Research productivity in Australian general practice: what has changed since the 1990s?

Deborah A Askew, Philip J Schluter and Jane M Gunn

*The Primary Health Care Research, Evaluation and Development (PHCRED) Strategy aims to improve Australia's output of high-quality research from primary care. We compared publication rates from general practice, medicine and surgery for the period 2000–2007, and found that general practice publications increased since 1990–1999 from 1.0 to 3.0 publications per 1000 general practitioners per year. However, general practice publication rates have plateaued since 2000, and represent only 2%–5% of the equivalent rates for medicine and surgery. This finding suggests that more time and sustained investment in PHCRED are essential to see tangible outputs from funded research in general practice. (**MJA 2008; 189: 103-104**)*

Since 2000, the Australian Government has invested $110 million in the Primary Health Care Research, Evaluation and Development (PHCRED) Strategy to "improve Australia's capacity to produce high quality primary health care research". An evaluation of the PHCRED Strategy in the 2004–05 financial year reported significant progress in achieving this aim.[1]

Published research is one measure of research capacity. As evaluation of Phase 2 of the Strategy has commenced,[1] we considered it timely to measure the publication rate from general practice research, and to compare this with rates of published research from other medical disciplines and with an earlier stocktake of published research from the 1990s.[2]

METHODS

We repeated the search strategy used in the previous stocktake.[2] The United States National Library of Medicine's PubMed database details the institutional affiliation of the first author in the address field of indexed publications. We used this information to identify publications from three Australian disciplines — general practice, medicine and surgery — published between 1 January 1990 and 31 December 2007. Publications with the terms "comment", "editorial", "letter" or "review" in the publication type field were excluded.

Average annual publication rates from 2000 to 2007 for each discipline were calculated as the number of publications per 1000 practitioners per year. Poisson regression was used to compare these rates with those in the previous stocktake, to model the raw numbers of general practice publications (using discipline workforce size as the exposure), and to adjust general practice publication rates relative to medicine and surgery publication rates (referenced to 1990). For all models, goodness-of-fit and residual checks were undertaken. All analyses were performed using Stata, version 10.0 (StataCorp, College Station, Tex, USA), and a level of $\alpha = 5\%$ was used to define statistical significance.

RESULTS

From 2000 to 2007, there were 545 publications from Australian general practice, published in 130 different journals, including eight specific primary care journals. These eight journals together published 223 (41%) of the publications from general practice.

For the period 2000–2007, there were 3.0 (95% CI, 2.8–3.3) publications per 1000 general practitioners per year — a significant increase from the previously reported level of one publication per 1000 GPs per year for the period 1990–1999,[2] but still less than 5% of the rate for surgeons during 2000–2007, and about 2% of that of physicians (Box).

From 1990 to 2007, the number of publications from each discipline increased. After adjusting for changes in publication rates for medicine and surgery, general practice publication rates increased significantly between 1990 and 2000, but plateaued between 2000 and 2007.

No evidence was found to doubt the adequacy of any of the Poisson regression models.

Relative publication rates of Australian general practitioners, physicians and surgeons, identified in PubMed search, 2000–2007

	Number (%) of publications	Approximate size of workforce	Proportion of total medical workforce ($N = 60\,252$)*	Publications per 1000 practitioners per year (95% CI)†
GPs	545 (3%)	22 600*	38%	3.0 (2.8–3.3)
Physicians	11 487 (72%)	9 000‡	15%	159.5 (156.6–162.5)
Surgeons	3 849 (24%)	7 100§	12%	67.8 (65.6–69.9)

* Source: Australian Institute of Health and Welfare, http://www.aihw.gov.au/publications/hwl/mlf05/mlf05-xx-all-employed-practitioners.xls (accessed Feb 2008).

† 95% confidence intervals calculated using exact Poisson distribution.

‡ Source: Royal Australasian College of Physicians (total of all Fellows of the RACP, including those from New Zealand), http://www.racp.edu.au/index.cfm?objectid=3F6EF93E-2A57-5487-D7CE8B12AD671563 (accessed Apr 2008).

§ Source: Royal Australasian College of Surgeons (total of all Fellows and trainees of the RACS, including those from New Zealand), http://www.surgeons.org/AM/Template.cfm?Section=Who_We_Are (accessed Apr 2008). ◆

DISCUSSION

The annual general practice research publication rate has trebled since the PHCRED Strategy was introduced, but remains very low compared with medicine and surgery, and is incommensurate with the level of clinical activity in general practice.

Despite considerable investment in building research capacity in general practice, its level of research output continues to be much lower than that of other disciplines. This can be partly explained by the very small number of GPs on government salaries (2%) compared with physicians and surgeons (56% and 26%, respectively).[3] GPs working in a fee-for-service environment lose revenue if they take time away from direct patient care, which is a disincentive for conducting research. This is not the case for their salaried colleagues, for whom research is often an expected component of their work. Could this be replicated in general practice?

Two components of the PHCRED Strategy (the Research Capacity Building Initiative and the Researcher Development Program) have largely focused on training novice researchers (from all fields within the extensive primary care workforce) and funding small, short-term projects that are unlikely to produce many publications. In contrast, the PHCRED Fellowships, Scholarships, and investigator- and priority-driven clinical research project grants are long-term investments with lengthy timelines for completion and publication of outcomes. Our inability to identify any real increase in the number of general practice publications suggests the level of investment is insufficient and more time is needed to see funded activity translate into tangible research output.

As with the earlier stocktake,[2] our approach has important limitations. The search strategy was not specific to research articles, it did not identify publications by general practice researchers whose institutional affiliation does not include the words "general practice", and it identified only first authors, ignoring general practice researchers collaborating with other disciplines and those outside Australia. Additionally, current and accurate workforce data are not available, requiring us to use different sources to estimate workforce sizes. Nevertheless, our approach is quick, easily replicable and produces an indicative comparison of general practice research productivity over time and with other disciplines. The large disparity we found in relative publication rates is unlikely to disappear with a more rigorous assessment.

Importantly, although research productivity is an indicator of research capacity, it is not the only indicator, and it does not provide information on the quality of research. The PHCRED Strategy should not be assessed solely on the number of publications produced, but also on other indicators of research capacity, including the number of research grants applied for and funded, evidence of research participation, and involvement in research training.

Sustained and targeted investment is needed to develop a sustainable primary care research workforce, if general practice is to provide high-quality, evidence-based care to fulfil its role as the cornerstone of the Australian health care system.

COMPETING INTERESTS

None identified.

AUTHOR DETAILS

Deborah A Askew, PhD, Senior Research Fellow[1]
Philip J Schluter, BSc(Hons), MSc, PhD, Professor of Biostatistics[2]
Jane M Gunn, MB BS, FRACGP, PhD, Professor[3]

1 Discipline of General Practice, School of Medicine, University of Queensland, Brisbane, QLD.

2 Faculty of Health and Environmental Sciences, AUT University, Auckland, NZ.

3 Department of General Practice, University of Melbourne, Melbourne, VIC.

Correspondence: d.askew@uq.edu.au

REFERENCES

1 Australian Government Department of Health and Ageing. Primary Health Care Research, Evaluation and Development Strategy. Phase 2 (2006–2009) Strategic Plan. Canberra: Commonwealth of Australia, 2005. http://www.phcris.org.au/phcred/PHCRED%20Strategic%20Plan%202006-2009.pdf (accessed Feb 2008).

2 Askew DA, Glasziou PP, Del Mar CB. Research output of Australian general practice: a comparison with medicine, surgery and public health. *Med J Aust* 2001; 175: 77-80.

3 Gray P. The mystery of GP research output [letter]? *Med J Aust* 2001; 175: 667.

(Received 21 Apr 2008, accepted 11 Jun 2008) ❑