

Original Research

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Building research capacity and capabilities in Fiji

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ABSTRACT

Introduction: A barrier to local investigator-led research in low income settings, is the limited availability of personnel with appropriate research skills or qualifications to conduct the type of research required for evidence-informed policy making to improve access and quality of health care. In response to this, Fiji National University's College of Medicine, Nursing and Health Sciences in Fiji, collaborated with academics based at the University of Auckland, New Zealand to deliver a series of research capacity development workshops in Fiji. This paper aims to explore participants' perceptions of the outcomes of these research workshops and highlights the implications for capacity building in the Pacific Region.

Methods: Participants who attended any of the nine workshops (n=123) were contacted via email to take part in a brief survey regarding their perceptions of the effectiveness of the research capacity building workshops. Of the possible 123 participants, 80% (n=76) completed the questionnaire.

Results: Findings demonstrate that the majority of participants reported that they had gained research skills from the workshops (75%) including proposal development skills (68%) and knowledge of appropriate research methods (59%). Furthermore, 70% agreed that the workshops built their research confidence. Since attending a workshop, 18% of respondents had successfully applied and received funding for research grants and/or fellowships. Barriers to conducting research included workload (75%), lack of research knowledge, experience or skills (51%), and lack of institutional support (41%). Suggestions for future workshops included: more focus on data analysis, regular courses rather than 'one offs', and preparation of research evidence dissemination.

Conclusion: Our findings indicate that the research workshops increased individual research capabilities in designing sustainable, locally led initiatives, backed by institutional and supplementary technical support.

Keywords: research capacity building activities; health sciences; low and middle-income countries; Fiji

INTRODUCTION

The critical role of health research is to inform evidence-based best practice in health care. Evidence-based practice and policies, relevant to local needs, are key to building robust, people centered health services and systems. Yet, in many low resourced economies (hereafter LMICs), locally driven research has been historically under-represented in academic literature. A review of research capacity building initiatives based in LMICs reflect some of the reasons for slow progress.¹ These include international organizations using outdated models of development and a lack of evaluation on which

approaches are most effective in building capacity. Measures of development in this respect are also

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weak; capacity in terms of skilled personnel to lead research should be an outcome as well research outputs (publications), as a measure of capacity development.¹ Confounding the issues lies broader structural and global health financing challenges. International research agendas, inappropriate output evaluation tools and funding models have been complicit in hampered progress towards building local expertise. Criticism of the parachute researcher model are well recognized and funding systems are responding with the requirements for local contributors to research and resources being allocated directly to LMICs rather than via academic or Non-Government Organisations (NGOs) in high income countries (HICs). Research partnerships between institutions in LMICs and HICs (otherwise referred to as North - South partnerships) are flourishing to support demand-driven, locally-led research needs. Recent modes of training delivery, such as blended learning (a combination of on-line and face-to-face) training are producing mixed success² but are heading the direction most likely to result in sustainable capacity building.

In recent times, at least in the Pacific Islands region, a concerted commitment to build capacity and capabilities across the breadth of health research methods have been observed.⁴ Establishing a vibrant, active research culture within the Pacific Islands region has been a stated priority to underpin the growing demand for local relevant health services.⁵ Projects such as the Traffic Related Injuries in the Pacific (TRIP), was the catalyst to building sustained research excellence across the predominantly Pacific-led team.⁶ Yet, a review of health research publications from Fiji found that only 32% of 298 papers published during the 37 years reviewed had one or more Fijians authors.⁷

A barrier to local investigator-led research in Pacific Island nations such as Fiji, is the limited availability of personnel with appropriate research skills or qualifications in specific disciplines to conduct the type of research required for evidence-informed policy making to improve access and quality of health care.⁵ Like many Pacific Island

nations, Fiji has until recently offered limited opportunities for research training. Open and distance learning approaches are often portrayed as low-cost ways to meet ongoing skill development needs. However, these delivery methods do not necessarily meet local cultural expectations or preferred learning styles.⁸ A range of factors have been identified to support learning among Pacific people during in-country or overseas training, they include: providing a social structure that allows for group activities, positive peer pressure; and integrating a hands-on and oral learning styles.⁹

Various methods of building research capacity in LMICs have been examined, if not formally evaluated.^{10,11} Many include elements of 'success' and can be measured in terms associated with success. Yet the sustainability of such interventions is always subject to on-going support, including mentorship. A model favoured by Médecins Sans Frontières (MSF) and the Union involves brief and intensive training via a graduating module system. This model requires intensive investment from international mentors with the view to publishing smaller-scale research projects related to a country or regional priorities.¹² Examples of such initiatives include fellowships, training schemes and bursaries and development of support infrastructures, such as, research practice networks.¹³ Ekeroma et. al in a systematic review of educational and wider interventions for increasing research activities and capacity of clinicians in LMCI highlighted the absence of long term studies to evaluate the training programs provided to the clinicians.¹⁴ Evaluating capacity-building initiatives is key to improving the quality and effectiveness of efforts and to establish whether capacity building is achieving its purpose.¹⁵

Fijian or Pacific led, locally relevant, quality research is emphasized within various academic, Government and NGOs. As a regional academic institution, one of the strategic aims of the College of Medicine, Nursing and Health Sciences (CMNHS) in line with the Fiji National University is to build research capacity by providing support for academics as well as health professionals in developing good research practices in health and medicine. A systematic review emphasized that building research capacity of clinicians may prove to be highly effective in strengthening health systems, in improving standards as well addressing inequalities in health care.¹⁴ In 2010, the Research Unit at CMNHS facilitated a workshop attended by representatives from all CMNHS

departments and the Ministry of Health and Medical Services (MoHMS) to explore ways to increase research capacity and capability among students and staff. One of the important recommendations from this workshop was a need to familiarize staff with the research process from conceptualization through development of a proposal, and to ethical clearance. As a result, a series of research capacity development workshops were delivered in Suva, Fiji between 2010 and 2013. This paper reports on participants' perceptions of the outcomes of the research workshops and discusses the implications for capacity building in the Pacific region.

METHODS

Study Setting and Design

A series of research capacity development workshops were delivered in Suva, Fiji between 2010 and 2013. Staff from the Research Office at CMNHS in collaboration with academics based at the University of Auckland New Zealand conducted nine research capacity-building workshops attended by a total of 123 participants. The workshops participants included University staff (67%), MoHMS staff (25%), and students enrolled in medical and health science programmes (8%). The workshop topics covered included: research skills, research proposal development, research ethics and approval processes, data management and statistical analysis and writing for publications. The format of the workshops included lectures, small group work, and one-to-one consultations. Workshops ran for approximately one week and were delivered in an interactive discussion and case-study approach to ensure that the content was relevant to context (**Appendix One**).

A cross-sectional descriptive study was undertaken at the CMNHS based at Fiji National University in Suva in 2014 to explore the perceptions of participants regarding the effectiveness of the research capacity building workshops delivered between 2010 and 2013. The study was approved by the College Health Research and Ethics Committee of the Fiji National University and the Fiji National Research and Ethics Review Committee, MoHMS. All participants who participated in the study provided informed consent for their anonymized data to be published.

Study procedures

Capacity building workshop participants were contacted via email inviting them to take part in a

brief survey on their perceptions of the effectiveness of the research capacity building workshops. Included in the email were copies of the participant information sheet, consent form and questionnaire. Hard copies of the participant information sheet, consent form and questionnaires were hand delivered if requested. In addition, flyers promoting the research were placed on department notice boards at Fiji National University. A total of three email attempts were made to contact past workshop participants.

The brief questionnaire included items that covered the following domains; research skill development (8 items); capability building, research collaborations and limitations (to research productivity) (17 items). Items included both dichotomous (yes /no) open text response options (e.g. "please provide example). Basic demographic information was also collected (gender, age, current profession, research experience) (**Appendix Two**).

Analysis

Data was entered into an Excel spreadsheet and analyzed using Statistical Package for Social Science software (SPSS) version 25. Basic descriptive statistics were used in the analysis including frequency distribution, mean and SD and cross tabulations for comparison. Where free text responses were provided inductive content analysis has been used to analyze the data.

RESULTS

A total of 95 (77%) of the 123 participants from the research capacity building workshops were able to be contacted for this study. Of these 76 participants consented to take part (80% response rate). The majority (n=54, 71.1%) of respondents were University staff, and the remainder (n= 22; 18.9%) were MoHMS staff (**Table 1**).

Engagement/involvement in research activities

Of those that responded to the survey 44 (58%) reported that research is part of their job description and reviewed in their annual appraisal. A total of 62 (82%) respondents reported that they had been involved in research at the time the workshops were conducted. Of these respondents they had most commonly been involved in data collection (52; 84%), literature review (49; 79%), research planning (43; 69%), research design (43; 69%), or data analysis (43; 69%). Whereas only 28 (45%) had disseminated their research through conference presentations and only 16 (26%) had

papers accepted for publication (**Table 2**). The majority reported that they were conducting research in their area of expertise (43; 69%).

Table 1: Characteristics of survey respondents (n=76)

Characteristics	n (%)
Gender	
Male	29 (38)
Female	44 (58)
Missing	3 (4)
Age (in years)	
20-30	6 (8)
31-40	32 (42)
41- 50	21(28)
50 and over	13(17)
Missing	4 (5)
Profession	
Academic	60 (79)
Health Professional	66 (87)
Years of work experience	
0-5 years	12 (16)
6-10 years	18 (24)
More than 11 years	46 (61)
Involvement in research between 2010 – 2013	
Yes	62 (82)
No	14 (18)

Table 2: Research stages successfully completed by respondents involved in research between 2010-2013 (n=62)

Research Stage*	n (%)
Research planning	43 (69)
Development of hypothesis/aims	39 (63)
Literature review	49 (79)
Research Design	43 (69)
Data collection	52 (84)
Data entry & cleaning	35 (57)
Data analysis	43 (69)
Report Writing	31 (50)
Abstract Writing	31 (50)
Conference presentation	28 (45)
Draft paper	30 (48)
Paper submitted	19 (31)
Paper accepted	16 (26)
Paper published	12 (19)

* Respondents could select more than one response

Capacity building outcomes

Respondents were asked specifically about capacity building outcomes of the workshops through three different skill categories including (1) research skills development, (2) capability

building and (3) research collaborations (**Table 3**). The majority of participants reported that they had gained research skills from the workshops (57; 75%) including proposal development skills (52; 68%) and knowledge of appropriate research methods (45; 59%). There were 53 (70%) who reported that the workshops built their confidence with over half of the respondents having shared their new skills with others (46; 61%), working with other professionals in research (40; 53%), and were applying existing skills in new situations (38; 51%). Under the third category; research collaboration, more than half of participants (42; 55%) said that they had either internal or external research collaborations.

Table 3: Capacity building outcomes (n=76) *

OUTCOMES	YES n (%)
Research skills developed	
Proposal development	52 (68)
Knowledge of appropriate research methods	45 (59)
Data management skills	33 (43)
Data analysis skills	32 (42)
Capability building	
Sharing new skills with others	46 (61)
Applying existing skills in new situations	38 (51)
Working with other professionals in research	40 (53)
Research collaborations	
Internal	41 (54)
External	26 (34)

* Respondents could select more than one response

A total of 28 (64%) of respondents had attended other research workshops or courses since doing the research capacity building workshops, most commonly related to data analysis (8; 29%). Since doing the workshops 14 respondents (18%) had successfully applied and received access to funding for continued application of skills (grants and/or fellowships). In regards to dissemination and impact, 33 (43%) respondents reported that they had utilized their research findings in their current practice and 28 (37%) had disseminated their findings through conference presentations and/or journal papers.

Table 4: Factors identified in limiting respondents ability to conduct research (n=76)

Factor*	n (%)
Workload	57 (75)
Lack of research experience, knowledge or skills	39 (51)
Lack of institutional support	31 (41)
Personal commitments	30 (40)
Lack of funding opportunities	29 (38)
Lack of access to research resources	29 (38)
Lack of mentorship	27 (36)
Lengthy approval processes	26 (34)
Lack of collaborative and networking opportunities	26 (34)
Lack of motivation	21 (28)
Unaware of research approval process	16 (21)
Lack of confidence	12 (16)

* Respondents could select more than one response

Barriers to conducting research

Respondents were asked to identify from a list all of the potential barriers limiting their ability to conduct research (Table 4). Most commonly (57; 75%) participants indicated workload as a limiting factor followed by lack of research knowledge, experience or skills (39; 51%), lack of institutional support (31; 41%), and personal commitments (30; 40%).

Recommendations for improvements for future research capacity building activities

The majority (50; 62%) of the participants indicated the most preferred mode of delivery for subsequent research capacity building workshops was face-to-face. There were 12 (16%) who most preferred a mixed model of delivery and six (8%) who most preferred online e-learning. Respondents provided their recommendations for improving future research capacity building activities. Of those that provided recommendations, the most common themes included: 'workshop content' (workshops including specific topic areas e.g. data analysis), 'workshop dosage' (regular courses, not just one-off courses, and refresher courses), workshop organization (more extensive advertising of the workshops, less intense format with course run over a longer period with shorter sessions) and 'workshop purpose' (outcome focused (e.g. publications), workshops more hands on with participants bringing their own proposals or draft publications to work on during the workshops).

DISCUSSION

Research capacity building workshops ran in partnership between the University of Auckland and Fiji National University were developed in response to a request for support to build research capacity among staff within the CMNHS. Findings indicate that the workshops enhanced research capabilities among those who attended the workshops. This outcome was not surprising given anecdotal evidence and enthusiastic uptake of the courses being offered. However, measures of actual outcomes demand closer attention. Despite successful capacity development initiatives (offered by a range of regional institutions), embedded barriers to research capacity were, at this time, still evident.

The workshops aimed to build local capacity to conduct the type of research required for evidence-informed policy making to improve access and quality of health care. The results indicate that although increased capacity was reported, funding grant success and dissemination outputs were low post workshop. Workshops appear to have built individual research capacity but the institutional capacity appears to remain limited as shown in the barriers participants identified to conducting research. Participants identified the need for regular workshops and ongoing in-house support to enable progress to continue post-workshop.

This study provides an insight into the potential benefits of institutional collaboration to grow research capability and capacity for research in Fiji. Clearly, this is a small-scale study, relying on workshop alumni to respond to a survey of their experiences, run in collaboration with the CMNHS.

It is therefore likely that an element of responder bias may have resulted in more favorable responses in some areas. The items were not pre-tested for internal reliability and were not designed to be assessed as measures of constructs, rather they were designed for the purpose of improving future workshops to meet participants and institutional needs. In addition, recall bias may be a factor in this research given the survey was conducted between one and four years following completion of a workshop.

Our results are consistent with anecdotal and empirical evidence that locally relevant research training, conducted in-situ, can produce broad benefits.¹⁶ In the short term, this work was driven by an institutional requirement for staff and students to publish research. Nonetheless, the agenda served as a catalyst to building a network of researchers equipped with research methods skills to support the broader health agenda, local Fiji health challenges, which sit within the Healthy Islands Vision and the Universal Health Coverage (UHC).¹⁷ Evidence of the sustained benefits of local leadership in research is emerging.¹⁵ This is going to be essential to achieve the major shifts needed to strengthen health systems to respond to contemporary challenges, such as providing equitable, high quality primary health care.¹⁸

Partnerships across countries academic and allied agencies, is one element of the process to build technical capacity and growing critical mass in research. Internally, considerable investment is required to strengthening and streamlining systems to support research.^{14,15} Models of capacity building delivery need to be updated focusing on different modes of delivery (blended) Similarly broadening research training to beyond to encompass some of the real challenges to research such as local leadership, administration, resource management, international funding, could be included.¹⁹ How this is organized to also embed competency oriented research skills, is unclear. What remains clear, is that support (financial, technical) is more than delivering workshops, or scholarships, it is about long-term deeper partnerships between institutions, with equity in outcomes.²⁰ Models of effective partnerships for research capacity building in LMICs are emerging;¹⁴ these hold some clues for where efforts can be invested in the future. Similarly, literature describing how and why partnerships have not produced impact are also valuable.^{14,15,20} Sound intentions are only the beginning and even then they need to be kept in

check to ensure that benefits are implemented where there are most needed.

Shifting the perceived value of research in governance organizations, is also important. Historically, research in the Pacific Islands region has suffered a low reputation; something that is “conducted on” rather than “with” communities. This perception is changing, with greater emphasis being placed on the value of research and leadership coming from within countries rather than being predominately led by outside organizations. Research was considered one of the many competing responsibilities of academic alongside training. Despite these challenges, the enthusiasm to conduct quality research that represents local priorities, was unmistakable. Evidence of effective practice in research capacity building whilst hosting an open dialogue about what doesn’t work, is essential for the future of research in the Pacific region.

CONCLUSION

Our study identified a high perceived value from a series of research training workshops run in Suva, Fiji. The majority of participants reported developing confidence in research methods; yet cited workload pressure and an inadequate research experience as reasons for not being productive in research following the workshops; a minority of participants continued with research collaborations post workshop. Research methods training is essential to accelerate progress towards country and regional health targets. New Zealand can, and has usefully contributed to this process in a supporting role, listening to what is needed in countries and sharing experiences and expertise, where relevant.²¹ Finally, long term partnerships that evolve and are adapted to changing needs (both fiscally and technically) are vital for a thriving research environment.

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REFERENCES

1. Franzen SR, Chandler C, Lang T. Health research capacity development in low and middle income countries: reality or rhetoric? A systematic meta-narrative review of the qualitative literature. *BMJ Open*. 2017;7(1):e012332.
2. Protsiv M, Rosales-Klantz S, Bwanga F, Zwarenstein M, Atkins S. Blended learning across universities in a South-North-South collaboration: a case study. *Health Res Policy Syst*. 2016;14(1):67.
3. Kok MO, Gyapong JO, Wolffers I, Ofori-Adjei D, Ruitenber EJ. Towards fair and effective North-South collaboration: realising a programme for demand-driven and locally led research. *Health Res Policy Syst*. 2017;15(1):96.
4. Tamasalau Suaanlii-Suani T, Aiavao F, Faafeu-Hope E, Sopoaga T, Paul C, Rihharts A, et al. Strengthening Health Research Capacity from Within Samoa. *Asia Pacific Journal of Public Health*. 2011;23(1):100-9.
5. Bissell K, Viney K, Brostrom R, et al. . Building operational research capacity in the Pacific. *PHA* 2014;4 (2):S2-S13.
6. Herman J, Kafoa B, Wainiqolo I, Robinson E, McCaig E, Conner J, et al. Driver sleepiness and risk of motor vehicle crash injuries: A population-based case control study in Fiji (TRIP 12). *Injury*. 2014;43(3):586-91.
7. Cuboni H, Finau S, Wainiqolo I, al. e. Fijian participation in health research: analysis of Medline publications 1965-2002. *Pac Health Dialog*. 2004;11:59-78.
8. Brown A, Ward-Panckhurst L, Cooper G. Factors affecting learning and teaching for medicines supply management training in Pacific Island Countries— a realist review. *Rural Remote Health*. 2013;13:2327.
9. Withy K, Aitaoto N, Berry S, al. e. Maximizing successful pursuit of health careers in Micronesia: what to do? *Pac Health Dialog*. 2007;14:141-50.
10. Redman-Maclaren ML, Maclaren DJ, Solomon J, Muse A, Asugeni R, Harrington H, et al. Research workshop to research work: initial steps in establishing health research systems on Malaita, Solomon Islands. 2010;8.
11. Varshney D, Atkins S, Das A, Diwan V. Understanding collaboration in a multi-national research capacity-building partnership: a qualitative study. *Health Res Policy Syst*. 2016;14(1):64.
12. Zachariah R, Guillerm N, Berger S, Kumar AM, Satyanarayana S, Bissell K, et al. Research to policy and practice change: is capacity building in operational research delivering the goods? *Trop Med Int Health*. 2014;19(9):1068-75.
13. Cooke J. A framework to evaluate research capacity building in health care. *BMC Family Practice*. 2005;6(1):44.
14. Ekeroma A, Kenealy T, Shulruf B, Hill A. Educational and Wider Interventions that Increase Research Activity and Capacity of Clinicians in Low to Middle Income Countries: A Systematic Review and Narrative Synthesis. *Ibm Journal of Research and Development*. 2015;3.
15. Sam-Agudu NA, Paintsil E, Aliyu MH, Kwara A, Ogunola F, Afrane YA, et al. Building Sustainable Local Capacity for Global Health Research in West Africa. *Ann Glob Health*. 2016;82(6):1010-25.
16. Beran D, Byass P, Gbakima A, Kahn K, Sankoh O, Tollman S, et al. Research capacity building-obligations for global health partners. *Lancet Glob Health*. 2017;5(6):e567-e8.
17. Akhnif E, Kiendrebeogo JA, Idrissi Azouzzi A, Adam Z, Makoutode CP, Mayaka Manitu S, et al. Are our 'UHC systems' learning systems? Piloting an assessment tool and process in six African countries. *Health Res Policy Syst*. 2018;16(1):78.
18. Abimbola S, Topp SM, Palagyi A, Marais B, Negin J. Global health security: where is the data to inform health system strengthening?2017. e000481 p.
19. Airhihenbuwa CO, Ogedegbe G, Iwelunmor J, Jean-Louis G, Williams N, Zizi F, et al. Claim Your Space: Leadership Development as a Research Capacity Building Goal in Global Health. *Health Educ Behav*. 2016;43(1 Suppl):17S-24S.
20. Crane JT, Andia Biraro I, Fouad TM, Boum Y, 2nd, D RB. The 'indirect costs' of underfunding foreign partners in global health research: A case study. *Global Public Health*. 2018;13(10):1422-9.
21. Amazan RC, Negin J, Howie L, Wood J. From extraction to knowledge reproduction: The impact of Australia's development awards on Uganda and Mozambique 2016. p45-65.