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Programmatic research in New Zealand medical education: a national collaboration

Tim J Wilkinson, Jennifer M Weller, Judy McKimm, Barbara J O'Connor,
Ralph E Pinnock, Phillipa J Poole, Dale Sheehan, Mike J Tweed, Andy M Wearn

Abstract

Aim We aimed to identify areas that are a high priority for medical education research in New Zealand and that would benefit from a coordinated collaborative approach as an initial step in developing a coordinated research strategy.

Methods A modified Delphi technique was used to reach consensus, among medical education researchers in New Zealand, on the optimal areas of activity.

Results The programme of research fits under an overarching theme of “Growing a professional workforce”. Seven key areas of activity have been identified: engaging in community and clinical learning environments; improving recruitment and retention; improving phases of transition; assessing professional behaviours; promoting quality feedback; engaging clinical teachers and educational and clinical leadership.

Conclusion This programme of medical education research projects is in the national interest, assists in theory building, helps develop research groups with similar interests, helps avoid duplications, ensures efficient use of funding opportunities, and makes effective use of existing expertise.

Medical education research is alive and flourishing in New Zealand. There are many exciting projects being undertaken within the Universities of Otago, Auckland and Canterbury as well as within healthcare organisations, postgraduate Colleges and District Health Boards. However, many of these projects are occurring in isolation. To encourage cross-fertilisation of ideas, pool limited resources and reduce the potential for duplication of effort, a more coordinated and strategic approach is required.

Medical education research has grown significantly as a discipline over the past decade. Standards for research have been articulated in initiatives such as the Best Evidence in Medical Education (BEME) Collaboration¹ and the Campbell Collaboration, a subsidiary of the Cochrane Collaboration.² Scientific evidence is increasingly being seen as the key driver of educational policy and practice, with medical educators looking to the literature to provide professional guidance on matters as diverse as curriculum design, instructional methods, simulation, assessment and professionalism, both in undergraduate and postgraduate settings.³

The need for a more coordinated programmatic approach to medical education research has been stated internationally.^{3,4} Furthermore, some projects are better undertaken at national level where collaboration and synergies among institutions can be fostered. Developing and coordinating projects within an overall plan of programmatic research assists in theory building in medical education research,¹⁻³ helps develop research groups with similar interests, helps avoid duplications, ensures

efficient use of funding opportunities, draws on existing expertise, and is in the national interest.

The aim of this study is to define areas of high priority for medical education research in New Zealand that would benefit from a coordinated collaborative approach.

Methods

We used a modified Delphi technique to reach consensus on the optimal areas of activity.⁵ This comprised four stages.

- A group of medical education researchers, drawn from the Australia and New Zealand Association for Health Professional Education (ANZAME) membership, met to identify synergies in research activities and to identify national priorities where collaborative cross-institution research should be undertaken.
- These research areas were collated into themes and key research questions, which were then circulated to the group for expansion, clarification or amendment as needed.
- Once consensus was reached, this was circulated as a discussion document to all members of ANZAME working in New Zealand who had expressed an interest in collaborative research in medical education.
- Finally, feedback from this wider group of ANZAME members was incorporated. The revised document was re-circulated to the initial group and final consensus was obtained.

In developing the key themes for the research programme, the following criteria were considered. The research (1) should have national importance, (2) would benefit from collaboration (or could only be done at a national level), and (3) should have findings that could be generalisable or transferable to other countries and/or to other disciplines outside medicine.

Results

The focus group comprised 17 medical educators. This group, through discussion and subsequent member validation, identified the following six broad programmes of research:

- **Engaging in community and clinical learning environments**
- **Improving recruitment and retention**
- **Improving phases of transition**
- **Assessing professional behaviours**
- **Promoting quality feedback**
- **Engaging clinical teachers**

This was sent for wider consultation to 11 additional New Zealand members of ANZAME who expressed an interest in medical education research and who were not part of the focus group. These members endorsed this approach, helped refine the research questions and added a seventh project: Educational and clinical leadership.

We have classified these programmes under the overarching theme of “Growing a professional workforce”. These are described below. For each area, suggested research questions and potential projects have been identified and are shown in Table 1.

Table 1. Some questions to be considered under each research theme

<p>Engaging in community and clinical learning environments</p> <p>Engagement in workplace learning</p> <ul style="list-style-type: none"> • Based on current literature, what factors have been consistently shown to promote engagement in the clinical learning environment? What further research is needed to identify / confirm these factors in terms of measurable learning outcomes? • Based on the above, what facilitates or blocks the implementation of these factors? Specifically: <ul style="list-style-type: none"> ○ What teaching and learning strategies are valued and most effective during medical school and internships? ○ What is the interaction between successful strategies and the context (e.g., medical /surgical /community /rural /Māori health). Do strategies differ, do they need to? • What are the explicit and hidden learning outcomes of these periods of learning? • For learners, what is the optimal balance of community-based vs. hospital-based learning environments? <p>Partnerships, collaboration, boundary crossing</p> <ul style="list-style-type: none"> • What are effective models for building community partnerships? • For learners, organisations and services, what is the optimal balance of community-based versus hospital-based learning environments? What factors might influence this balance? • What health benefits can be achieved with collaborative approaches • What are potential models for effective academic- workplace partnerships (esp. across the undergraduate - postgraduate transition)?
<p>Improving recruitment and retention</p> <ul style="list-style-type: none"> • What are the effects of current selection methods? <ul style="list-style-type: none"> ○ How valid are the current selection tools? Are there better ones? ○ Should selection be a meritocracy or of some other form? ○ Should there be restricted entry categories? ○ Are targeted entry programmes resulting in a more diversified workforce? Where do graduates of these schemes end up and for how long? • What are the effects of current curricula? <ul style="list-style-type: none"> ○ Which curricular elements have substantial effects on workforce choice and why? ○ How can this information be used to target career choice for priority areas? • What is the interaction between selection and curriculum? <ul style="list-style-type: none"> ○ What are the relative effects of selection vs. curriculum in producing a differentiated workforce e.g. regional / rural? ○ Should rural origin students be first priority for rural immersion programmes? ○ What additional support is needed to ensure progression into workforce of students who are Māori or from Pacific Islands? ○ Do different student sub-groups gain any differential effect from the curriculum and learning environments? • Workforce <ul style="list-style-type: none"> ○ What will be the role of the doctor in 2025? ○ How can we better “shape” the medical workforce to match health needs? ○ What strategies work best to assist in retention of NZ graduates? ○ What factors would increase the primary care workforce? ○ What is the effect of the new government strategy of targeted bonding to area of need? ○ What levers and drivers optimise retention of PGY1 and PGY2 in the NZ training environment?

Improving phases of transition

- What are the criteria for “effective transition”? How do we measure if students / trainees have made it?
- Do the required competencies progress logically or appear and disappear at the different stages?
- Do some students (or some competencies) get “lost in transition”?
- What is the current evidence on interventions / structures / support/ organisational change or other factors that promote “effective transition”?
- How can assessments be designed to ensure minimum competence levels yet possibly allow accelerated entry into specialty training programmes for competent and confident graduates?
- Closing the quality loop - How can District Health Boards provide feedback from workplace to undergraduate programme and Universities feed forward into pre-registration training?

Assessing professional behaviours

- What are common and/or important elements of lapses of professionalism?
- How can decisions around fitness to practice be made based on observed elements of professionalism or unprofessionalism?
- How do lapses of professional behaviour at medical school relate to future practice after graduation?
- Are there ways to predict those at risk of poor professionalism?
- What should be in a professionalism curriculum and how is it best learnt?
- How can we expose and engage with the hidden curriculum as part of a professionalism curriculum?
- How might an assessment system be constructed to support development of professionalism?

Promoting quality feedback

- How do we measure outcomes of interventions aimed at improving strategies of trainees / learners to encourage feedback?
- Are the currently used approaches to feedback effective in any measurable way?
- What are the current levels of knowledge and skill in teachers in the area of feedback?
- What impact does a particular intervention designed to improve corrective feedback have on the learner?
- What factors affect the success of feedback?

Engaging clinical teachers

- From whom and with whom do medical students and junior doctors learn?
- What motivates these people to engage in teaching medical students and junior doctors?
- What are the needs of this group to support teaching and facilitating learning?
- What factors (personal, professional, organisational) facilitate or create barriers to effective teaching and learning interactions?
- How could these barriers be overcome?
- What evidence is there that an intervention to promote engagement of clinicians in teaching results in improved learning outcomes for medical students and junior doctors?
- How can medical students and junior doctors best be supported to teach?

Educational and clinical leadership

- What are the core components of educational and clinical leadership at different stages of medical education/professional development?
- How should these components be framed (e.g. competencies, qualities, professional attributes)?
- How can medical students and junior doctors learn 'leadership'?
- What motivates teachers and support staff to engage in educational leadership activities?
- What are the needs of these groups in terms of support for educational leadership and management activities?
- What factors (personal, professional, organisational) facilitate or create barriers to effective clinical and educational leadership/management?
- How could these be overcome?
- What evidence is there that leadership development interventions results in improved practice?
- How can we develop capacity to teach leadership?

Engaging in community and clinical learning environments

Effective learning in the workplace is highly dependent on creating an environment where the learner/trainee feels engaged and is able to participate in the daily activities of a healthcare team.⁶ This reflects a change in focus from regarding learners as individuals, to viewing learners as members of a community of practitioners.⁷ Learning arises from the dialogues and interactions with other team members.

This area of activity aims to explore with learners and supervisors specific and feasible factors that promote engagement in a clinical learning environment, and most importantly how these factors can be encouraged in practice. Secondary aims are to determine if the identified factors are associated with measurable learning outcomes and to explore the effect on the clinical environment of different patterns of workplace-based learning. In short, is the desired symbiosis,⁸ whereby both the learning community and the clinical community derive mutual benefit, being realised?

Improving recruitment and retention

It is critical that the medical workforce meets as far as possible the health needs of New Zealand. This means having the right type of healthcare professionals in the right place, doing the right thing at the right time,⁹ alongside appropriate health promotion and disease prevention activities. The medical workforce demographics currently do not match the population. Indigenous doctors are underrepresented and there is a high proportion of international medical graduates. A longitudinal study, tracking the journey of medical students through their courses into the workforce, was established in 2006, in collaboration with the Medical Deans of Australia and NZ.¹⁰

The University of Auckland is into the fourth year of data collection with a complementary study. Linkage of student entry and exit data will be possible from 2010, and data from exiting students is already being linked to the Medical Council of New Zealand registration database. The tracking projects will assist in answering more complex educational questions regarding the interplay among selection, curriculum and the learning environment on career aspiration and destination.¹¹

Collaborative projects will enable a comparison of career choices and career locations according to experiences and courses within medical schools across Australia and New Zealand.

Improving phases of transition

Multiple transitions exist in medical training, starting with the move from secondary to tertiary education, and continuing through the various phases of post-vocational training and beyond. The transitions from a predominantly university campus-based education into a clinical environment (such as occurs for early medical students as they progress through the programme) and the move from such environments under university jurisdiction into the workforce can create tensions and highlight previously unrecognised problems.¹²

The transformation from student to expert practitioner requires the assimilation of vast amounts of knowledge, development of appropriate attitudes and behaviours as well as the acquisition of clinical skills within the context of the workplace.¹³

This research area will explore these areas of potential difficulty and identify organisational and educational interventions that can better facilitate these transitions.

Assessing professional behaviours

Professionalism is increasingly recognised as an important component of performance for any health professional. Many of the difficulties that arise in practice seem to stem from problems with unprofessional behaviours.¹⁴ Professionalism is a critical component of ongoing certification of competence and this is an area of interest to many professions. Recent work has described explicit professionalism curricula¹⁵ and highlighted assessable components of professionalism and some potential assessment tools that could be used.¹⁶ However, debate continues around the approach to assessment of professionalism.¹⁷

This area of research aims to build on existing theory to pilot a programme of assessment of professionalism and to identify effects on practitioner or patient outcomes.

Promoting quality feedback

An important component of learning and ongoing development as a professional is the ability to seek and respond to feedback. A group of medical researchers in NZ and Australia has started exploring models of feedback.^{18,19} Traditional models have focused on the role of supervisors and ways in which they can provide effective feedback²⁰ but newer approaches place more emphasis on the active role that the student or trainee plays in the process.

This area of research aims to investigate strategies that the learner can adopt to recognise, seek, promote and regulate feedback.

Engaging clinical teachers

Much of the teaching and supervision of medical students and junior doctors is undertaken by non-university staff, including other more senior medical students, junior doctors and members of other health professions. This goodwill and altruism

cannot be taken for granted yet is crucial for effective learning of trainees and students in a variety of contexts.

Evidence shows that junior doctors are willing to engage in teaching and, although they perceive a lack of teaching skills, they express a willingness to undertake training in teaching.²¹⁻²⁴ Furthermore, such training has demonstrated positive effects.²¹ This project links with the areas of research exploring engagement in community and clinical learning environments.

This area of research aims to explore the motivators, facilitators and barriers to involvement of supervisors/tutors/teachers, and identify strategies that enhance involvement.

Educational and clinical leadership

All sectors of education and healthcare have been subject to massive change, reform and reorganisation and a number of 'failures' have been seen in the way organisations have been equipped to respond to such change. This has raised questions over the leadership capabilities and succession planning within higher education and healthcare organisations responsible for delivering education and training.²⁵

Typically, medical education is led and managed by enthusiastic individuals, many of whom have demonstrated achievements in clinical practice, teaching and research, but who have little formal leadership or management development.²⁶

The importance of clinical leadership has recently been highlighted by the New Zealand Ministry of Health²⁷ with the result that increasing attention is being paid to how medical education leaders (many of whom are also clinicians) can be identified, trained and supported. More recently, this has included exploring ways in which medical students and junior doctors might acquire leadership and management competencies.²⁸

This area of research aims to explore the motivators, facilitators and barriers to involvement of students, clinical teachers, academics, managers and support staff in leadership roles and to identify strategies for developing educational and clinical leadership capacity.

Discussion

Each of the research headings represents a potential research programme where teams will develop focussed research questions into viable research proposals targeted to funding opportunities.

From an international perspective, New Zealand undergraduate medical programmes have three important features that can contribute to best evidence medical education:

- The **first** is the trainee intern year which is a model of improving the transition from medical schools to the workplace. Currently trainee interns are a discrete, complete cohort closely monitored and supported in an apprenticeship role, yet under the jurisdiction of the universities. An advantage of this is that they remain accessible to well conducted research enquiry.^{12,29}
- The **second** feature is the increasing use of a wide range of learning contexts. Both the universities with medical schools and all District Health Boards are

making increasing use of rural, regional and outer metropolitan settings for medical education and training. In recognition of the changing service milieu and issues of patient safety, students are also learning in controlled and simulated environments. We are already getting glimpses of the differing effects that these experiences are having on the student learning experiences. These diverse settings offer an opportunity to explore how they impact on performance of doctors in training and on the implications for future workforce planning.

- The **third** feature is the health sciences first year. Both universities select students into the MBChB programmes on completion of this year, in contrast to other universities that select students either directly from school or after another degree. This provides an opportunity to explore how well the measures obtained in this first year, including the Undergraduate Medical Admissions Test (UMAT), predict subsequent performance in medical programmes and the extent to which the year evens out any biases due to earlier educational attainment and secondary school of origin.

The other advantage of New Zealand for educational research is that there are only two universities with medical programmes. The medical schools have close collaborative links both with each other and with other stakeholders in medical education and health services.

Another differentiating feature is the relatively large proportion (15%) of indigenous peoples in the New Zealand population. There is a strong commitment from leaders of the two medical schools to increase the proportion of indigenous doctors yet, apart from increasing the numbers, there is little known about the best learning environment to optimise completion rates of these students.

In addition to these national opportunities, international priorities can benefit from collaborative research. There is interest in recruitment and retention of workforce, which is largely influenced by the attractiveness of the learning and practice environment for students and new graduates. Part of this relates to easing the transitions into workplaces (both within medical programmes and after graduation) and to enhancing feedback on learning in workplace settings.

Another area of considerable international interest to other disciplines is that of 'professionalism' and how it can be developed, supported and assessed. Finally, any health professions' educational programme depends on willing, enthusiastic and able supervisors, tutors and workplace clinicians. Recruitment, retention and quality education are all dependent on these clinical educators and we need to explore further how they can best be supported, trained and motivated.

Resourcing a research programme is a key challenge but the hope is that by sharing ideas, working together and coordinating research, we will provide evidence on which to inform local decisions, build medical education research capacity within New Zealand and enhance our contribution to the best evidence in medical education internationally.

A challenge is to persuade funders to see the relevance of such research to the future health of the population, and to provide appropriate support, including resourcing of the endeavours.

Competing interests: None known.

Author information: Tim J Wilkinson, Associate Dean (Medical Education)¹; Jennifer M Weller, Associate Professor, Head of Centre for Medical and Health Sciences Education²; Judy McKimm, Pro Dean, Health and Social Practice³; Barbara J O'Connor Educational Project Manager²; Ralph E Pinnock, Senior Lecturer, Department of Paediatrics²; Phillipa J Poole, Head, Medical Education Division²; Dale Sheehan, Senior Lecturer, Clinical Teaching and Supervision⁴; Mike J Tweed, Associate Dean (Medical Education)⁵; Andy M Wearn, Director/Senior Lecturer, Clinical Skills Resource Centre²

1. Faculty of Medicine, University of Otago, Christchurch
2. Faculty of Medical and Health Sciences, University of Auckland
3. Unitec, Auckland
4. University of Canterbury, Christchurch
5. Medical Education Unit, University of Otago, Wellington

Correspondence: Prof T J Wilkinson, University of Otago, Christchurch, C/- The Princess Margaret Hospital, P O Box 800, Christchurch, New Zealand. Fax: +64 (0)3 3377975; email: tim.wilkinson@otago.ac.nz

References:

1. Hart I. Best evidence medical education (BEME). *Medical Teacher* 1999;21(5):453-454.
2. Todres M, Stephenson A, Jones R. Medical education research remains the poor relation. *BMJ* 2007;335(7615):333-335.
3. Roberts C, Conn JJ. Building capacity in medical education research in Australia. *Medical Journal of Australia* 2009;191(1):33-34.
4. Prideaux D, Bligh J. Research in medical education: asking the right questions. *Medical Education* 2002;36:1114-1115.
5. Jones J, Hunter D. Consensus methods for medical and health services research. *BMJ* 1995;311(7001):376-80.
6. Sheehan D, Wilkinson TJ, Billett S. Interns' participation and learning in clinical environments in a New Zealand hospital. *Academic Medicine* 2005;80(3):302-308.
7. Teunissen PW, Scheele F, Scherpbier AJJA, et al. How residents learn: qualitative evidence for the pivotal role of clinical activities. *Medical Education* 2007;41(8):763-70.
8. Worley P, Prideaux D, Strasser R, et al. Empirical evidence for symbiotic medical education: a comparative analysis of community and tertiary-based programmes. *Medical Education* 2006;40(2):109-116.
9. Medical Training Board. The future of the medical workforce: Discussion paper. Wellington: Ministry of Health, 2008.
10. Medical Deans of Australia and New Zealand. The Medical Students Outcomes Database and Longitudinal Tracking Project. <http://www.medicaldeans.org.au/msod.html>
11. Poole P, McHardy K, Janssen A. General physicians: born or made? The use of a tracking database to answer medical workforce questions. *Internal Medicine Journal* 2009;39:447-452.
12. Wilkinson TJ, Harris P. The transition out of medical school - a qualitative study of descriptions of borderline trainee interns. *Medical Education* 2002;36(5):466-471.
13. Grant JR. Changing postgraduate medical education: a commentary from the United Kingdom. *Medical Journal of Australia* 2007;186(7 suppl):S9-S13.
14. Papadakis MA, Teherani A, Banach MA, et al. Disciplinary action by medical boards and prior behavior in medical school. *New England Journal of Medicine* 2005;353(25):2673-82.

15. Stern DT, Papadakis M. The Developing Physician - Becoming a Professional. *N Engl J Med* 2006;355(17):1794-1799.
16. Wilkinson TJ, Wade WB, Knock LD. A blueprint to assess professionalism: results of a systematic review. *Academic Medicine* 2009;84(5):551-558.
17. Ginsburg S, Regehr G, Mylopoulos M. From behaviours to attributions: further concerns regarding the evaluation of professionalism. *Medical Education* 2009;43(5):414-425.
18. Rudland JR, Wearn A, Nicol P, et al. A new model to look at constructive feedback. ANZAME Annual Conference; 2007; Canberra, Australia. ANZAME the association for health professional educators.
19. Rudland JR, Wilkinson TJ. Effective feedback – is it time for a new model? ANZAME Annual Conference; 2006; Gold Coast. ANZAME the association for health professional educators.
20. McKimm J. Giving effective feedback *British Journal of Hospital Medicine* 2009;70(3):42-45.
21. Busari JO, Scherpbier AJJA, van der Vleuten CPM, Essed GGM. A two-day teacher-training programme for medical residents: investigating the impact on teaching ability. *Advances in Health Sciences Education* 2006;11(2):133-44.
22. Busari JO, Weggelaar NM, Knottnerus AC, et al. How medical residents perceive the quality of supervision provided by attending doctors in the clinical setting. *Medical Education* 2005;39(7):696-703.
23. Busari JO, Scherpbier AJJA. Why residents should teach: a literature review. *Journal of Postgraduate Medicine* 2004;50(3):205-10.
24. Busari JO, Prince KJAH, Scherpbier AJJA, et al. How residents perceive their teaching role in the clinical setting: a qualitative study. *Medical Teacher* 2002;24(1):57-61.
25. McKimm J, Swanwick T. *Educational Leadership*. Edinburgh: ASME, 2006.
26. McKimm J. *Developing tomorrow's leaders in health and social care education: Case studies in leadership in medical and healthcare education*. Newcastle-upon-Tyne: Higher Education Academy: Medicine, Dentistry and Veterinary Medicine, 2004.
27. Ministerial Task Group on Clinical Leadership. In *Good Hands – Transforming Clinical Governance in New Zealand*. Wellington: New Zealand Institute of Health Management, 2009.
28. Department of Health. *Medical leadership competency framework: Enhancing engagement in medical leadership*. 2008. . Coventry: NHS Institute for Innovation and Improvement 2008.
29. Dare A, Fancourt N, Robinson E, Wilkinson TJ, Bagg W. Training the Intern: the value of a pre-intern year in preparing students for practice. *Medical Teacher* 2009 (in press).

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