dating back thousands of years, scientific research into complementary medicine is still at an early stage of development. In Australia, dedicated researchers in complementary medicine only began to appear in the mid-1990s although the field has grown and developed rapidly over the past decade.

To support sector growth, it is essential that we develop appropriate metrics to provide an accurate picture of activity, value and capacity. This report is a contribution to that knowledge base.

Professor Alan Bensoussan
Executive Director

September 2008

Summary of findings

Health research has generally been demonstrated to be of significant value to national growth and development in both human and financial terms by optimising Australia's capacity to address the burden of disease.¹ Over the last three years more than \$32.7 million has been invested in complementary medicine research in Australia. Industry contributed approximately 37% of total funds, with a further 39% from all Commonwealth sources and 12% from universities. A total of \$3.65 million was provided for complementary medicine research by the National Health and Medical Research Council (NHMRC) while the Australian Research Council (ARC) contributed \$1.4 million over the same period.

Looking at the two survey periods (2000-2007), more than \$58 million has been invested in complementary medicine (CM) research. Over this period, industry has contributed the greatest proportion of funding (over one-third) with substantial input from the Commonwealth and tertiary sectors. Together the NHMRC and ARC contribute approximately 15% of total CM research in Australia. However, despite the increased quantum in NHMRC funding of CM research, NHMRC CM research funding remains substantially less than 1% of the available research funds during any period.

This report highlights a number of promising developments since the 2000-2004 survey. These include the 24% increase in total funds for CM research, a 79% increase in the number of CM research workers across the country, and a 167% increase in the number of CM post-graduate students with scholarships. The number of research 'units' that reported activity increased from 27 to 47. Even excluding the seed funding by the Commonwealth and State Governments (\$4.6 million) for the establishment of the National Institute of Complementary Medicine (NICM) and some allowance for the inclusion of an extended canvas of CM researchers, the sector continues to develop.

Industry remains a major funding source for CM research, providing just over one-third of support. This is consistent with previous findings, although a slight fall relative to the increase in other sources of support is noted. The NHMRC has increased its funding allocation to CM research in the last triennium to \$3.65 million (from \$2.35 million previously reported for 2000-4). In contrast, successful ARC grants totalled \$1.4 million during the three year survey period, are probably tracking similarly to the \$1.9 million funding received during the previous five years.

¹ Access Economics, 2008. Exceptional returns: The Value of Investing in Health R&D in Australia. (Commissioned by the Australian Society for Medical Research)

Tertiary sector support and that received by other Commonwealth Government sources continue to grow slowly. State Government funding has also increased significantly from \$1.0 million in the 2000-4 report to \$3.1 million over the current period.

During this triennium the focus of research has been largely on nutritional supplements (27%), western herbal medicine (26%) and traditional Chinese medicine (22%). The research quantum related to nutritional supplements (up from 19%), most likely reflects the wider inclusion of these researchers in the current survey. This may also reflect the movement of formerly conventional researchers into the area of nutritional supplements. Western herbal medicine witnessed a decrease in the relative proportion of research activity (39% to 26%), whilst the focus on traditional Chinese medicine research remains static.

In terms of state developments, there was a slight increase in the NSW share of total CM research funding to 54% (\$17.6 million) from 51% in the previous survey period. A more significant change is the percentage of Commonwealth, NHMRC and ARC grants received by NSW during the current triennium. NSW researchers received 64% of the \$5.04 million of funding allocated to CM research by the two agencies, more than doubling the NSW share from the 2001-2004 reporting period (then 26%). South Australia's share markedly decreased to 20% from its previous benchmark of 59%, as did Victoria (33% to 8%). Queensland has doubled its share of total CM research funding from 7% to 16%. During the reporting period, NSW engaged 45% of Australian CM research staff and supported 49% of the CM postgraduate research students.

This landscape however needs to take account of the announcement in 2008 of three new Collaborative Centres by the National Institute of Complementary Medicine (with \$1.8 million in grants), and a further \$5.3 million of complementary medicine research projects by the NHMRC. The NHMRC competitive funding round attracted one hundred and forty-one applications from 37 institutions, demonstrating the high level of interest in complementary medicine research in Australia. Thirteen grants were awarded, representing a 9.4% success rate. The NICM centre grants process attracted 24 Expressions of Interest, with 9 applications subject to external review in the final stage of the process for funding.

Methodology

Two approaches were used to collect data on complementary medicine (CM) infrastructure and research funding:

- A survey was conducted of organisations and individuals that were most likely to conduct CM research, including relevant university research centres, individual researchers and, for the purposes of direct comparison to the 2005 survey, relevant professional associations and five prominent Australian CM companies.
- An infrastructure review of the main university CM research centres in Australia was undertaken, based on information from the 2005 survey and updated data submitted by respondents.

Ethics approval was sought and granted through the University of Western Sydney (Protocol No. 07/188).

Potential Australian CM researchers were identified through a variety of strategies, including directly contacting known researchers and centres which publish in CM, and contacting university faculties, research institutions and hospitals likely to be conducting such research. Some respondents to the survey identified additional researchers working in the area. A total sample of 80 individual researchers, centres and organisations were emailed the survey. Non-respondents were contacted several times by phone and email as a reminder.

Overall response rate

There were 61 respondents from the 80 participants surveyed, generating a response rate of 76%. A further fourteen of these replied that they did not currently perform CM research. Hence, forty-seven respondents (centres and individuals, referred to hereafter as 'units') provided relevant CM research data in response to the survey. There were two responses from professional associations, five from industry, six from hospitals and thirty-four from the tertiary sector. All major groups with a reputation for CM research in Australia known to the investigators responded to the survey.

The current survey identifies 47 separate units involved in CM research. This contrasts with 27 previously identified in 2005, although several units within some institutions now appear to be reporting more independently, where previously they were recorded as the one unit. The figure may also be affected by the inclusion of additional centres in the current survey which previously may have been considered more conventional in their research (such as the Nutritional Physiology Research Centre at the University of South Australia).

Some CM researchers were reticent about reporting current research projects because of commercial and intellectual property issues and therefore provided only limited information about the area of research. It is also possible that some CM researchers were not included in the survey as they work alone or have poor networks and links with the remainder of the Australian CM research community. In the context of the previous survey (2005), however, it is unlikely that major CM funding sources were omitted.

Researchers and research organisations

The survey requested information about the:

- Number of staff and students working in CM research in the centre or department in which the respondent worked;
- Area of expertise of staff;
- Number and type of research projects which had been funded in the centre or department from 2005 to 2007 inclusive;
- Amount of CM research funding in dollars;
- Funding sources; and
- The nature of research collaborations.

Where relevant, the number of research staff, number of students, number of projects and level and source of research funding and extent of research collaborations was calculated for each State. Laboratory facilities, specialist equipment and specific CM research expertise and services offered, were obtained from the responses to the open ended questions.

Total research funds

Respondents reported involvement in 194 CM research projects during the period 2005-2007 with a combined total funding of \$32.7 million (Table 1, Figure 1). This compares with 209 individual projects reported over the previous five year survey period (2000-2004 inclusive) and represents an increase in investment of 24%. These figures include \$4 million allocated by the Commonwealth Department of Health and Ageing and \$600,000 allocated by the NSW Office of Science and Medical Research to enable the establishment of the National Institute of Complementary Medicine (NICM).

According to respondents, industry continues to contribute the greatest proportion of funding to CM research at \$11.97 million or approximately 37% of funds. In dollar terms this represented a 15% increase over the previous five years, yet industry's overall percentage contribution to total CM research funding fell slightly from 39.5% (in 2000-2004) to 36.6% from 2005 to 2007.

The survey instrument was also sent to five major CM companies who indicated that they had contributed to research in the 2005 survey. These companies estimated that they had provided \$4.4 million in research funds and infrastructure over the last three years. Companies varied significantly in the level and type of funding, with one large company conducting primarily in-house research.

The NHMRC grew its proportion of funding allocation to CM research in real dollars from \$2.35 million (2000-2004) to \$3.65 million (2005-2007) representing a growth from 9% to 11% of total CM research investment in Australia. In the previous study, respondents were noted to have underreported projects claimed by the NHMRC to be CM related. It should be noted the recent figures are based on current survey respondents only.

A further 20% of funding came from funding bodies other than the NHMRC and the Australian Research Council, including the Commonwealth Department of Innovation, Industry, Science and Research AusIndustry scheme, the Rural Industries Research and Development Corporation and the Australian Institute of Sport (AIS).

State government bodies have increased their funding from \$1.0 million to \$3.1 million and now represent 9.5% of CM research funding. Non-government organisations and charitable funding decreased from 6.5% in the previous audit to a current level of 2.1%. The tertiary sector contributed 12% of all CM research funding, a fall from 21% in the previous survey. However, CM research is carried out primarily in universities with only a small amount undertaken directly by industry, in hospitals or by independent research organisations.

The two professional associations reported research activities or support for research. The Australian Acupuncture and Chinese Medicine Association Ltd (AACMA) had provided \$25,000 per year to support research, while the Australian College of Natural Medicine (ACNM) received \$80,000 in research funding. The ACNM performed collaborative research with more than one research group or research institution in Australia in four of six research projects funded in the current period.

Forty-one of the 47 units received CM related cash grants during 2005-2007, whilst the remaining six units allocated internal resources (staff and students) to relevant research projects.

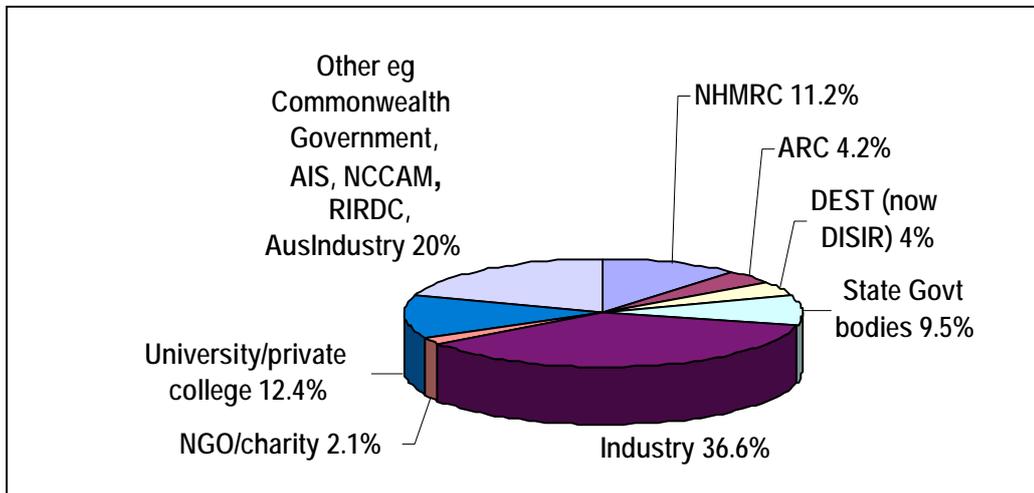
Table 1: CM research funds all sources 2005-2007 *

Source	# projects	Research quantum (\$millions)	Percentage of total quantum (2005-7)	Percentage of total quantum (2000-4)
NHMRC	6	3.65	11.2	8.9%
ARC	9	1.39	4.2	7.2%
DEST (now DISIR)	6	1.32	4.0	(included in 'Other')
State Govt bodies	9	3.12	9.5	3.8
Industry	89	11.97	36.6	39.5
NGO/charity	7	0.68	2.1	6.5
University/private college	38	4.06	12.4	21.2
Other**	30	6.53	20.0	12.9
Total	194	32.72	100	100

* Funding reported by CM researchers and industry from all sources during 2005-2007. Figures based on survey respondents only.

** Other includes non NHMRC or ARC Commonwealth government funding; the Australian Institute of Sport; the US National Centre for Complementary & Alternative Medicine Research; AusIndustry; Rural Industries Research and Development Corporation

Figure 1: Total research quantum x funding source 2005 -2007



Research funds x state

NSW recorded the highest level of funding at \$17.6 million or 54% of the total CM research funding (a small increase from 51% in 2000-2004). South Australia had the second highest level of funding during this period (\$6.7 million, 20%), which represents a substantial growth from 3% previously recorded. This was largely influenced by the inclusion in this current survey of the Nutritional Physiology Research Centre at the University of South Australia, which accounts for 93% of research income for South Australia (\$6.25 million). Queensland has more than doubled its share of CM research funding from 7% to 16%, mainly at the expense of Victoria which has decreased its reported share from 33% to 8% (Table 2).

Table 2: Total CM research funds x state

State	NSW	Queensland	South Australia	Victoria	Western Australia	Total
Total funding (\$millions)	17.6	5.1	6.7	2.7	0.6	32.7
Funding share (%)	54%	16%	20%	8%	2%	

The total NHMRC and ARC funding reported by respondents for the current three year period, \$5.04 million, represents a 19% increase over the \$4.25 million of the previous five year survey. This data has been provided solely by CM researchers and carries no adjustment by ARC or NHMRC reports. (These figures exclude the March 2008 announcement of \$5.3 million of NHMRC CM funding, which is reported in Appendix 2.)

A total of 15 projects were reported by CM researchers as funded by these two Commonwealth agencies in the triennium (Table 3). Changes of note in the two funding periods include the percentage of NHMRC and ARC funding received by NSW, which has more than doubled (from 26%), while SA has markedly decreased from its previous bench mark of 59%.

According to the current survey NSW undertook the greatest number of funded projects with 90 (47%) in total (Table 4), followed by South Australia with 34 projects (18%), Victoria with 33 projects (17%) and Queensland with 29 projects (15%).

Table 3: CM research funding from NHMRC & ARC x State 2005-07

State	Measure	NHMRC	ARC	Total	% CM funding 2005-2007	% CM funding 2000-2004
NSW	# successful	4	1	5		
	\$ funding	\$2,966,000	\$260,000	\$3,226,000	64	26
QLD	# successful	1	0	1		
	\$ funding	\$467,000	0	\$467,000	9	0
SA	# successful	1	5	6		
	\$ funding	\$215,000	\$782,461	\$997,461	20	59
VIC	# successful	0	3	3		
	\$ funding	0	\$348,000	\$348,000	7	0
WA	# successful	0	0	0		
	\$ funding	0	0	0	0	15
Total		\$3,648,000	\$1,390,461	\$5,038,461	100	100

Table 4: Funded CM projects x state 2005-2007 (no and % share)

Year	NSW	QLD	SA	VIC	WA	Total #
2005	45 (54%)	9 (11%)	13 (16%)	13 (16%)	3 (4%)	83
2006	20 (41%)	8 (16%)	10 (20%)	10 (20%)	1 (2%)	49
2007	25 (40%)	13 (21%)	11 (18%)	10 (16%)	3 (5%)	62
Total	90 (46%)	30 (15%)	34 (18%)	33 (17%)	7 (4%)	194

Research capacity x state

Of the 47 identified units that had conducted CM research, 40% (19) were based in NSW; 26% (12) in Queensland and 19% (9) in Victoria (Table 5). The major change since 2000-2004 has been the increase in the number of CM research 'units' in Queensland, which previously hosted three.

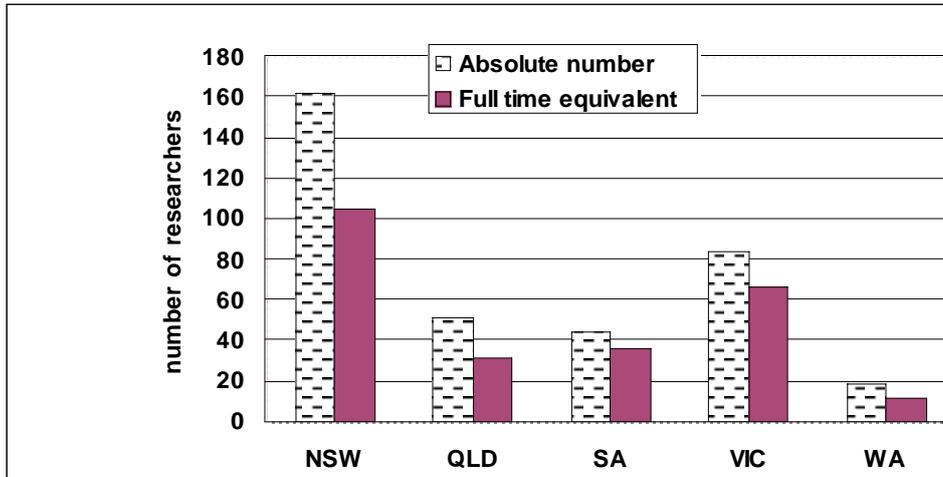
Table 5: CM Units, staff & students x state x number x % share 2005-2007

Category	NSW	QLD	SA	VIC	WA	Total #
CM units	19 (40%)	12 (26%)	5 (11%)	9 (19%)	2 (4%)	47
CM researchers	162 (45%)	52 (14%)	45 (12%)	84 (23%)	19 (5%)	362
FTE CM researchers	106 (42%)	32 (13%)	37 (15%)	67 (26%)	12 (5%)	253
Research students	72 (49%)	19 (13%)	15 (10%)	39 (26%)	3 (2%)	148
FTE Research students	60 (48%)	14 (11%)	15 (12%)	35 (28%)	3 (2%)	126
Student scholarships	38 (38%)	12 (13%)	13 (13%)	34 (34%)	2 (2%)	99

A total of 362 (253 equivalent full-time) CM research staff (including administrative staff) were identified as working in the field in Australia (Table 5). The number of staff across the 47 respondent CM research units ranged between 1 and 36, with a mean of 9 and a median of 6 staff members. The largest number of staff reported was in NSW, with a total of 162 staff working in the area of CM research, an 88% increase on the 86 researchers identified in the previous survey, and representing an estimated 45% of the CM research staff in Australia. The next highest reported was Victoria, with 84 relevant staff members (23%).

Many units reported having researchers who worked on a part time basis or only contributed a small proportion of their time to CM research (5-50%) and staff with expertise other than strictly in CM, for example, in medicine, neuroscience, pharmacology, physiology, microbiology, biochemistry, engineering and chemistry.

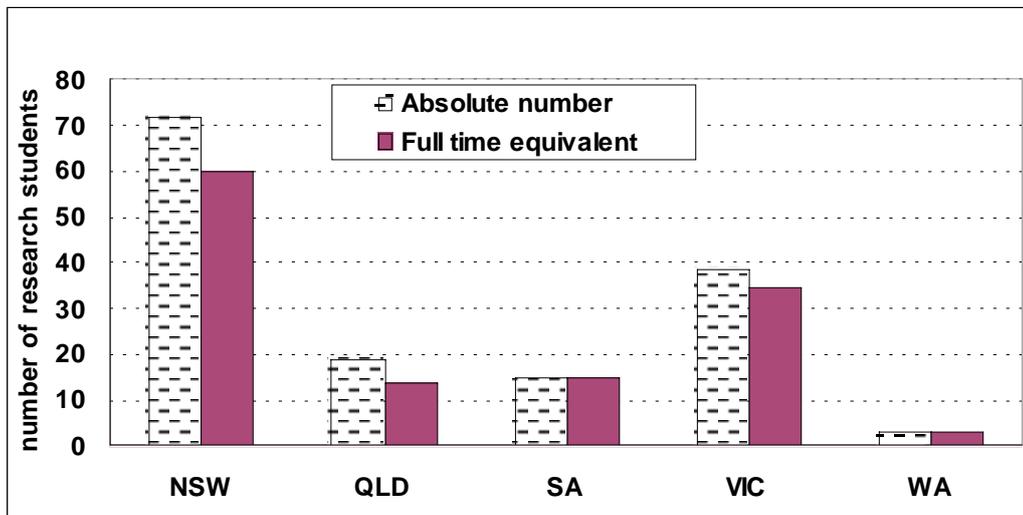
Figure 2: CM research staff x FTE x state



Responding CM research units reported having a total of 148 research students, of whom 96 (65%) were at PhD level (Table 5). These figures are similar to those reported previously (135 students). NSW units have 72 postgraduate research students representing an estimated 49% of CM research students in Australia (Figure 3). These students research CM topics predominantly exclusively, with FTE levels approximating absolute numbers.

There has been a significant improvement in the percentage of students holding scholarships - approximately 69% of students now as against 27% over the previous survey period. Of the 99 student scholarships 30 (30%) were Australian government postgraduate scholarships, 47 (48%) were university scholarships and 22 (22%) were from industry. The relative percentage distributions across the differing scholarship sources remain basically unchanged.

Figure 3: CM postgraduate research students x FTE x state



Major centres & infrastructure x state

Major CM research centres were defined in the 2005 and current survey as those that earned \$1.0 million or more (from 2005-2007) in research funding. There are now eight major tertiary CM research centres in Australia, NSW (6), Victoria (1) and South Australia (1). These include:

New South Wales

- Centre for Phytochemistry & Pharmacology, Southern Cross University
- CompleMED, the Centre for Complementary Medicine Research at the University of Western Sydney
- The Department of Pharmacology, University of Sydney
- The George Institute of International Health, University of Sydney
- NatMed Research, Southern Cross University
- Nutraceuticals Research Group, School of Biomedical Sciences, University of Newcastle

Victoria

- The Chinese Medicine and WHO Collaborating Centre for Traditional Medicine, RMIT University

South Australia

- The Nutritional Physiology Research Centre, University of South Australia

Eighteen units, a growth of two from the preceding survey, reported having specific laboratories and equipment related to their research in CM (Table 6).

Table 6: CM research facilities x state x dedicated facilities/labs

State	Units	Type of laboratories / facilities
NSW	9	Phytochemistry, pharmacology, toxicology, biochemistry lab capable of biochemical, microbiological and cell culture, human nutrition laboratory, clinical trials, analytical chemistry, microbiology lab. Tea plantation, herb garden and greenhouses for optimizing growth and quality of herbal preparations, herbal medicine production facility and herbal dispensary. Molecular biology facilities, for the genetic markers in plants and humans. Cell and animal models for bioavailability. Laboratories for the design, synthesis and pharmacological evaluation of analogues of active ingredients in herbal products. TGA licensed laboratories for the issuing of certificates of quality assurance of herbal medicines and to undertake commercial stability testing for registration and listing of drugs with the TGA. Facilities for the assessment of mechanisms of action, pharmacokinetics, herb-drug interactions, the molecular neuroprotective effects of Chinese medicines, pre-clinical bioavailability studies, and assessing pharmacokinetics and pharmacodynamics. Clinical trial facilities.

State	Units	Type of laboratories / facilities
QLD	3	Multiphoton microscopy, biochemistry, cell culture and bacterial research laboratories, environmental chambers (for temperature and humidity controlled tests). Chemistry, biochemistry and microbiology laboratories. Immune function, nutrition, skin and liver assessment and pharmacology laboratories.
SA	1	Facilities for studying herb drug interactions, inflammation, diet, lifestyle, cardiovascular and diabetic interventions, cognitive and behavioural techniques.
VIC	4	Psychophysiology laboratory, biomedical engineering sleep research, musculoskeletal research. Anti-allergic and anti-inflammatory herbal pharmacology, herb-drug interaction, chronic pain, herbal safety assessment. Vascular and hormone laboratories for tissue culture, animal research facilities, toxicology, biochemical lab, herbal identification lab, herbal plantation sites, DNA fingerprinting and tissue culture, clinical trials. Laboratories for electrophysiological monitoring and sleep studies. Clinical trial facilities.
WA	1	Microbiology lab for antiviral, antifungal, antibacterial testing – assessment of essential oils, anti-cancer and anti-inflammatory activities.

Research focus: modalities & health areas

Researchers were asked to specify the fields of research for funded CM research projects. Of the 180 projects where the particular CM therapies were identified, 27% of research quantum was related to nutritional supplements, 26% to western herbal medicine and 22% to traditional Chinese medicine (Table 8, Figure 4). This represents a move to increased emphasis on research into nutritional supplements (from 19% of total effort in 2005) and a relative decrease in the proportion of studies into western herbal medicine (from 39% of total effort in 2005).

Levels of traditional Chinese medicine research remained basically unchanged. These changes may reflect the movement of conventional researchers into the area of nutritional supplements and extended canvassing of this research activity in this current update survey.

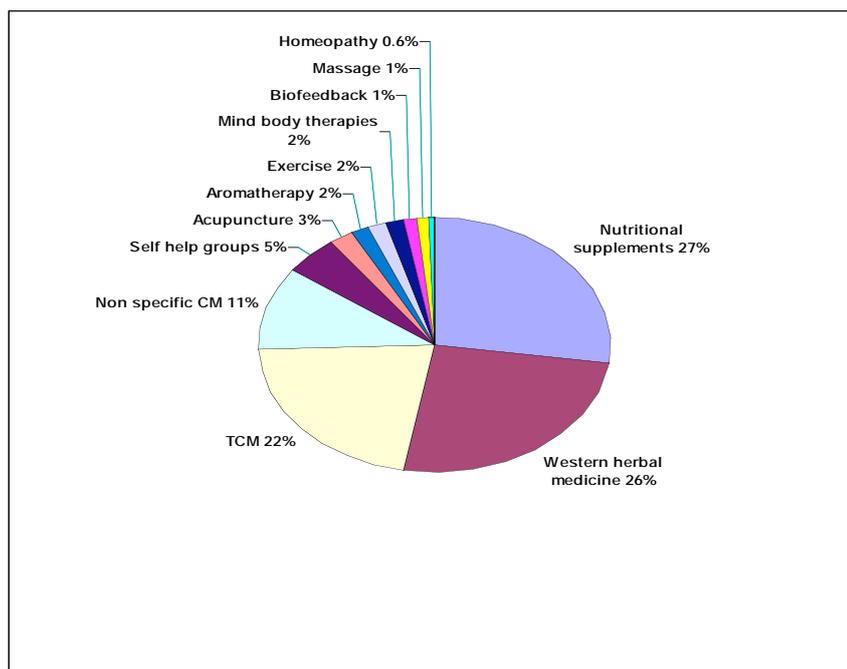
Of the research projects that were successful in gaining Australian Research Council funding, five related to Chinese herbal medicine, two to research on nutritional or dietary supplements, one to biofeedback and one was not specified by the researcher.

Table 8: Research quantum & number of projects x field of research 2005-2007

Specific CM therapy under research	Percentage of research quantum	Number of projects
Nutritional supplements	27.2	49
Western herbal medicine	25.6	46
Traditional Chinese Medicine	21.6	39
Non specific CM	10.5	19
Self help groups	5.0	9
Acupuncture	2.8	4
Aromatherapy	1.7	3
Exercise	1.7	3
Mind body therapies	1.7	3
Biofeedback	1.1	2
Massage	1.1	2
Homeopathy	0.6	1
Total	100.6	180

Note: Total is not 100% due to rounding.

Figure 4: Research quantum x field of research 2005-2007



Researchers were also asked to specify the broad health area in which their research was focussed. Table 9 summarises the proportion of funding allocated to each broad health area. The greatest defined concentration of funding went to cardiovascular research (18.7%), although a considerable spread is noted across health areas.

Table 9: Research quantum & area of health research 2005-2007

Broad area of health research (NHMRC)	Total funding (\$m)	% funding
1 Bone, joint and muscle diseases	2.2	6.8
2 Cancer, cancer prevention & related disorders	1.1	3.3
3 Cardiovascular health and disease	6.1	18.7
4 Endocrine diseases and diabetes	1.5	4.5
5 Human genetics and inherited disorders	0	0
6. Infection and immunity	2.7	8.2
7 Injury	0.07	0.2
8 Liver, kidney and gastrointestinal health	0.1	0.3
9 Mental health and neurosciences	2.5	7.7
10 Reproductive health	0.7	2.2
11 Respiratory diseases	0.7	2.2
12 Social and environmental issues	0.6	2.0
13 other health issues diseases or conditions	9.5	28.9
Did not fit NHMRC criteria	0.9	2.9
Confidential	2.0	6.1
Unknown	1.9	5.9
Total	32.7	100

Research collaboration

Data were requested about the collaboration between CM researchers and other research units, overseas researchers or industry, and western medical scientists for each of the funded projects. A summary of the aggregate responses for all states is provided in Table 10.

Fifty-six (56) percent of projects involved collaboration with more than one research group or research institution in Australia over the past three years, representing a marked increase over the 41% in the 2000-2004 survey. Twenty (20) percent involved overseas collaboration, twice the 10% reported previously and 39% involved research with western medical scientists, a reduction from the 51% reported previously.

Table 10: Percentage CM projects involving collaboration x type

Type of collaboration	% of collaborative projects (2005-7)	% of collaborative projects (2000-4)
Collaboration with other units	56	41
Collaboration overseas	20	10
Collaboration with western medical scientists	39	51

Appendix One

Human capacity growth under NICM collaborative centres

In early 2008, three NICM Collaborative Centres were established, bringing a national approach to complementary medicine research. The collaborative centre model is designed to create cross-institutional partnerships and links with industry and clinicians and strengthen the depth of complementary medicine research capabilities in Australia. The initial establishment of the centres resulted in 13 PhD students and 21 post-docs or research associates

Centre	PhDs	Research associates/ officers	Clinical trial positions	Post-docs
Neuroprotection Centre	4		1	4
Nutraceuticals Centre	4	6		
Traditional Chinese Medicine Centre	5	0.6	1	8.4
Program Total	13	6.6	2	12.4

Notes

- Totals may be spread over more than one year but are given as FTE years, or total FT PhDs.
- Excludes all in-kind academic research staff and in-kind facilities/consumables.
- Research associates may also be qualified post-doctoral staff, but are only counted once.

Appendix Two

NHMRC special Complementary and Alternative Medicine grants program outcomes announced March 2008

	NSW	VIC	QLD	SA	ACT	WA	Total
Grants awarded	4	4	1	2	1	1	13
Funding (\$ million)	1.35	1.80	0.45	0.96	0.29	0.48	5.3