

Development

Building research capacity in Australian departments of general practice and rural health: a document review of annual reports

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Aim: To describe the scope and nature of research capacity building activity within academic departments of general practice and rural health in Australia. **Method:** Document review of Annual Reports for the years 2000 and 2003 of 17 university departments of general practice and rural health, funded through the Research Capacity Building Initiative (RCBI) of the Primary Health Care Research, Evaluation and Development (PHCRED) Strategy. **Results:** The review indicated that from 2000 to 2003, departments increased their activities in all areas of research capacity building activities. Mentoring and/or supervision other than higher degree students increased from 14 in 2000 to 266 in 2003. Twenty-two research networks involving over 1377 participants were operating in 2003. All departments were involved in collaborations either as part of grant applications, research projects or educational activities. Over 3630 people participated in 189 educational activities in 2003 compared to over 624 people attending 103 activities in 2000. Compared to \$10.98 million in 2000, departments had obtained more than \$15.6 million for research projects in 2003. While there were more peer reviewed papers published in 2000 ($n = 178$) compared to 2003 ($n = 130$), these 17 departments gave 187 conference presentations. **Conclusions:** This review shows that the RCBI has contributed towards a considerable increase in research activities in these university departments of general practice and rural health. This has provided a major boost to primary health care research in Australia. These activities would have been unlikely to occur without the support and assistance of the PHCRED Strategy. Clearly, the full impact of the RCBI will take some time to evolve.

Key words: academic general practice; primary health care; research capacity building; research effort; research networks

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Introduction

The Primary Health Care Research, Evaluation and Development (PHCRED) Strategy, funded by the Australian Government Department of

Health and Ageing, seeks to embed a research and evaluation culture in Australian primary health care. Arising from the Wills (Department of Health and Aged Care, 1999) and General Practice Strategy Review Group Reports (Department of Health and Aged Care, 1998), this Strategy aims to both develop research capacity and the fields of knowledge that support the evidence base for general practice and primary health care services.

Elements of the PHCRED Strategy include the following:

- A research priority setting process for primary health care.
- Research capacity building initiative (RCBI) for university departments of general practice and rural health.
- The Australian Primary Health Care Research Institute (APHCRI).
- National Health and Medical Research Council (NHMRC) Primary Health Care Project Grants, Fellowships and Scholarships.

This article focuses on the RCBI of the Strategy, which was rolled out nationally in 2001. The aim of the RCBI is to 'support University Departments of General Practice and Rural Health to provide training and support in primary health care research, particularly among local practitioners' (RCBI, 2006). To achieve this, non-competitive funding (\$AUD200 000/year) has been provided to academic departments of general practice and rural health across Australia to implement a range of capacity building strategies and activities with primary health care professionals (PHC RIS, 2006).

While there has been some attempt in the Australian literature to discuss what can or should be done through the RCBI (Farmer and Pilotto, 2001; Van Der Weyden, 2001; Gunn, 2002; Askew *et al.*, 2002; Dunbar *et al.*, 2002; Shah *et al.*, 2002; Beacham *et al.*, 2003; Jones *et al.*, 2003), to our knowledge this is the first time that actual activity through the Initiative has been reviewed and presented.

The aim of this report was to review the key capacity building activities undertaken by 17 university departments of general practice and rural health in 2003 – 3 years into the programme and to compare these patterns with those apparent in 2000, before funding commenced.

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Methods

A document review of the 2000 and 2003 annual reports from RCBI funded academic departments of general practice and rural health was undertaken. Copies of these reports (produced as part of RCBI contract requirements) were provided by the Australian Government Department of Health and Ageing. Individual departments gave permission to use the material in a non-identifiable and aggregated manner. Any sensitive material was removed prior to receipt by the researchers.

Information regarding departmental activities was reviewed and aggregated under the following broad categories, derived from those listed in the departmental funding agreement reporting pro-forma:

- academic teaching
- research supervision and mentoring (number of PhD, Masters and other students)
- research networks (number and type)
- educational research activities (number and type)
- collaborations (number and type)
- research funding (number of grants and total amount of funding)
- research effort (publications and presentations).

Because the reporting pro-forma differed in 2000 from 2003, some data was not collected in 2000 that was collected in 2003.

Information about the 2003 research projects (based on their titles) was categorized according to the National Health Priorities and the Primary Health Care Research Priorities (Kalucy *et al.*, 2001). At the time of the review, the National Health Priorities included: cardiovascular diseases, mental health, cancer, asthma, injury and diabetes (National Health Priority Areas Initiative, 2006). The Primary Health Care Research Priority areas were: evidence-based practice, quality of care, models of service delivery, integration, economic issues, illness prevention and health promotion and health inequalities (Kalucy *et al.*, 2001).

Results

All annual reports of the 17 departments receiving RCBI funding in 2003 were analysed as were the 2000 baseline annual reports. Ten reports were

Table 1 University departments funded under the RCBI

<i>New South Wales</i>
Department of General Practice, University of Newcastle
Department of General Practice, University of Sydney
Department of Rural Health, University of Sydney
School of Public Health and Community Medicine, University of NSW
<i>Northern Territory</i>
Centre for Remote Health, Flinders University and Charles Darwin University
<i>Queensland</i>
Centre for General Practice, University of Queensland
Mt Isa Centre for Rural and Remote Health, James Cook University
Rural Health & Workforce Research Unit, James Cook University
<i>South Australia</i>
Department of General Practice, Adelaide University
Department of General Practice, Flinders University
Spencer Gulf Rural Health School, University of South Australia
<i>Tasmania</i>
Discipline of General Practice, University of Tasmania
University Department of Rural Health, University of Tasmania
<i>Victoria</i>
Department of General Practice, Monash University
Department of General Practice, University of Melbourne
<i>Western Australia</i>
Combined Universities Centre for Rural Health
Department of General Practice, University of WA

from university departments of general practice and seven were from departments of rural health (Table 1). Departments varied in size and age from those just starting up a department to well established departments. Table 2 gives a breakdown of the research capacity building related activities of these departments in both 2000 and 2003.

With regard to implementation of activities, it is worth noting that in eight of the programmes indicated, there had been RCBI staff changes in 2003. In some departments, this concerned several staff. The situation was compounded by long delays in the appointment of new staff.

Academic teaching

Departments continued to contribute to teaching in academic courses ranging from undergraduate degrees and Associate Diplomas, to Graduate Certificates, Graduate Diplomas, Honours degrees,

Masters degrees and PhD coursework. Teaching occurred in the disciplines of general practice, medicine, public health, health promotion, allied health, clinical practice and clinical epidemiology.

Research supervision and mentoring

Research supervision and mentoring has increased substantially. Supervision and mentoring occurred in some form in all departments in 2003 compared to only 11 departments in 2000. In 2003, 9 of the 17 departments supervised a total of 43 PhD students. Although there were fewer Masters students ($n = 8$), departments reported a significant number of other students being mentored ($n = 266$), including those undertaking other higher degrees, general practitioner (GP) registrars, clinic attendees, grant and bursary holders and others not enrolled in a formal course.

Research networks

While data on research networks specifically was not available in 2000, there appear to have been some networks operating in the more established departments. In 2003, 22 research networks involving over 1377 people were reported to have been established across 13 departments in 2003. These ranged from internal networks for staff to broader networks incorporating primary health care practitioners and students interested in research at various levels. Some research networks were set up with a specific task in mind while others were set up with a broader research focus. However, most used the network infrastructure to promote and conduct research activities such as workshops, research meetings, funding opportunities as well as providing a mentoring service.

Research activities

Educational research activities comprised a substantial component of RCBI activities. Over 3639 people participated in 189 activities in 2003 compared to 624+ people attending 103 activities in 2000. Further detail on these activities was unavailable in the 2000 reports, so no qualitative comparison was possible.

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Table 2 Summary of the activities and achievements of the 17 departments of general practice and rural health in 2000 (before RCBI funding commenced) and 2003

Categories	2000 (before funding commenced) Activities and achievements	Number of Departments	2003 (second whole year of funding) Activities and achievements	Number of Departments
Teaching in academic courses	Undergraduate and post graduate courses	10	Undergraduate and post graduate courses	12
Research supervision/ mentoring	41 PhD students 30 Masters students 14 people mentored	11 9 5 2	43 PhD students 8 Masters students 266 people mentored	17 9 4 16
Research networks	NA		22 networks 1377+ members	13
Research educational activities	103 educational activities 624+ participants	8 8	189 educational activities 3639+ participants research use skill building researcher skill building evaluation activities writing and presentation skills	17 17 12 12 11 5
Collaborations	NA		Reasons for collaboration: as part of a needs assessment, grant applications, research projects or educational activities	17
Research funding	107 grants totalling \$10,989,796+	12	110 grants totalling \$15,655,546+ (external to RCBI) PHCRED funded grants, bursaries, fellowships, scholarships	15 14
Research effort	178 peer review papers Conference presentations – NA	10	130 peer review papers 187 conference presentations	12 17

In 2003, workshops were the most commonly reported activity, however regular group meetings, research clinics and seminar series also took place. Although most workshops were only offered once during the year, some departments repeated workshops on several occasions to meet the demand. Others offered a series of workshops on related issues.

Workshops for users of research (eg evidence-based practice, critical appraisal, $n = 12$) and those focused on skill building (eg research methodology, developing research questions, $n = 12$) were the most frequently reported. Workshops on evaluation ($n = 11$) and writing and presentation skills ($n = 5$) were also reported. Three departments presented workshops covering all of these areas.

Departments reported the production and dissemination of both print and electronic resources, including several web-based resources such as PHCRED websites and on-line courses and modules.

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'In kind' support was varied and included PHCRED staff being members on committees or boards, journal review panels, working parties, promoting activities and resources, providing academic teaching and consultation.

Collaborations

In 2003, all departments reported some level of collaboration, either to develop grant applications, research projects or around educational activities. This information was not obtained for 2000. Collaborations were local, national and international, including other university departments, other universities, Divisions of General Practice (geographical groupings of general practices), health service providers, Aboriginal health services, consumer organizations/representatives, research and health service organizations and overseas organizations.

Table 3 Distribution of research projects (based on project title) being undertaken by RCBI funded departments in 2003 by National Health Priorities (across) and Primary Health Care Research Priorities (down)

2003	Evidence-based practice	Quality of care	Models of service delivery	Integration	Economic issues	Health inequalities	Illness prevention and health promotion	Unknown	Total
Cardiovascular diseases	1		2			1	1		5
Mental health	7	3	1	2			3	2	18
Injury	2	1	1				3	2	9
Cancer		1						1	2
Asthma		1	1	1			1		4
Diabetes		1							1
Unknown	9	9	10	5		2	9	20	64
Total	19	16	15	8	0	3	17	25	103

Effective collaboration among RCBI funded university departments in four states (South Australia, Queensland, New South Wales, Victoria) resulted in state forums and seminars that provided new researchers the opportunity to present their research to and network with other primary health care professionals and academics in their state.

There was a substantial collaboration with Divisions of General Practice, with half (61/121) of the Divisions in Australia engaged in collaborative activity with the Departments receiving RCBI funding. All Divisions of General Practice in Northern Territory ($n = 2$), and Tasmania ($n = 3$) were mentioned in the annual reports, while 63% ($n = 19$) of Divisions in Victoria, 60% ($n = 12$) in Queensland, 50% ($n = 7$) in South Australia, 43% ($n = 6$) in Western Australia, and 32% ($n = 12$) in New South Wales/Australian Capital Territory were mentioned.

Research funding

Fifteen of the 17 departments acquired over \$AUD15.6 million from 110 grants funding 103 research projects. This was an increase in research funding from \$AUD10.9 million in 2000. The mean success rate of grant applications and tender submissions was 69.2%, ranging from 0% (0/7) to 100% (3/3) in the 11 departments where sufficient data were provided. In addition, 14 departments funded further research projects internally through using RCBI money to fund grants and bursaries, plus researcher support via fellowships and scholarships, something that had not been possible prior to 2001.

Research effort

Research effort as measured by the number of peer reviewed publications did not increase in 2003 compared to 2000. However, departments had been actively disseminating their work via 187 conference presentations in 2003.

The research conducted in 2003, whilst diverse, had an emphasis on the established primary health care research priorities. Table 3 shows the distribution of funded research projects according to National Health Priorities (National Health Priority Areas Initiative, 2006) and Primary Health Care Research Priorities (Kalucy *et al.*, 2001). Allocation was made on the basis of project titles. It was only possible to allocate 38% of projects to National Health Priority areas and 75% to Primary Health Care Research Priority areas. Projects most commonly fell into the National Health Priority area of Mental Health ($n = 18$), while the most common Primary Health Care Research Priority areas researched were evidence-based practice ($n = 19$), illness prevention and health promotion ($n = 17$), quality of care ($n = 16$) and models of service delivery ($n = 15$). Less commonly researched Primary Health Care Research Priority areas were health inequalities, integration and economic issues.

Discussion

This document review of the 2003 annual reports from RCBI funded academic departments of general practice and rural health has shown a substantial

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increase in most areas of research activity compared to 2000, the year before this funding commenced.

Education and training

Training is a pivotal strategy for building research capacity and culture. The substantial increase in the number of research activities in RCBI funded departments in 2003 compared to 2000 indicates a willingness of RCBI funded staff to interact with the wider primary health care community to facilitate the building of a research culture in this sector. This has been complimented by an enthusiasm and willingness by participants to learn about undertaking and using research, as seen by the large number of attendees at these activities. Whether this skill building process has addressed specific research gaps remains to be seen. It is also too early to say how the educational activities will impact on primary health care research and future research utilization, although the review by McGrail *et al.* (2006) suggests that activities such as writing groups led to an increase in publication rates.

Mentoring and supervision

Significant effort was given to increase the mentoring and supervision of students and primary health care practitioners involved in research. While the total number of PhD students across the programme suggests that capacity is being built in the future leadership of primary health care research, this has yet to be realized in eight of the departments. Postgraduate support and supervision requires an infrastructure that is closely aligned with the expertise of key leaders in the field, something that may require development in these departments, particularly the more recently established departments.

The total amount of research mentoring of people not enrolled in a higher degree has increased dramatically both in the number of departments offering this service (2 in 2000 to 16 in 2003) and in the number of people involved (14 in 2000 to 266 in 2003). For many practitioner/researchers, this has provided an entree into research. Fostering practitioner driven research activity has the advantage of building research within practitioner's everyday work and is an expedient alternative to the conventional higher degree pathway. It also increases the likelihood of producing primary care

relevant research in the short term and for small-scale projects (Lee and Saunders, 2004).

This ability to attract primary health care workers to conduct research is a strength of the RCBI. It is also a weakness as currently the PHCRED Strategy does not provide for a career pathway for mid-career academics to provide leadership to the new generation of researchers (Oceania Health Consulting, 2005).

Networks and collaboration

The number of research networks currently operating and the number of people these are attracting is indicative of the level of interest in research in the Australian primary health care community. Research networks enable effective collaboration between practitioners and researchers so that research is relevant, provides the opportunity to address research agendas and disseminates and implements research findings (Thomas *et al.*, 2001). In the US, primary health care research networks were developed as a key strategy in promoting targeted research. Whilst no formal evaluation of this strategy has been published, in comparison to PHCRED, the US network strategy appears to be unable to achieve the programme reach of the RCBI (Burstin and Lanier, 2001).

Although the 2003 annual reports did not provide information about the network members' specific research backgrounds, the diversity of collaborations suggests that both researchers and practitioners are involved. Other authors (Pearson and Jones, 1997; Harrison, 2005; Whitford *et al.*, 2005) however, highlight the fact that collaborations alone are insufficient. A culture has to be developed within primary health care teams or organizations which achieve jointly held aims for patient care. It will be interesting to monitor and explore how these collaborations affect the type and nature of primary health care and research in the future.

The RCBI has provided infrastructure support for research capacity building largely at the individual level, although increasingly at the team level. It is likely that a team approach, as discussed by Cooke and colleagues (Cooke *et al.*, 2006) will be needed to enable 'critical mass' benefits.

Both Divisions of General Practice and university departments acknowledge the importance of collaborating in terms of their research and

evaluation activity (Beacham *et al.*, 2005). This collaboration is now also encouraged by the Australian Government (Australian Government, 2004). Half of the Divisions were collaborating with university departments which represents a substantial effort considering the challenges that collaborative research presents, and since Divisions of General Practice did not have research as core business (Beacham *et al.*, 2005). With the changes to the Divisions' research activity requirements following the review (Australian Government, 2004), there is potential for more collaboration between university departments and Divisions of General Practice, with mutual benefits as yet unrealized.

Diversity of research projects

The diversity of research projects (Table 3), suggests that investigator driven research is flourishing, but also reveals gaps where research may not be happening. These gaps may indicate that there is an insufficient skill base or funding for research to be undertaken in these areas or the priorities may not be addressing areas where there is a primary health care research skill set. A more detailed analysis of the gaps in priority research, funding and skill base may answer this.

Dissemination of research findings

Dissemination of research findings is an important outcome for this initiative, and in 2003 all departments disseminated their research through conference presentations. However, peer reviewed papers (particularly in high-impact publications) for primary health care are desirable to the development of the discipline of primary health care. While some departments published multiple peer reviewed papers, others published very few. This may reflect the differing maturity levels of departments or that some departments disseminated their information primarily at a grassroots targeted level.

Sustainability of infrastructure and output

Developing a research culture has a long lead time, particularly for novice researchers. Some departments were funded with staff already researching and publishing, whilst others were still developing their research culture. Staffing issues,

particularly staff changes and delays with appointments were evident in approximately half of the programmes. This is likely to have an impact on programme development. Frequent staff turnover is a common feature in non-continuing 'soft-money' programmes. This initiative offers limited capacity to provide certainty of employment to many staff beyond the short term. This has led to some instability in staffing which may have impeded the continuity of some research activities (Oceania Health Consulting, 2005). Given this, the documented level of research activity is all the more remarkable.

The RCBI's role has been somewhat similar to that of the UK's Research and Development Support Units. For the momentum to be maintained, we need to reflect on the underlying infrastructure support across the primary care sector. There is some evidence in the overseas literature that infrastructure support is essential for research capacity building. Kruse *et al.* (2003) identified three factors that positively correlated with increased research productivity: fellowship programmes to train researchers and programme directors; research strategic plans; and full-time research professionals in many more residency programmes. Departments funded through the RCBI have largely followed these strategies, having engaged a large number of people and conducted a diverse range of activities that contribute to both the building of capacity in using and undertaking research and evaluation, and contribute to the knowledge base in primary health care.

Limitations

This assessment of research capacity building activity can only be regarded as a brief comparison of research activity. Some researchers suggest that the assessment must include other factors. For example, Tomlinson has suggested that the current methods for assessing research output should not only include a count of the numbers of research staff and students as well as income from research grants, but also 'evidence of the department's vitality and prospects for continuing development' (Tomlinson, 2000: 637). These latter components are more difficult to assess. Others, such as Williams, argue that soft measures, including research grant income, are too unreliable and that 'publications are the only universally accepted currency of research success' (Williams, 1998: 1081). Clearly, the full

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impact of the RCBI will take some time to evolve and appropriate and measurable indicators of success need to be developed (Oceania Health Consulting, 2005).

There are some limitations in regards to the collation and interpretation of the data reported here. Unpacking RCBI activities (in the 2003 reports) from others occurring in university departments was not always straightforward, and coupled with varying interpretations of what to report by departments, made interpreting and summarizing the data challenging. Finally, as this analysis is a description of activities as reported by departments, there is the possibility that data may have been over or under-reported. Indeed, some departments did not report on all categories – whether this was because there was nothing to report or because the data had been removed prior to receipt by the researchers.

Conclusions

If the strength of primary health care research is considered a good indicator of the strength of quality of primary health care in a country, then Australia is moving in the right direction (Mant *et al.*, 2004). The RCBI funding has generated considerable research capacity building activity in these departments of general practice and rural health around Australia. This has provided a major boost to primary health care research in Australia. These activities would have been unlikely to occur without the support and assistance of the PHCRED Strategy. Funding has been continued for the next 5 years, highlighting the growing understanding by government and academic institutions that partnerships to create a health and policy relevant primary health care research capacity in Australia is a long term prospect (PHC RIS, 2006).

Statement of competing interest

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