





ORIGINAL ARTICLE

Research activities in general medicine: a scoping survey by the Internal Medicine Society of Australia and New Zealand

Ar K. Aung ^{1,2} Robert Pickles,^{3,4} Anne Knight,^{5,6} Leigh-anne Shannon,⁷ Andrew Bowers,⁸ Sinead Donnelly ^{9,10} Douglas F. Johnson,^{11,12} Ian A. Scott ^{13,14} and Elizabeth L. Potter ^{1,15} Internal Medicine Society of Australia and New Zealand Research Network (IMSANZ-RN) Working Group

¹Department of General Medicine, Alfred Health, ²School of Public Health and Preventive Medicine, Monash University, ¹¹Department of General Medicine, Royal Melbourne Hospital, ¹²University of Melbourne, and ¹⁵Baker Heart and Diabetes Institute, Melbourne, Victoria, ³Department of General Medicine, John Hunter Hospital, and ⁴School of Medicine and Public Health, and ⁶Department of Rural Health, University of Newcastle, Newcastle, ⁵Manning Base Hospital, Taree, ⁷Internal Medicine Society of Australia and New Zealand, Sydney, New South Wales, ¹³Department of Internal Medicine and Clinical Epidemiology, Princess Alexandra Hospital, and ¹⁴School of Medicine, University of Queensland, Brisbane, Queensland, Australia, and ⁸Department of Medicine, University of Otago, Dunedin, and ⁹Department of Medicine, Capital and Coast District Health Board (CCDHB), and ¹⁰Department of Medicine, University of Otago, Wellington, New Zealand

Key words

Internal Medicine Society of Australia and New Zealand, general medicine, research, research network.

Correspondence

Ar K. Aung, Department of General Medicine, Alfred Health, 55 Commercial Road, Melbourne, Vic. 3004, Australia.
Email: a.aung@alfred.org.au

Received 11 May 2022; accepted 24 June 2022.

Abstract

Background: In developing an effective framework for a collaborative research network (RN) that supports members involved in research, the Internal Medicine Society of Australia and New Zealand (IMSANZ) required a better understanding of the current level of research activity and engagement by general physicians, and factors influencing such engagement.

Aims: To explore the current research landscape amongst general physicians in Australia and Aotearoa New Zealand.

Methods: A questionnaire exploring research participation, scope, research enablers and barriers was disseminated to IMSANZ members over a 3-month period. Core functions of IMSANZ-RN, research priorities, potential solutions to perceived barriers and required level of support were also evaluated.

Results: A total of 82 members, mostly senior medical staff (74.4%), responded to the survey (11.8% response rate). More than 70% were involved in impactful research across multiple disciplines, encompassing a wide range of research themes and topics. However, there is limited support and resources available to conduct research, with most projects being self-instigated and self-funded. There is overwhelming support to increasing the profile of research in general medicine through the establishment of IMSANZ-RN, whose principal purposes, as identified by respondents, are to foster collaboration, promote research, provide research education and training, and share information among general physicians. Quality improvement studies (56.1%) and clinical trials (41.5%) were also identified as priority research types.

Conclusions: This study has profiled the constraints faced by general physicians in conducting high-quality collaborative research and provides insights into what is needed to support greater research engagement, through development of a discipline-specific clinical RN.

Funding: None.

Conflict of interest: None.

Introduction

General physicians are experts in the diagnosis and management of complex, chronic and multisystem disorders, practising across a wide range of healthcare settings

and working collaboratively within multidisciplinary teams. As a result of these varied and broad capabilities, general physicians play important roles as clinicians, teachers, researchers and health system leaders. The Internal Medicine Society of Australia and New Zealand (IMSANZ) is a separate and freestanding body that is closely aligned with and works in harmony with the Royal Australasian College of Physicians (RACP).¹ IMSANZ represents physicians and trainees in general medicine across Australasia. Its role is to promote the academic and professional profile of general medicine and to advocate for training and research activities. ‘Encouraging research’ is one of the key pillars identified by IMSANZ in its 2019 mission statement.

Clinical research networks within other specialty societies have proved effective in setting research priorities, promoting research collaborations and providing research training.^{2–6} Such networks have facilitated large multicentre studies by bringing together like-minded researchers with clinical expertise and knowledge, providing a forum to advertise and share projects aligned with identified priorities, and attracting funding through advocacy.^{5,6} Publications in high-impact journals and dissemination of results through local and international collaborations has led to changes in clinical guidelines and ultimately clinical practice.^{7,8}

Developing a similar research network under the auspices of IMSANZ is seen as a means for accelerating robust, collaborative research activities among general physicians that identify and address specific needs of the community, patients and health services. However, the current landscape of research activities within general medicine services in Australia and Aotearoa New Zealand is largely unknown. In order for IMSANZ to establish plans for a research network and to develop relevant initiatives to support general physicians involved in research, a better understanding of current general medicine research activity is required. In response, an IMSANZ research network (IMSANZ-RN) working group was formed in mid-2021, with leadership support from IMSANZ Board and Council. IMSANZ-RN was tasked to undertake a questionnaire survey that assessed the extent of research interest and participation, scope of research activities, and enablers and barriers to conducting research among general physicians, evaluate the level of support by members for establishment of IMSANZ-RN, and ascertain their perceptions of RN core functions, constraints and potential solutions.

Methods

Questionnaire development

The initial draft of the survey questionnaire was developed by AKA and EP, further refined by members of

IMSANZ-RN, and then pilot tested among 20 physicians at Alfred Health, John Hunter Hospital and Manning Base Hospital. Feedback on the questionnaire design, content, wording, aesthetics and functionality was discussed among the working group members and the form was modified accordingly.

The questionnaire (Supporting Information Appendix S1) focussed on the following key variables: (i) professional background of the respondent, including higher degree research qualifications; (ii) current or past research participation and reasons; (iii) research scope, including type, participants, theme and focus of research, and the extent of any collaborations; (iv) research enablers and barriers; (v) perceived importance of research within general medicine; (vi) perceived core functions of IMSANZ-RN; (vii) perceived research priorities; (viii) perceived barriers to establishing a research network and potential solutions; and (ix) member’s support for establishing IMSANZ-RN. The questionnaire was developed on the RedCap⁹ platform, hosted by Monash University.

Questionnaire dissemination

The questionnaire was disseminated online to all IMSANZ members with a society-registered email address and could be accessed by QR code or through the IMSANZ website, with weblinks provided in the advertising material and explanatory statement. The survey was first launched at the IMSANZ Annual Scientific Meeting in Sydney (online virtual event) on 3 November 2021¹⁰ and closed 3 months later on 31 January 2022. Reminders to complete the questionnaire were periodically sent to member emails and included in the December 2021 edition of the IMSANZ newsletter.

Data analysis

Quantitative data were aggregated, and descriptive statistics are presented as counts and proportions, median and interquartile ranges (IQR). Proportions are provided based on the overall total number of respondents for the survey. Qualitative data were thematically analysed and are presented in a summary format.

Ethics approval

The study was approved as a low-risk project by the Monash University Human Research Ethics Committee (Project ID: 29625).

Table 1 Characteristics of respondents ($n = 82$) and research scope

Question	No. respondents	% of respondents
1. Country of residence		
Australia	56	68.3
Aotearoa New Zealand	20	24.4
Pacific Islands	6	7.3
2. Current position		
Junior medical staff	20	24.4
Senior medical staff (full time)	30	36.6
Senior medical staff (part time)	12	14.6
Senior medical staff (part time and also appointment in another specialty)	18	22.0
Non-medical/non-clinical staff	2	2.4
Not answered	1	1.2
3. Workplace location		
Metropolitan	48	58.5
Regional	28	34.1
Rural/remote	5	6.1
Not answered	1	1.2
4. Workplace setting		
Public	68	82.9
Private	8	9.8
Mixed public and private	5	6.1
Not answered	1	1.2
5. Current university appointment		
Yes	34	41.5
Receives salary for university appointment	8	23.5
No	47	57.3
Not answered	1	1.2
6. Higher degree research in medicine/health sciences		
No	61	74.4
Masters	10	12.2
PhD or MD	10	12.2
Not answered	1	1.2
7. Research involvement		
Currently involved in research	41	50.0
Previously involved in research	17	20.7
How long ago? (range; years)	0.5–30	
Not currently involved but planning to be	16	19.5
Not planning to be involved	6	7.3
Not answered	2	2.4
8. Most active role played in research projects		
Chief principal investigator	23	28.0
Principal investigator	19	23.2
Associate investigator	19	23.2
Other formal or non-formal contributory role	7	8.5
Not applicable	12	14.6
Not answered	2	2.4
9. Types of research involved in		
Clinical trials	20	24.4
Observational studies	33	40.2
Quality improvement studies	37	45.1
Health service evaluation	21	25.6
Clinical registries	8	9.8
Clinical epidemiology	8	9.8
Systematic reviews	8	9.8
Medical education	11	13.4
Other	16	19.5

Table 1 *Continued*

Question	No. respondents	% of respondents
Not applicable	9	11.0
10. Type of research participants		
General medical inpatients (including acute medicine)	38	46.3
General medical outpatients	19	23.2
Cared for primarily by other specialty	17	20.7
Other	11	13.4
Not applicable	15	18.3
11. Overarching research themes		
Acute medicine/acute care	36	43.9
Multimorbidity assessment and management	22	26.8
Older patient care	17	20.7
Chronic disease management	29	35.4
Perioperative medicine	13	15.9
Other	11	13.5
Not applicable	14	17.0

Results

A total of 82 of 694 registered IMSANZ members responded to the survey (11.8% response rate), with the proportions of respondents similar to total membership according to country of practice: 68.3% versus 70.3% from Australia, 24.4% versus 29.4% from New Zealand and 7.3% versus 2.3% from the Pacific Islands.

The characteristics of respondents are summarised in Table 1.

In brief, 61 (74.4%) were senior medical staff in full-time or part-time positions, practising as general physicians or in both general and subspecialty medicine. This profile was similar to the current IMSANZ membership of whom 71.9% are senior physicians. The majority of respondents worked in metropolitan health services (58.5%) and in public hospital settings (82.9%). Thirty-four (41.5%) held current university appointments and 20 (24.4%) had a higher research degree in medicine/health sciences (Masters, Doctor of Medicine or Doctor of Philosophy).

Research involvement and scope

Forty-one (50%) respondents were actively involved in research while a further 16 (19.5%) planned to be involved. Previous research involvement was indicated by 17 (20.7%), while 6 (7.3%) planned not to conduct research at all. Of those who had been involved in research, lack of personal incentives, limited opportunities and support, and clinical commitments were the main reasons contributing to cessation of their research activities. Lack of interest, support and time were the main reasons behind those who planned not to be involved in research.

More than 50% of those who were involved in current or prior research nominated their most active role

as being chief or principal investigators. The most common research designs were quality improvement studies (37; 45.1%), observational studies (33; 40.2%) and health service evaluation studies (21; 25.6%; Table 1). General medical inpatients, including acute medicine (38; 46.3%), and general medical outpatients (19; 23.2%) were the most frequent categories of research participants involved.

Acute medicine/acute care (36; 43.9%), chronic disease management (29; 35.4%) and multimorbidity assessment and management (22; 26.8%) were the top research themes (Table 1). Within these themes, a diverse range of research topics and focus across all specialty areas were noted (Supporting Information Appendix S2). Researchers also collaborated with a wide range of medical and allied health disciplines (Supporting Information Appendix S3), with cardiology, general surgery and nursing being the most frequent partners.

Research enablers and barriers

Approximately one-third (31; 37.8%) of respondents aimed to achieve an impact through their research at departmental/institutional level or at national/international level (25; 30.5%).

The majority (52; 63.4%) did not receive any non-clinical equivalent full-time (EFT) remuneration from either employers or external research sponsors for research commitments. Of the 12 who received non-clinical EFT allocation, the median (IQR) EFT amount was 0.1 (0.025–0.15).

Concerning funding, 9 (11%) received funding from the Australian federal government for their research projects (e.g. National Health and Medical Research Council, Australian Research Council and Medical Research

Table 2 Suggested solutions to challenges in establishing IMSANZ Research Network

Developing research infrastructure
Identifying enthusiastic champions
Providing national and international coordination
Securing funding for coordination
Adapting approaches used by other specialist societies
Leveraging existing university or institution resources through agreements
Establishing agreed leadership structure
Encouraging member participation, discussion and dialogues
Fostering collaborations between specialties and institutions
Securing funding for research infrastructure
Demonstrating benefits of research and overall cost-effectiveness
Demonstrating the importance of general medicine through health service research
Establishing full-time position to coordinate, solicit, liaise with and source potential grantors/funders
Exploring information regarding national and international grant opportunities (e.g. NHMRC)
Exploring membership, institutional/university/organisational, philanthropic, or corporate funding/grants
Collaborating with RACP, other specialist societies, state health departments and research institutes, ministry of health in Pacific nations
Setting national research agenda/priorities
Identifying key stakeholders and interested parties
Encouraging consumer (patient) and stakeholder input in setting priorities
Leveraging diversity of general medicine practice
Submitting and voting on research priorities/agenda by IMSANZ members on an annual basis with input from government organisations or funders
Evaluating return on research investment on a regular basis in ensuring quality research is promoted and produced
Collaborating with agencies, such as government, public health and medical research future fund
Promoting research interest
‘Inspiring from above’ by experienced mentors
Investing in experienced mentors, raising critical mass
Having dedicated time for mentorship and guidance
Dedicating a research page in the IMSANZ newsletter
Hosting conference trainees’ presentations and prizes through IMSANZ Research Network
Identifying research involvement as core value and principle in RACP basic and advance training curriculum
Profiling the practical implications of research in clinical practice and system efficiency
Providing research training
Providing online interactive course, exchange forum and mentor programmes
Dedicating protected training time to research
Providing multidisciplinary research education programme/course, including basic statistics and epidemiology
Providing continuing medical education incentives for research participation for fellows
Partnering with RACP and putting emphasis on research training
Developing formal research education and training framework
Providing ‘free’ resources (e.g. subscription to Cochrane Systematic Review course)

IMSANZ, Internal Medicine Society of Australia and New Zealand; NHMRC, National Health and Medical Research Council; RACP, Royal Australasian College of Physicians.

Future Funds), while most relied on departmental, institutional or state government research funds (8.5% each). Thirty-two (39%) believed they were not provided with adequate resources for research, with research assistants/nurses, statisticians and data management tools/personnel being the resources mostly lacking.

Core functions of IMSANZ-RN

Top priority core functions of IMSANZ-RN were identified as: (i) facilitator for collaboration with other specialty societies’ research networks; (ii) forum to promote research outside metropolitan public hospitals setting; (iii) forum to share research data/publications/guidelines; (iv) forum to

advertise and showcase collaborative projects; and (v) source of research training (Supporting Information Appendix S4).

Quality improvement studies (56.1%) and clinical trials (41.5%) were identified as priority research types. Acute medicine/acute care (59.8%), multimorbidity assessment and management (51.2%) and chronic disease management (45.1%) were identified as priority research themes.

Challenges and solutions

With regards to potential challenges and solutions to the development of IMSANZ-RN, securing funding for

research infrastructure (59.8%), developing national/state research infrastructure (34.1%), promoting interest in research (29.3%) and providing training in research methods (29.3%) were rated highest priority (Supporting Information Appendix S4). Illustrative insights and suggestions in response to the above challenges are summarised in Table 2. Many felt that development of research infrastructure for IMSANZ-RN can be achieved through adapting successful approaches employed by other specialty societies and by leveraging available resources, such as universities, research institutions and government organisations. To secure ongoing funding, research output by IMSANZ-RN must demonstrate the value of general medicine services to the health system and cost-effectiveness of interventions. For IMSANZ-RN to get off the ground, enthusiastic members are needed to champion the process, to promote research culture and to provide mentorship.

The vast majority (59; 72%) of respondents believed it is important or very important to promote research within general medicine, with 57.3% supporting the plan to establish IMSANZ-RN.

Discussion

The present study has provided a detailed overview of current research activities within general medicine in Australia, Aotearoa New Zealand and the Pacific Islands. We found a large proportion of respondents were involved in a diverse range of high level and impactful research activities across different settings and disciplines. Many were engaged in quality improvement initiatives and health service research. There is also overwhelming support for establishing IMSANZ-RN, whose principal purposes are to foster research collaboration, promote research, provide education and share information.

Clinical research networks have been shown to be effective models in conducting large-scale clinical, epidemiology and health service research.⁵ Through a collaborative framework, these networks define discipline-specific research agendas and priorities, develop research questions relevant to the patient populations of interest, and identify research methodologies that are applicable in answering these questions.^{5,6,11} Additionally, they promote research culture, enable exchange of ideas, provide formal and informal networking opportunities to established researchers, as well as to clinicians interested in pursuing a research career.³ Support and resources are also made available through scientific conferences, workshops, education and training programmes, research coordination, scholarships and funding applications. Overall, clinical research networks benefit members of the

specialty society, as well as the patient populations they serve.⁵

General medicine is one of the largest and most active clinical service providers within health organisations in Australia and Aotearoa New Zealand. This ideally places general physicians in an influential position to conduct a diverse range of clinically meaningful and relevant research, utilising the sheer volume of clinical, laboratory and administrative data available at their discretion. National and trans-Tasman collaboration, as well as collaboration with other specialty societies, through well designed and well coordinated multicentre studies, can only increase the quality of research output. As a result of their training and experience, general physicians also possess the expertise to conduct pragmatic clinical research, such as quality improvement and health service research, which contribute to the overall improvement in functions of the healthcare system and enhance patient safety and quality of care.¹²

However, at present, limited time, support, opportunities and incentives are the key barriers to the involvement of general physicians in research. As reported here, over 60% of general physicians across Australia and Aotearoa New Zealand conduct their research in their own time, on top of their already heavy clinical commitment. We found most research activities were intended to have impact at a departmental or institutional level. This implies the majority of current research activities in general medicine are conducted in individual hospital/health service settings and on a small scale, with limited opportunities to form larger research alliances. Such self-directed, self-instigated research efforts are not well rewarded or recognised, despite their importance to patient care. Under-recognition of such efforts impedes sustained research activities and growth. This is a critical issue for many smaller institutions, especially non-tertiary, non-university-affiliated settings (i.e. rural and regional hospitals and private hospitals), which lack the critical mass, resources and support to participate in research. Furthermore, valuable learnings may not be communicated effectively outside of the department if research is not published, with risk of wasted effort and unnecessary repetition by others unaware of what has already been done. These concerns resonate with some of the proposed functions of IMSANZ-RN that were rated highly important by respondents, such as promoting collaboration and sharing of data and publications and providing research training.

Establishment of IMSANZ-RN faces several challenges and, as several respondents have suggested 'small steps must first be taken' to offer potential solutions. Based on the results of the present survey, the objectives of the research network must first be clearly articulated, and a

governance structure and roadmap developed that reflect the needs of the general physicians and the patients they care for. Certain sessions, presentations and educational workshops at IMSANZ annual scientific meetings need to be aligned with the proposed core functions of IMSANZ-RN, and focussed on priority research types and themes, as identified by survey respondents. These meetings should also provide an opportunity to showcase and advertise upcoming research projects that fall within set priorities, and where interested researchers or clinicians can enter into collaborative arrangements. Endorsed research activities must also embrace gender and cultural diversity and equity, and include topics focussing marginalised and disadvantaged groups of consumers. For clinical trials, it is important to adapt new approaches, such as the Australasian Teletrial Model, to extend the reach to all populations and to ensure equity.¹³ Additionally, established researchers, who can assume the roles of mentors and inspire novice researchers, need to be identified and approached to champion these processes. Such research mentorship programmes will help meet the training requirements set by RACP in completing research projects, and foster research interest and culture among trainees who are the future leaders in general medicine. Further, in attracting recognition and funding from government and other agencies, the resultant research output will need to demonstrate the important role and return on investment of general medicine services in the health system.¹⁴ Infrastructure, such as administrative support and information technology systems (including social media and networking), will also need to be gradually developed over time to support the functions of IMSANZ-RN.⁵

This study has several limitations. First, the low response rate was anticipated, despite concerted efforts to publicise the survey, and probably reflects the current

disengagement of many IMSANZ members from research activities for the very reasons suggested by respondents. In saying this, we accept the possibility of responder bias, which is a limitation of any questionnaire survey. Nevertheless, the demographic characteristics of respondents were similar overall to those of the IMSANZ membership and are therefore likely to be representative. Second, this survey was designed to capture a snapshot of the present research landscape within general medicine, not to identify and prioritise specific research topics. This will require formal qualitative research methodologies (e.g. modified Delphi rounds) and will be one of the next tasks for IMSANZ-RN in setting the research agenda once the framework and roadmap have been developed.

Conclusion

General physicians in Australia, Aotearoa New Zealand and the Pacific Islands are involved in a wide range of research activities that span different settings and disciplines. Many would like to have greater involvement, but their efforts are subject to various system constraints. A discipline-specific clinical research network is needed that provides incentives, infrastructure support and training in research to present and future investigators.

Acknowledgements

The authors thank all physicians who critically appraised, refined and provided further suggestions to improve the functionality of survey questionnaire. Open access publishing facilitated by Monash University, as part of the Wiley - Monash University agreement via the Council of Australian University Librarians.

References

- 1 Internal Medicine Society of Australia and New Zealand (IMSANZ). 2022.
- 2 Australasian Society for Infectious Diseases – Clinical Research Network. 2022.
- 3 Morrish AT, Hawley CM, Johnson DW, Badve SV, Perkovic V, Reidlinger DM *et al.* Establishing a clinical trials network in nephrology: experience of the Australasian Kidney Trials Network. *Kidney Int* 2014; **85**: 23–30.
- 4 Story D, Myles P. Large multicentre trials in anaesthesia: the ANZCA Clinical Trials Group. *Anaesth Intensive Care* 2005; **33**: 301–2.
- 5 Neme F, Buchbinder R, Hawley CM, Nelson MR, Waterkeyn JG, Reid CM. Activities supporting the growth of Clinical Trial Networks in Australia. *Trials* 2022; **23**: 1–8.
- 6 Olver IN, Keech AC. Forming networks for research: proposal for an Australian clinical trials alliance. *Med J Aust* 2013; **198**: 254–5.
- 7 Stewart AG, Paterson DL, Young B, Lye DC, Davis JS, Schneider K *et al.* Meropenem versus piperacillin-tazobactam for definitive treatment of bloodstream infections caused by AmpC β -lactamase-producing *Enterobacter* spp., *Citrobacter freundii*, *Morganella morganii*, *Providencia* spp, or *Serratia marcescens*: a pilot Multicenter Randomized Controlled Trial (MERINO-2). *Open Forum Infect Dis* 2021; **8**: ofab387.
- 8 Myles PS, Smith JA, Kasza J, Silbert B, Jayarajah M, Painter T *et al.* Aspirin in coronary artery surgery: 1-year results of the aspirin and tranexamic acid for coronary artery surgery trial. *J Thorac Cardiovasc Surg* 2019; **157**: 633–40.
- 9 Harris PA, Taylor R, Minor BL, Elliott V, Fernandez M, O'Neal L *et al.* The REDCap consortium: building an international community of software platform partners. *J Biomed Inform* 2019; **95**: 103208.

- 10 IMSANZ 21 virtual conference – riding the wave of transitions. 2021.
- 11 Buchbinder R, Bourne A, Latimer J, Harris I, Whittle SL, Richards B *et al.* Early development of the Australia and New Zealand musculoskeletal clinical trials network. *Intern Med J* 2020; **50**: 17–23.
- 12 Kim CS, Lukela MP, Parekh VI, Mangrulkar RS, Del Valle J, Spahlinger DA *et al.* Teaching internal medicine residents quality improvement and patient safety: a lean thinking approach. *Am J Med Qual* 2010; **25**: 211–17.
- 13 Sabesan S, Malica M, Gebbie C, Scott C, Thomas D, Zalberg J. Implementation of the Australasian Teletrial Model: translating idea into action using implementation science frameworks. *J Telemed Telecare* 2021: 1357633X211017805. <https://doi.org/10.1177/1357633X211017805>
- 14 Hagen N, Stiles C, Biondo P, Cummings G, Fainsinger R, Moulin D *et al.* Establishing a multicentre clinical research network: lessons learned. *Curr Oncol* 2011; **18**: 243–9.

Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's web-site:

Appendix S1. Survey questionnaire.

Appendix S2. List of top research topics/focus conducted by respondents (Question 12).

Appendix S3. Most collaborated disciplines by respondents.

Appendix S4. Survey questionnaire responses (Questions 13–23) ($n = 82$).
