

# BMJ Open Critical realist exploration of long-term outcomes, impacts and skill development from an Australian Rural Research Capacity Building Programme: a qualitative study

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## ABSTRACT

**Objectives** Research capacity building programmes usually only examine short-term outcomes, following up participants after 1 or 2 years. Capacity building in health research requires a long-term view to understand the influence and impact of capacity building endeavours. This study examined long-term outcomes for individuals regarding the maintenance and use of research skills and the conduct of real-world research in a rural area. We also explored the changes individuals had seen in their career, work team or organisation as a result of this training.

**Design** A qualitative study underpinned by critical realism and based on interviews and focus groups with graduates of the Rural Research Capacity Building Programme (RRCBP), a researcher development programme that has been delivered since 2006.

**Setting** Rural and remote areas of New South Wales, Australia.

**Participants** 22 graduates of the RRCBP from the 2006 to 2015 cohorts (20 female, 2 male). All were experienced rural-based health workers at the time of training.

**Results** Focus groups and interviews yielded three themes about capacity building outcomes: (1) developed research capable individuals; (2) embedded research capability into teams and (3) real-world research that makes a difference within an organisation.

**Conclusions** Research training improved graduates' skill, experience, confidence and employability. Research capable individuals enabled others, enhancing team research capacity and raising the profile of research within their organisation.

Training in research, alongside tangible organisational support for research activity, creates real-world impacts for policy and clinical practice. Providing ongoing opportunities for researchers to undertake research would enhance return on investment and assist with retention of experienced staff.

## BACKGROUND

The health of rural people is characterised by poorer health outcomes, associated with limited access to health services.<sup>1</sup> Rural

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This is the first study to examine long-term outcomes of a clinician researcher development programme in a rural area.
- ⇒ A critical realist framework allowed explanation of the underlying mechanisms that led to change for the individual, their team or organisational.
- ⇒ Stratified sampling was used to ensure participants with a range of experiences were included, however, it is possible that those who have been less connected with programme peers postgraduation were less likely to participate.
- ⇒ There is a potential lack of generalisability to other settings, but the rigour in analysis and theory along with existing literature indicate the findings may be applicable in other settings.

research capacity building is seen as one way for rural health organisations to understand and remediate this disparity.<sup>2</sup> Research in rural areas presents its own challenges and a need for specific rural research training has been identified.<sup>3 4</sup> Numerous workplace-based programmes have been introduced to address rural health research capacity including scholarships, training in place, fellowships, participatory approaches and other capacity building endeavours.<sup>5–12</sup>

There is a call for researchers to be embedded within rural health organisations.<sup>12 13</sup> While this is consistent with known research capacity development principles,<sup>14</sup> information on long-term outcomes of research capacity building endeavours is scant, with most programmes typically funded short term and with limited follow-up.<sup>15</sup> Measuring research capacity building is complex<sup>16</sup> and success in health services research development is often under-reported.<sup>17</sup>

The Rural Research Capacity Building Programme (RRCBP) was established in 2006 to improve research capability and capacity in rural New South Wales, Australia. The programme was intended as a response to the low levels of research activity and research skill in rural areas,<sup>11</sup> and supports rural clinicians to undertake a self-selected research project with an accompanying education programme aimed at building research experience.<sup>18</sup> Clinicians enrolled in the RRCBP are based in rural or remote areas of New South Wales, Australia, and receive project funding and mentoring in addition to education support.<sup>11 18</sup> Research is not routinely conducted by rural clinicians<sup>19</sup> and in some cases these clinician–researchers may be the only person in their facility with research experience.<sup>20</sup>

The RRCBP, unlike similar programmes,<sup>21 22</sup> has received ongoing funding. The RRCBP and its adjunct educational strategies have demonstrated efficacy in increasing self-reported research experience,<sup>18</sup> improving publication rates,<sup>23</sup> retaining researchers to complete the programme<sup>20</sup> and building research capacity.<sup>11</sup> Internal evaluation findings indicate that RRCBP candidature can be transformative, personally or professionally, beyond the field of research.

Since 2006, 245 rural health workers have received research methods education and training, with 137 completing their research project and submitting a report detailing their findings (graduates) at the time of this study. While research experience and some capacity has been built,<sup>11 18 23</sup> long-term outcomes for programme candidates or the rural health organisations they work for has not yet been examined.

The aim of this study was to understand the impact of undertaking research training for graduates, their careers and their organisations.

## METHODS

### Study design

This qualitative study was underpinned by critical realism. Realist approaches uncover what works for whom, and in

what circumstance.<sup>14 24 25</sup> Critical realism facilitated the exploration of the context of research skill development and the mechanisms underlying these changes.

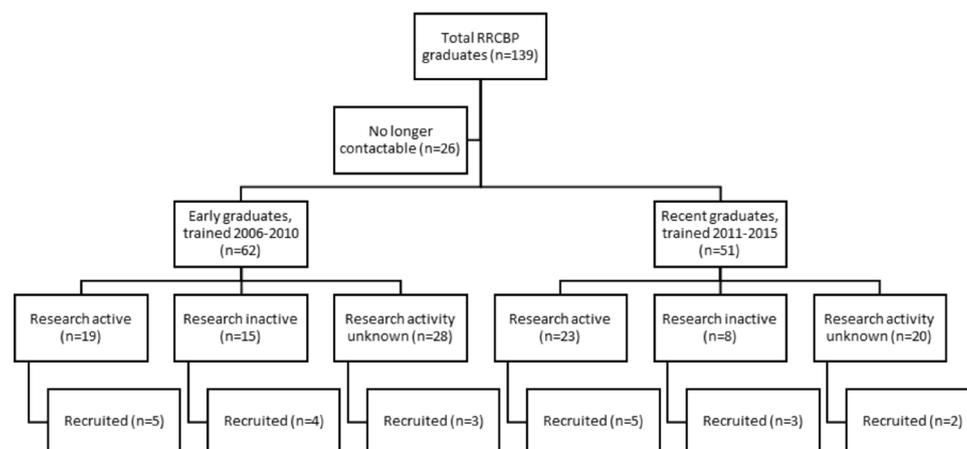
### Sampling and recruitment

One hundred and thirty-seven graduates from the 2006 to 2015 RRCBP cohorts were eligible to participate. Of these, 113 had remained in contact and were stratified by training cohort as ‘early’ (2006–2010) or ‘recent’ (2011–2015), and then by known research activity since graduation; either research active, not research active, or those whose research activities were unknown. Research activity was determined by recent contact from graduates and confirmed by a search of Google Scholar for post-graduation publications. Graduates who had not made recent contact with programme coordinators and who had not published in peer-reviewed publication were designated as research status unknown. From these six subgroups, individuals were randomly selected by an independent administration officer and invited via email. Individuals who were unavailable, uncontactable or who declined were replaced by another randomly selected person from that subgroup. Potential participants were sent a reminder email 2 weeks after the initial invitation if no response was received. Recruitment continued until the subgroup was represented by five participants or the subgroup list contained no other eligible participants. A recruitment flow chart is seen in figure 1.

### Data collection

Individuals were invited to an online focus group to stimulate discussion and allow ideas to develop among participants. Those who wished to participate via individual interview were accommodated. Focus groups and interviews were conducted by an independent facilitator (ES) and were digitally recorded. All recordings were transcribed by a professional transcription company and deidentified by the facilitator.

After the first focus group, a debrief was undertaken, with the facilitator and lead researcher refining the focus group and interview strategy.



**Figure 1** Recruitment flow chart. RRCBP, Rural Research Capacity Building Programme.

Four focus groups were held, with 4 participants per group, and 6 individual interviews conducted; a total of 22 participants sampled from the 6 subgroups.

### Data analysis

Qualitative analysis was completed by DS using the cut-and-paste method of coding and thematic development.<sup>26</sup> Three coresearchers (ES, KD and EW) independently analysed randomly selected transcripts (one focus group and two interviews each) to ensure veracity of themes and corresponding subthemes. Theme refinement occurred through an iterative process of discussion and rereading transcripts. This staged inductive process was then considered deductively against Cooke's framework for capacity building, using the structural levels of the individual, their immediate work team and the hosting organisation.<sup>27</sup> Factors described as 'superorganisational' or outside the individual's organisation<sup>24</sup> were deemed unlikely to be affected by individual training and were therefore not included in the analysis.

The lead researcher (DS) read all transcripts with a view to assessing data saturation. After three focus groups and four interviews, no new ideas emerged and the remaining focus group and interviews ensured confidence in concept identification. When all team members reached agreement on the final iteration, analysis was deemed complete.

### Reflexivity and rigour

Two of the researchers (DS and KD) are coordinators of the RRCBP and a third (EW) is a former coordinator. The use of an arms-length recruitment and independent facilitator was accompanied by a process of bracketing preconceptions<sup>28</sup> and oversight of theme development by independent researchers (ES and DL).

### Patient and public involvement

No patient involved.

The original protocol for the study has been uploaded as online supplemental file along with a copy of the interview/focus group schedule.

## RESULTS

The demographic characteristics of study participants are outlined in table 1. All graduates were rurally based at the time of their training. To maintain participant anonymity, professions were classified as nursing, allied health or other profession which may include Aboriginal health worker, doctor, health promotion officer, health manager, paramedic or project officer.

Three themes and their relationship to the structural levels of individual, team and organisational levels proposed by Cooke<sup>27</sup> emerged.

### Developed research capable individuals

The programme successfully developed research capable individuals. Graduates identified (1) Growth in knowledge, skills, authority and confidence, (2) Ongoing

**Table 1** Demographic details of graduates participating in the study (n=22)

	n (%)
Gender	
Female	20
Male	2
Profession	
Nursing	8
Allied Health	10
Other	4
Recency of training	
Recent (2011–2015)	10
Early (2006–2010)	12
Research activity post-training	
Research active	10
Research inactive	7
Research status unknown*	5

\*Research status unknown at time of recruitment.

research activity and (3) Personal and professional transformation.

### Growth in knowledge, skills, authority and confidence

Learning about and undertaking research was a means for graduates to extend themselves, both from a personal sense but also providing new career directions. Participants reported their understanding of research had improved, building on existing skill sets and knowledge.

*What the program allowed me to do was to understand a much broader range of research methodologies and approaches. Focus Group 2*

Knowledge and expertise development was unsurprising, given the educational goals of the programme.<sup>18</sup> However, undertaking a research project was pivotal to the development of a range of transferable or 'soft' skills including project management, communication techniques and critical thinking; strengthening attributes that were useful in other roles or settings. Critical thinking in action is a known indicator of research capacity building at an individual level.<sup>27</sup>

*Maybe I can't articulate it perfectly, but the ability to uncomfortably question, to sort of reflect in that space and sit in a space of discomfort to evaluate something surrounding yourself... so those kind of critical thinking skills and evaluation skills go with you in every aspect of your work. Focus Group 2*

### Ongoing research activity

One result of developing research capable individuals was ongoing research activity; this included using their expertise to attract grant funding and extend their research activity.

*There were opportunities to apply for sort of grant money to do other kinds of [research] projects and that then created new relationships and added to the body of evidence around that.* Focus Group 1

Ongoing research activity did not always equate to independence or leading their own research agenda. This highlights the foundational nature of the training.

*The project that I did with [a non-government organisation] recently... I actually did it all by myself, which I found I could do and I knew how to do... I think the project that I did in 2006 really taught me those skills and I know those skills but I just didn't feel confident to do that and the next one on, like totally on my own.* Focus Group 1

Having research experience through the RRCBP enabled some graduates to take up new roles to pursue research opportunities.

*I think everybody has moved onwards and upwards in roles, and I'm sure that, personally, the program helped me with a promotion upwards and, you know, it's good in that sense.* Focus Group 2

Other graduates progressed to further formal study via higher degree research, often an extension of their research project with the programme.

*I was very fortunate I was able to springboard my research into a master's degree.* Focus Group 4

Not all graduates remained active in research, however the programme had value as a learning experience and their interest remained.

*I'm not doing research, and I haven't done any research, but what I am surprised about is how much interest I maintained in research, and other people's research.* Focus Group 2

A lack of research activity was not always due to individual factors. Organisational factors also influenced their ability to undertake research, including fitting research into a busy caseload. A lack of research opportunity impeded ongoing research activity for some graduates and for others around them.

*With opportunity, I believe I've got the skills that I could contribute to further research in related areas ... but there's so little research happening that there aren't any people to supervise.* Focus Group 4

### Personal and professional transformation

Graduates described transformative aspects of learning including a sense of belonging in the world of research, with connections to others outside their immediate workspace. Transformational learning can refer to a process that encourages the learner to question and potentially change their worldview.<sup>29</sup> The sense of becoming part of the world of research extended to having and owning specialist knowledge of research tools, language and business processes. Similarly, transformation occurred when

graduates were challenged in their ways of thinking and the assumptions underlying these thought processes.

*It sort of taught me that you can reach out to a lot of different people and that they're more than willing to help you ... it made me more empowered to look beyond my own patch.* Focus Group 3

The sense of becoming part of the world of research extended to having and owning specialist knowledge of research tools, language and business processes. Similarly, transformation occurred when graduates were challenged on their ways of thinking and the assumptions underlying these thought processes.

*I was mentored by an Aboriginal man from [the university] which was really helpful. He would challenge me on a regular basis about my way of thinking.* Focus Group 4

### Embedded research capability into teams

The graduates' research experience led to changes within their immediate work teams. They became 'resource people' within the workplace for research or evaluation activities; a role that included providing feedback on research and evaluation proposals, providing guidance and adding rigour to existing activities.

*I give feedback to peoples' quality improvement projects and I actually really like doing that. I wouldn't say it's pure academic research, but it's using the methodology of research, of a research project and applying that to smaller projects that are more practical.* Focus Group 4

*There's a project that was happening ... [and] I was able to sort of help them with [the ethics application], and they're really happy that they've done it. So that's as a direct result of my being in the program.* Focus Group 2

This contribution to the skill development of others was a way to develop local research capability and embed local researchers into projects. The process of building research activity and capability were part of creating a local culture of research.

*We can actually influence other people either informally by—with their work or encouraging them to do research or to encourage it within a discipline or a department, or other people to do the [RRCBP], or even just set a culture of research around where we work.* Focus Group 2

Moving beyond the role as resource person, graduates became active collaborators or facilitators of research. Those in leadership positions engaged with and facilitated research activity within their local teams. Others began collaborating with fellow RRCBP graduates or current RRCBP trainees.

*I've had a couple of staff members that are that are currently enrolled in the same program and we've sort of been involved in a number of orthopaedic and other projects as well in the department. So I think it really fuelled my already existing interest and passion in research and maybe gave me a little*

*bit of confidence to continue to support people to do that.*

Focus Group 1

Graduates were able to use their interest in research to promote and facilitate research across departments and districts. They were now setting the agenda and making research part of it.

*So the department didn't have a strong research focus before, but we're really developing that now. It's on every agenda, we've got a team looking at it, we're constantly looking for grants to field how we can build research around what we're doing.* Focus Group 2

### Real world research that makes a difference within an organisation

Participants wanted their research to be of value to the organisation and to make a difference in care for consumers. Making a difference was seen through: (1) research that influenced policy, practice and culture, (2) organisational support for research education and activity, and (3) retaining skilled workers within the organisation.

#### Research that influences policy, practice and culture

Graduates wanted to lead and engage with research that had impact and importance for clinical practice and underlying policy. They made a clear distinction between real-world, clinician-led research and theoretical research led by university academics, which was seen to be disconnected from clinical practice.

*I think that's probably what we as rural researchers, we're going to research something that's really practical, something that's really doable, not something that's sort of very theoretical... We need stuff that we can actually put into action now.* Focus Group 2

Using research to improve services justified the effort required to undertake clinical research, even when those changes were not what was expected or hoped for. The quality of the graduates' research was important for establishing credibility, which was necessary for practice change to be embraced. For some, the fact that the research was conducted by a clinician added to that perceived credibility.

*I think once you can see that it can translate to service enhancements, and those sorts of things that everyone's talking about then you realise that there's such a huge benefit.* Focus Group 3

*I think that because [the research] had been done in quite a robust way and we were reporting it very clearly and very open with 'this is exactly what happened and what we found' and gave people kind of confidence to work with [the findings].* Focus Group 1

While changes that resulted from the graduates' research included system level and local changes, not all projects had a demonstrable impact on policy or practice.

*It really sort of started a little spark in my brain about being interested in how to drive sort of large system level change... really trying to better create evidence that helps us know whether what we're doing is making a difference, and particularly models of care.* Focus Group 1

*I still have a clinical role and research—particularly the research that... led from my Rural Research Capacity Building Project has changed the way that I see my clients... there's been a big difference in the way I treat clients.* Focus Group 3

*I think from my research project, it hasn't, unfortunately, sort of been translated into practice much....* Interview 6

Some felt that their research contributed to change in clinical practice without change necessarily being the key driving factor.

*I think that the practice for the cohort of patients that I wrote about has changed, but I don't think it was as a result of my research paper, but I think it contributed to the body of knowledge around the area.* Focus Group 2

Others felt that their research was controversial or unpopular. While these projects may not have led to a policy or process change, the research activity and distribution of findings created discussion. There was also demonstrable resilience developed in response to these challenges.

*I got attacked by people sometimes about my project. I thought, really, is it that polarising? But ...it started a conversation at least. So there's still no resolution necessarily but people in [my profession] are talking about it.* Interview 1

Graduates felt that research influenced the culture of the hosting organisation where recommendations were embraced and implemented. When recommendations were not implemented, the impact of the research was perceived to be minimal. In some workplaces research activity led to research becoming integrated into everyday work.

*I worked with the [local] Aboriginal Medical Centre, but we had all the recommendations implemented that were in the report, and so that was a big change and there was a big cultural shift... it had a huge impact I think on our service.* Focus Group 1

*[The program] is bringing research into the workplace so influencing other people, encouraging other people, making research part of the language of the workplace. ...I think you'll find that every person that's been on the program, the area that they work in has – research has a higher profile in some shape or form than if they hadn't been on the program.* Focus Group 2

#### Support for research education and activity

Support for research education and activity within the workplace was mixed. When support was lacking, high degrees of autonomy were required by the researcher.

*I can't say I was totally surprised, but I didn't get any support from the health service. I did it all in my own time, basically.* Focus Group 4

Other participants were well supported locally but that wasn't necessarily matched at higher organisational levels. Engaging leaders within the organisation was critical for obtaining dedicated time and resources for research learning and activity. Support for research activity was perceived as being linked to how closely the proposed topic aligned with organisational goals, or at least did not interfere with organisational functioning.

*I don't think there's any particular encouragement. I haven't seen any managers who are resistant, but I wouldn't say any of them see it as any sort of priority. If they can do it with only moderate inconvenience to them, they'll support it. But, if not, it's not something that's on their radar.* Focus Group 4

Graduates identified a gap between the rhetoric of research being valued and the reality when conducting research activities in the workplace. Engagement and endorsement from senior management was required to conduct the research and for research to enable change within the organisation. Graduates indicated the competing priorities faced by rural health organisations and the impact that this may have on support for research.

*You can have all the structure in the world; if research is not a priority to senior management it ain't going to happen.* Focus Group 4

### Retaining skilled workers in the organisation

For some participants, the programme reinvigorated an interest in their work and an associated sense of ownership and control, encouraging them to continue in their role. This retention is important given the typical profile of an

RRCBP candidate is an experienced rural health worker with clinical, corporate and community knowledge.<sup>20</sup>

*I was bored to death at work. It kept me in that same job for a little bit longer, because it was something interesting... I was allowed this little bit of space where I could just find my own train of thought, and it was something where, yeah, it kept me there.* Interview 1

For clinical roles, having research experience was not seen as a priority. With limited options for research-specific or research-compatible roles within the health system. Organisations risk losing the graduates if they are unable to use their newfound skills. However, there are opportunities for organisational recognition of research expertise within clinical roles via promotion or 'regrades' within existing roles, which may in turn assist with staff retention.

*It's a bit of a dead end though in the sense that I've got these skills and there's not really much infrastructure to actually use these skills.* Focus Group 4

## DISCUSSION

This study examined the long-term outcomes of a research training programme from the perspective of graduates with up to 16 years' experience post-training. These outcomes and the proposed underlying generative mechanisms are summarised in [table 2](#).

Graduates of the programme saw themselves and their research peers as possessing new and transferable skills, improved work performance and enhanced employability prospects. Undertaking research education through a supported research project developed knowledge in research and non-research related spheres, including critical thinking and project management. While this positive change was noted at the individual

**Table 2** Context, mechanisms and long-term outcomes of rural research training

Context	Mechanism	Outcomes
For rural health workers with an interest in research	Foundational research training and support	New skills in research Transferable skills Improved work performance Enhanced employability Ongoing research capability
For graduates of foundational research training	A lack of formal ongoing research supports	Limited ongoing research capacity An overreliance on individual agency to create research opportunity
For research-experienced individuals	Perceived mismatch between organisational support and individual desire for research opportunity	Feelings of discontent Perception of limited organisational support
For rural health organisations	Having a research-experienced team member	Raised research profile Increased research activity that addresses local needs Strengthened team evaluation activities Retained experienced workers in the organisation

level, having a more competent, confident and skilled worker has obvious team and organisational benefits such as producing research which addresses local practice and policy needs, strengthening team evaluation activities and retaining a skilled workforce.

For individuals in this study there were improvements in the individual's knowledge and skills to undertake research, which is consistent with real-world research capacity building.<sup>30</sup> This individual capability was accompanied by changes in research capacity within the individual's immediate work team and their broader organisation.<sup>27</sup> While the programme has previously been shown to build research expertise, contribute to the research evidence base in rural health, and produce early capacity building outcomes,<sup>11 18 23</sup> this study provides new insights into the long-term value of training in research for the individual and beyond.

Some graduates remained research active, either via higher degree research or through workplace-based projects. The level of research engagement for graduates varied and included being a research participant, research advocate, researcher in a team, or independent researcher. Transitioning from a foundational experiential research project to independent researcher depends on the individual agency of the worker, with some graduates actively seeking or creating research opportunities. However, as [figure 1](#) indicates, there does not appear to be a progressive decline in research active individuals over time (early vs recent), raising the hypothesis that if individuals become research active as a result of the programme that this is a sustainable behaviour. A mismatch between the graduates' desired level of research and limitations in their ability to reach that level led to feelings of discontent.

For novice clinician researchers who report limited growth in research agency, ongoing structural supports such as a second-stage research education stream or supported research mentorship could increase levels of research activity. Careful consideration of structural design in a research training programme has been shown to link with successful training outcomes.<sup>21</sup> Further exploration of university partnerships would be a logical progression, such as host health organisations supporting doctoral students or post-doctoral researchers to undertake relevant research while embedded within the organisation.<sup>31</sup>

In teams where a rural health worker has research experience, that individual enabled, encouraged or enhanced research activity in others. This role went beyond enabling or encouraging others to access formal training programmes to active engagement, adding rigour to existing research or quality improvement activities. Embedding researchers in a health team raised the profile of research across the team and more broadly within the organisation. Future qualitative ethnographic study would provide valuable insights into the development of a research culture, with previous studies largely focusing on culture from a quantitative perspective.<sup>17 32 33</sup>

The organisational return on investing in research training was enhanced by high organisational commitment to research in practical terms such as funding or dedicated roles. It is a recognised challenge for organisations to create structures in which these skills can be utilised, either within the person's existing role or potentially moving to roles such as an embedded researcher position.<sup>13</sup> Providing opportunities for research was seen as a tool for retaining experienced staff, and can maximise the return on investment for organisations that support novice researchers.

Close-to-practice research, such as that completed in the programme, is a key element of capacity building.<sup>11 27 34</sup> While graduates saw their research making a difference to practice and policy, this was associated with the graduates' perceptions of their organisation's support and willingness to embrace change. Clear strategic goals for research, matched with operational commitment, is necessary for close-to-practice research in rural areas.<sup>19 35</sup>

It is important to note that the RRCBP is conducted within rural health workplaces that have seen attitudes and commitment to research fluctuate over time. Research capacity development strategies that target individual skill development will continue to lead to limited levels of research capacity development within and across organisations. There is limited ability for educating institutions to influence these supraorganisational factors, however, this serves as a reminder of the importance of understanding the context in which training occurs.<sup>19 35</sup> While attitudes towards and support for research may have changed in the time since graduates were trained, a coordinated approach to research investment and policy is needed to move research capacity development beyond the level of the individual.

These findings have been drawn from the experiences of programme graduates and further researcher on broader organisational perspective would be helpful in understanding organisation-level changes.

To our knowledge, this study is the first study to examine long-term outcomes of a clinician researcher development programme in a rural area. While a stratified sampling frame was used to ensure participants with a range of RRCBP experiences were included, those who have been less connected to programme peers and programme coordinators may have been less likely to participate ([figure 1](#)).

As this is a single educational programme held in rural areas of one public health system in Australia, there is a potential lack of generalisability to other countries or health systems. However, the use of critical realism to provide practical recommendations, the procedural rigour of the study and alignment with existing research capacity development literature indicate the findings may be applicable in other settings.

## CONCLUSIONS

This study demonstrates that investment in research training leads to long-term improvement in skills, confidence and employability of individual workers, enhances team research capacity, provides immediate answers to local clinical and policy priorities and raises the profile of research within rural health services.

Training individuals in research, in conjunction with organisational support for ongoing research activity, led to changes in policy and clinical practice. Creating ongoing opportunities for researchers to use and advance their newfound skills, along with continued research support, will maximise the individual and organisational benefits of research training.

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**Competing interests** DS and KD are programme managers for the Health Education and Training Institute (HETI), NSW Ministry of Health. HETI is the organisation that conducts and manages the program that was researched in this study. Emma Webster established the programme and is a former programme manager of the programme from 2006 to 2015.

**Patient and public involvement** Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

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**Data availability statement** Data are available on reasonable request. Data are available on reasonable request and with approval of authorising Human Research Ethics Committee.

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## REFERENCES

- 1 Australian Institute of Health and Welfare. *Rural & remote health*. Canberra: AIHW, 2019.
- 2 Dunbar JA. Building capacity for rural and remote research. *Aust J Rural Health* 2010;18:133.
- 3 Taylor J, Hughes C, Petkov J, et al. Unique issues in research and evaluation in rural and remote locations: is there a place for specific research training? *Rural Remote Health* 2005;5:351–62.
- 4 Lionis C, Dumitra G, Kurpas D. Building research capacity in rural health settings: barriers, priorities and recommendations for practitioners. *Aust J Rural Health* 2018;301–2. doi:10.1111/ajr.12422
- 5 Bailey J, Veitch C, Crossland L, et al. Developing research capacity building for Aboriginal & Torres Strait Islander health workers in health service settings. *Rural Remote Health* 2006;6:556.
- 6 Birden HH. The researcher development program: how to extend the involvement of Australian general practitioners in research? *Rural Remote Health* 2007;7:39.3KB.
- 7 Fraser JD, Hawkins A, Alexander C, et al. The impact of the research methods support structure on research capacity in rural New South Wales. *Aust Health Rev* 2006;30:427–34.
- 8 Gausia K, Thompson SC, Lindeman MA, et al. Contribution of university departments of rural health to rural health research: an analysis of outputs. *Aust J Rural Health* 2015;23:101–6.
- 9 Grundy J, Johnston F. Building research capacity in primary health care settings in the Northern Territory. *Aust J Prim Health* 2003;9:9–17.
- 10 McIntyre E, Saltman D, Traynor V, et al. Building research capacity in Australian departments of general practice and rural health: a document review of annual reports. *PHC* 2007;8:3–11.
- 11 Webster E, Thomas M, Ong N, et al. Rural research capacity building program: capacity building outcomes. *Aust J Prim Health* 2011;17:107–13.
- 12 Wolfenden L, Yoong SL, Williams CM, et al. Embedding researchers in health service organizations improves research translation and health service performance: the Australian Hunter New England population health example. *J Clin Epidemiol* 2017;85:3–11.
- 13 Moran A, Haines H, Raschke N, et al. Mind the gap: is it time to invest in embedded researchers in regional, rural and remote health services to address health outcome discrepancies for those living in rural, remote and regional areas? *Aust J Prim Health* 2019;25:104–7.
- 14 Cooke J, Gardois P, Booth A. Uncovering the mechanisms of research capacity development in health and social care: a realist synthesis. *Health Res Policy Syst* 2018;16:93.
- 15 Ramkalawan T, Dieppe P. Research capacity development and training. *J Health Serv Res Policy* 2008;13 Suppl 3:6–11.
- 16 Bilardi D, Rapa E, Bernays S, et al. Measuring research capacity development in healthcare workers: a systematic review. *BMJ Open* 2021;11:e046796.
- 17 Fradgley EA, Karnon J, Roach D, et al. Taking the pulse of the health services research community: a cross-sectional survey of research impact, barriers and support. *Aust Health Rev* 2020;44:160–7.
- 18 Schmidt DD, Webster E, Duncanson K. Building research experience: impact of a novice researcher development program for rural health workers. *Aust J Rural Health* 2019;27:392–7.
- 19 Schmidt D, Reymont J, Kirby S, et al. The place of research in the rural health workplace structure: a content analysis of a rural health organisation's strategic and operational documents. *Rural Remote Health* 2020;20:5493.
- 20 Schmidt D, Robinson K, Webster E. Factors influencing attrition from a researcher training program. *International Journal for Researcher Development* 2014;5:56–67.
- 21 Schmidt DD, Kirby S. A modular approach to rural and remote research education: a project report. *Rural Remote Health* 2016;16:3609.
- 22 Cameron HE, Boreland FT, Morris JR, et al. New South Wales and Australian Capital Territory researcher development program 2005–07: modest investment, considerable outcomes. *Aust J Prim Health* 2013;19:59–67.
- 23 Duncanson K, Webster EL, Schmidt DD. Impact of a remotely delivered, writing for publication program on publication outcomes of novice researchers. *Rural Remote Health* 2018;18:4468.
- 24 Ajjawi R, Crampton PES, Rees CE. What really matters for successful research environments? A realist synthesis. *Med Educ* 2018;52:936–50.
- 25 Tikly L. What works, for whom, and in what circumstances? Towards a critical realist understanding of learning in international and comparative education. *Int J Educ Dev* 2015;40:237–49.
- 26 Pope C, Ziebland S, Mays N. Analysing qualitative data. *British Medical Journal* 2000;320:114–6.
- 27 Cooke J. A framework to evaluate research capacity building in health care. *BMC Fam Pract* 2005;6:44.

- 28 Fischer CT. Bracketing in qualitative research: conceptual and practical matters. *Psychother Res* 2009;19:583–90.
- 29 Christie M, Carey M, Robertson A, *et al*. Putting transformative learning theory into practice. *Australian journal of adult learning* 2015;55:9–30.
- 30 Matus J, Walker A, Mickan S. Research capacity building frameworks for allied health professionals - a systematic review. *BMC Health Serv Res* 2018;18:716.
- 31 Paradis G, Hamelin A-M, Malowany M, *et al*. The University–Public health partnership for public health research training in Quebec, Canada. *Am J Public Health* 2017;107:100–4.
- 32 Matus J, Wenke R, Hughes I, *et al*. Evaluation of the research capacity and culture of allied health professionals in a large regional public health service. *J Multidiscip Healthc* 2019;12:83–96.
- 33 Raschke N. *The perceived research capacity and culture within non-metropolitan local health districts in NSW*. Sydney: Health Education and Training Institute, 2017.
- 34 Sarre G, Cooke J. Developing indicators for measuring research capacity development in primary care organizations: a consensus approach using a nominal group technique. *Health Soc Care Community* 2009;17:244–53.
- 35 Schmidt D, Reymont J, Webster E, *et al*. Workplace-Based health research training: a qualitative study of perceived needs in a rural setting. *Health Res Policy Syst* 2020;18:67.

## Research Protocol: Research training – long term outcomes, impacts and skill development

### Project summary

**Rationale:** The majority of research skill and capacity building activities examine short-term outcomes, following up participants after one or two years. Capacity building in health research requires a long-term view to understand the longer term outcomes. The Rural Research Capacity Building Program (RRCBP), delivered by NSW Health offers an opportunity to examine graduates of the Program who completed their research five or more years ago. This represents a unique opportunity to examine researchers' development, application of skills they developed and the long-term outcomes of the projects undertaken through the RRCBP.

**Objectives:** This study will examine long-term outcomes arising from individuals receiving workplace-based training in research skills and real-world experience of conducting research in a rural area.

These outcomes will be aligned with Cooke's capacity development framework in that skill development at the individual level, and perceptions of changes at the team, organisational and supraorganisational levels will be examined. Graduates will also be asked about the nature of skills developed during the Program. Specifically the study will examine:

- What role does research play in RRCBP graduates' career-to-date? How has undertaking research influenced graduates' careers?
- What longer-term changes for RRCBP graduates or the organisation do they see as a result of undertaking research training? How does individual staff completing research training (and research) change organisations?
- What research specific skills have RRCBP graduates used since undertaking research training?
- What transferable or "soft" skills have RRCBP graduates developed as a result of undertaking research education and research?

**Methods:** This qualitative study is underpinned by a critical realist perspective. Graduates of the Rural Research Capacity Building Program from the 2006 to 2015 cohorts will be approached as they have received research training five or more years ago. A stratified sampling approach will ensure a range of experiences are included. Participants will be invited to attend either a virtual interview or focus group.

The use of critical realist framework allows exploration of the underlying mechanisms that lead to change at different levels such as individual or organisational.

**Timeframe:** Interviews/focus groups to be conducted in a period from September to November 2020, with analysis and project report due for completion by December 2020.

**Expected outcomes:** information from this study will assist managers and educators in group research to build an understanding of the long-term impact of investment in research education. The realist approach allows for an understanding of 'what works for who in what circumstance', thus allowing organisations make informed decisions about investment in this education strategy for the individuals and organisations alike.

The project will produce a comprehensive report back to the Health Education and Training Institute which will benefit that organisation in planning for research skill development education. Peer reviewed

publication will be sought and that publication will form a chapter in the researcher's PhD thesis.

## General information

### Research Protocol: Research training – long term outcomes, impacts and skill development

**Name and address of the sponsor/funder:** This study is conducted as part of a PhD program through The School of Public Health, Faculty of Medicine, University of Sydney

#### Name and title of the investigator(s):

*David Schmidt.* PhD Candidate, School of Public Health, Faculty of Medicine, University of Sydney. Senior Program Manager – Rural Research HETI, 5 Panamuna Rd Tathra NSW 2550. Ph. +61 4 22503681. [David.schmidt@health.nsw.gov.au](mailto:David.schmidt@health.nsw.gov.au)

*Dr Kerith Duncanson* Rural Research Education Manager, HETI Rural and Remote Portfolio 0428848264 | [kerith.duncanson@health.nsw.gov.au](mailto:kerith.duncanson@health.nsw.gov.au)

*Professor David Lyle.* Head of Department, Broken Hill University Department of Rural Health, The University of Sydney. Corrindah Court, PO Box 457, Broken Hill NSW 2880. Ph. +61 8 8080 1237. [David.lyle@health.nsw.gov.au](mailto:David.lyle@health.nsw.gov.au)

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## Rationale

Research capacity building has been a desired goal of rural health organisations (Dunbar, 2010). Research in rural areas presents its own set of challenges and a need for specific rural training has been identified (Taylor, Hughes, Petkov, & Williams, 2005). Several programs have been undertaken within the rural health workspace to improve research capacity including scholarships, training in place, fellowships, participatory approaches and capacity building endeavours (Bailey, Veitch, Crossland, & Preston, 2006; Birden, 2007; Fraser, Hawkins, Alexander, Robertson, & Fragar, 2006; Gausia, Thompson, Lindeman, Brown, & Perkins, 2015; Grundy & Johnston, 2003; McIntyre et al., 2007; Webster, Thomas, Ong, & Cutler, 2011).

Recent literature has called for embedded researchers within rural health organisations (Moran et al., 2019). Whilst this idea is consistent with known research capacity development principles (Cooke, Gardois, & Booth, 2018), there is very little information on long term outcomes of research capacity building endeavours, with most programs typically funded in the short term and with short

term follow up (Ramkalawan & Dieppe, 2008). The metrics used to determine success in programs of this type are more complex and this often leads to success in fields like health services research being underreported (Fradgley et al., 2020).

One program that was established to address a perceived lack of rural research capacity is the Rural Research Capacity Building Program, established in 2006 to improve research experience and capability in rural New South Wales. The program has demonstrated efficacy in increasing self-reported research experience (D. D. Schmidt, Webster, & Duncanson, 2019), improving publication rates (Duncanson, Webster, & Schmidt, 2018), retaining researchers within the program (D. Schmidt, Robinson, & Webster, 2014) and building research capacity (Webster et al., 2011). The program is a rare example of a program which has received ongoing funding, as similar programs have been discontinued, despite evidence of their efficacy (Cameron et al., 2013; D. D. Schmidt & Kirby, 2016). Internal evaluation findings also indicate that RRCBP candidature can be transformative personally or professionally beyond the field of research.

This study will be used to explore what value research brings to the individual and organisation in the longer term.

### Study goals and objectives

#### To understand:

- What role does research play in RRCBP graduates' career-to-date? How has undertaking research influenced graduates' careers?
- What longer-term changes for RRCBP graduates or the organisation do they see as a result of undertaking research training? How does individual staff completing research training (and research) change organisations?
- Has the system changed for supporting clinicians who want to undertake research? Who has led change? Have they been an active part of that change?
- What research specific skills have RRCBP graduates used since undertaking research training?
- What transferable or "soft" skills have RRCBP graduates developed as a result of undertaking research education and research?

### Study Design

This qualitative study will be conducted using a critical realist underpinning. Realist approaches have been described as being able to uncover what works for whom in what circumstance (Ajjawi, Crampton, & Rees, 2018; Cooke et al., 2018). The use of critical realism is intended to provide an understanding of the context of research skill development and accompanying research experience,

specifically any changes that may have occurred for the individual or their workplace. A realist analysis will then explore the mechanisms underlying these changes.

### **Participants**

Graduates of the Rural Research Capacity Building Program from the 2006 to 2015 cohorts would be approached. All graduates are experienced health professionals with intimate knowledge of the program and its outcomes, with five or more years from their initial research training. Program coordinators maintain an active list of graduates contact details.

Graduates who have requested that they be removed from the program's regular contact list will not be approached.

### **Methods**

#### **Sampling strategy**

There are approximately 160 people in the graduate contact list who would be eligible to participate. Graduates on the contact list will be divided into three groups; those who are known to be working in research-related roles or are research active within their existing roles, those who are known to be supportive of research but not active in research per se, and those who have not maintained an active presence in research or whose research activities are not known.

To ensure an even spread of recent and less recent graduates the groups will be further stratified into 2006-2010 cohorts, and 2011-2015 cohorts, this creating 6 subgroups.

Each subgroup will be randomly ordered by an administrative staff member working for HETI (Lynette Gillies) and the first five names in each group will receive an invitation email. Thus 30 people will initially receive an invitation email. In the event that a subgroup has limited or no uptake the next 5 names on the list will be approached until the subgroup is represented.

#### **Data Collection**

Potential participants will receive an email invitation from one of the administrative staff working for HETI (Lynette Gillies) inviting them to attend a focus group to be conducted virtually via web conferencing (Zoom). The email will also include a consent form [Appendix 1] and participant information sheet [Appendix 2]. Focus groups are intended to stimulate discussion and allow ideas to develop amongst participants. In the event that an individual would like to participate but is uncomfortable in a group environment or is unable to attend at the agreed time of focus group an interview will be offered at a convenient time via telephone as required. Focus groups and interviews will be conducted by Dr Emily Saurman who is adept at facilitating group discussion via web conference and has experience facilitating focus groups for research. Participants are also likely to be comfortable with webconferencing as virtual sessions were run throughout the RRCBP. Potential participants will be sent a reminder email 2 weeks after the initial invitation.

Participants will indicate their consent to participate in interviews or focus group by signing and returning a consent form [Appendix 1] to the interviewer (ES) electronically. In the case of telephone interviews, consent can be recorded prior to the commencement of the interview in a separate sound file to ensure anonymity if the participant prefers.

It is anticipated that 2-4 focus groups and up to 10 interviews will be held, thus allowing a mix of experiences. It is anticipated that focus groups will contain a mix of the subgroups as outlined above. As graduates are known to the coordinators there will be opportunity to avoid known personality conflicts within the makeup of the focus groups – any known conflicts will be communicated to the interviewer (ES) who will know the names of participants.

Focus groups and interviews will be conducted by Emily Saurman. Dr Saurman is familiar with the program, having provided mentoring and education at research workshops since 2012. Contact with candidates outside of these workshops has been limited and Dr Saurman is independent of program management.

All focus groups and interviews will be digitally recorded. The focus group / interview facilitator will take field notes during or immediately after the conclusion of the interview or focus group. Focus groups / interviews questions can be found in Appendix 4. Participants will be offered the opportunity to request a copy of the transcript from the interview or focus group if desired.

After the first focus group a debrief between the interview and lead researcher will be conducted to explore lines of questioning and discuss any changes required to the focus group schedule. Subsequent debriefs will be held as required.

Interviews and focus group recordings will be transcribed by a professional transcription company with experience in health research, DAATS. This external company undertaking transcription will be bound by a confidentiality agreement.

Recordings will be stored electronically on a password-protected network drive accessible to the interviewer (ES) until the transcripts have been checked for accuracy by the interviewer, after which the audio files will be deleted. Hard copies of any consent forms will be forwarded to the lead researcher in a sealed envelope and stored in a lockable filing cabinet at the lead researcher's office at South East Regional Hospital, Virginia Dr, Bega NSW 2550.

All data will be stored for a period of 5 years then deleted or shredded. In the event of the lead researcher leaving employment within Health Education and Training Institute, responsibility for storage and destruction of the research material will reside with the second named researcher or manager of the same if both these researchers have left employment with the organisation.

### **Data Analysis**

Qualitative analysis will be completed by the lead researcher (DS) using the cut-and-paste method of coding and thematic development (Pope, Ziebland, & Mays, 2000). The interviewer (ES) and two other researchers (KD and EW) will independently read several transcripts in view of the derived

themes to ensure veracity of themes. Any discrepancies will be resolved by a discussion of the research team. The framework for capacity building proposed by Cooke (2005) will provide a theory to inform analysis, with the structural levels of individual, team, organisation and supra-organisational considered when organising and assessing outcomes. Outcomes will also be considered in terms of research development and other concurrent or incidental skill development. Themes will be refined through an iterative process of discussion and rereading texts. When all team members reach agreement on the final iteration analysis will be deemed complete.

### **Expected Outcomes of the Study**

At the conclusion of this study the authors will produce a report/manuscript detailing the long-term outcomes described by graduates of the Rural Research Capacity Building Program and an exploration of the mechanisms that produced those outcomes. Information from this study will be of interest for those investing in research training, in particular HETI and the rural universities.

### **Dissemination of Results and Publication Policy**

The report arising from this study will be provided to the executive of HETI. One or two manuscripts describing the study and its outcomes will be submitted for publication to either a rural health-oriented journal such as the Australian Journal of Rural Health, or a health policy journal such as Public Health Research and Practice or the Australian Health Review.

Presentation of the research findings will target a rural health audience through an appropriate conference, such as the NSW Rural Health and Research Congress or the National Rural Health Conference.

The lead researcher (DS) will be primary author on all reports, publications and presentations arising from this study. Co-authors will be presented in order of contribution to the final report, manuscript or presentation which may be different to the amount of contribution to the study itself and may vary between report, manuscript or presentation. All co-authors will satisfy the ICMJE Criteria for Authorship as described at <http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html> before being considered for co-authorship.

The published paper or papers arising from this study will be used as a chapter in the lead researcher's doctoral thesis as part of the requirements of fulfilling a PhD. In the event that a manuscript is not accepted for publication in any journal the lead researcher reserves the right to include the unpublished manuscript as a chapter in the doctoral thesis.

### **Duration of the Project**

8 months from commencement of data collection to finalisation of report.

## Problems Anticipated

Potential problems are outlined in the table below, along with suggested management strategies.

Issue	Solutions
Recruitment – some graduates may have changed employment or be very time poor or may be embarrassed that they have not continued research	Plenty of notice, convenience of interview time and place (e.g. zoom). PIS and consent explain that ongoing research not a requirement – seeking a range of perspectives Ability to attend interview rather than focus group if concerned re lack of research of activity
Difficulty in conceptualising applications of RRCBP experience beyond research	Provide examples and prompt as part of interview schedule – refer to elements of research spider tool
DS and KD are past program participants	Clarification and articulation of how this experience has influenced our perspective
DL and EW have involvement with the program since its inception	Clarification and articulation of how this experience has influenced our perspective

## Project Management

*David Schmidt.* Lead researcher.

Responsible for research concept, design, protocol, ethics submission and liaison with the ethics committee, governance submissions within NSW Health as required, data collection, data management, data analysis, report writing and manuscript creation for peer-reviewed journal submissions.

*Dr Kerith Duncanson.* Co-researcher.

Responsible for research design, protocol, ethics submission and liaison with the ethics committee, governance submissions within NSW Health as required, data collection, data management, data analysis, report writing and manuscript creation for peer-reviewed journal submissions.

*Professor David Lyle.* Co-researcher and supervisor.

Responsible for research supervision, input into research design, protocol and ethics submissions. Advice on data analysis and report writing. Input into manuscript for peer-reviewed journal submissions.

*Dr Emma Webster.* Co-researcher and supervisor.

Responsible for research supervision, input into research design, protocol and ethics submissions. Input into data analysis and checking of codes and themes. Input into report writing and manuscript for peer-reviewed journal submissions.

*Dr Emily Saurman.* Co-researcher

Responsible for input into research design, protocol and ethics submission. Responsible for organising and conducting focus groups and interview, data management and assisting with code and theme verification. Input into report writing and manuscript for peer-reviewed journal submissions.

### **Ethics**

The project will be submitted to the Hunter New England Human Ethics Committee, with governance approval requested from HETI via REGIS.

Potential ethical concerns for this project include:

<b>Potential issue</b>	<b>Strategy</b>
Perception of power relationship	As graduates, potential participants are not in an unequal power relationship – they are in a peer relationship. Arm's length recruitment strategy.
Perceived coercion or feeling pressure to participate	Sampling process ensures anonymity for those who decline. Initial invitation from independent administrative staff member Focus groups and interviews conducted an independent researcher.

### **Informed Consent Forms**

See Appendices 1-3 for written consent form, PIS and email invitation to participants.

### **Budget**

Costs for this study are as follows:

Researchers' time. The lead researcher is completing this study as part of a PhD being completed through the University of Sydney and is also employed in a research capacity with HETI. Co-researchers have dedicated time allocated to research and research supervision within their work roles.

Software and internet access. The lead researcher has all relevant software and hardware which was purchased specifically for use within his PhD studies.

Transcription costs. The research team have access to an existing relationship with DAATS via University of Sydney. Funding for transcribing has been offered by Health Education and Training Institute.

No additional funds will be requested for this study from HETI.

### Links to other projects

This study forms part of a doctoral project for the lead researcher. A map showing the relationship of this study to the other components is found in Appendix 4.

### Curriculum Vitae of investigators

See Appendix 5 for all investigator CVs.

### Other research activities of the investigators

This study forms part of a doctoral project for the lead researcher. A map showing the relationship of this study to the other components is found in Appendix 4.

### Financing and Insurance

Insurance for all PhD activities undertaken by the lead researcher is covered as part of the standard coverage of all student undertaking doctoral level studies at the University of Sydney.

### References

- Ajjawi, R., Crampton, P. E. S., & Rees, C. E. (2018). What really matters for successful research environments? A realist synthesis. *Medical Education*, 52(9), 936-950.
- Bailey, J., Veitch, C., Crossland, L., & Preston, R. (2006). Developing research capacity building for Aboriginal & Torres Strait Islander health workers in health service settings. *Rural and remote health*, 6(4), 556.
- Birden, H. H. (2007). The researcher development program: how to extend the involvement of Australian general practitioners in research? *Rural and Remote Health*, 7(3), 39.33KB.
- Cameron, H. E., Boreland, F. T., Morris, J. R., Lyle, D. M., Perkins, D. A., Magin, P. J., . . . Zwar, N. A. (2013). New South Wales and Australian Capital Territory Researcher Development Program 2005-07: modest investment, considerable outcomes. *Australian Journal of Primary Health*, 19(1), 59-67. doi:10.1071/PY11155
- Cooke, J., Gardois, P., & Booth, A. (2018). Uncovering the mechanisms of research capacity development in health and social care: a realist synthesis. *Health Research Policy and Systems*, 16(1), 93. doi:10.1186/s12961-018-0363-4
- Dunbar, J. A. (2010). Building capacity for rural and remote research. *Australian Journal of Rural Health*, 18(4), 133. doi:10.1111/j.1440-1584.2010.01146.x
- Duncanson, K., Webster, E. L., & Schmidt, D. D. (2018). Impact of a remotely delivered, writing for publication program on publication outcomes of novice researchers. *Rural and remote health*, 18(2).
- Fradgley, E. A., Karnon, J., Roach, D., Harding, K., Wilkinson-Meyers, L., Chojenta, C., . . . Paul, C. L. (2020). Taking the pulse of the health services research community: a cross-sectional survey of research

- impact, barriers and support. *Australian Health Review*, 44(1), 160-167.  
doi:<https://doi.org/10.1071/AH18213>
- Fraser, J. D., Hawkins, A., Alexander, C., Robertson, C., & Fragar, L. (2006). The impact of the Research Methods Support Structure on research capacity in rural New South Wales. *Australian Health Review*, 30(4), 427-434. doi:10.1071/AH060427
- Gausia, K. M. P., Thompson, S. C. F. P., Lindeman, M. A. B. A. P., Brown, L. J. B. P., & Perkins, D. B. A. P. (2015). Contribution of university departments of rural health to rural health research: An analysis of outputs. *Australian Journal of Rural Health*, 23(2), 101-106.
- Grundy, J., & Johnston, F. (2003). Building research capacity in primary health care settings in the Northern Territory. *Australian Journal of Primary Health*, 9(1), 9-17.
- McIntyre, E., Saltman, D., Traynor, V., Sims, J., Richards, J., & Dollard, J. (2007). Building research capacity in Australian departments of general practice and rural health: a document review of annual reports. *Primary Health Care Research & Development*, 8(1), 3-11.
- Moran, A., Haines, H., Raschke, N., Schmidt, D., Koschel, A., Stephens, A., . . . Nancarrow, S. (2019). Mind the gap: is it time to invest in embedded researchers in regional, rural and remote health services to address health outcome discrepancies for those living in rural, remote and regional areas? *Australian journal of primary health*, 25(2), 104-107.
- Pope, C., Ziebland, S., & Mays, N. (2000). Analysing qualitative data. *British Medical Journal*, 320(7227), 114-116.
- Ramkalawan, T., & Dieppe, P. (2008). Research capacity development and training. *Journal of Health Services Research and Policy*, 13(Suppl 3), 6-11.
- Schmidt, D., Robinson, K., & Webster, E. (2014). Factors influencing attrition from a researcher training program. *International Journal for Researcher Development*, 5(1), 56-67.
- Schmidt, D. D., & Kirby, S. (2016). A modular approach to rural and remote research education: a project report. *Rural Remote Health*, 16(1), 3609.
- Schmidt, D. D., Webster, E., & Duncanson, K. (2019). Building research experience: Impact of a novice researcher development program for rural health workers. *Aust J Rural Health*. doi:10.1111/ajr.12520
- Taylor, J., Hughes, C., Petkov, J., & Williams, M. (2005). Unique issues in research and evaluation in rural and remote locations: Is there a place for specific research training? *Rural and remote health*, 5(2), 351-362.
- Webster, E., Thomas, M., Ong, N., & Cutler, L. (2011). Rural research capacity building program: capacity building outcomes. *Australian Journal of Primary Health*, 17(1), 107-113.

## Appendix 1: Consent form



ABN 15 211 513 464

School of Public Health  
Faculty of Medicine

PO Box 173, Bega, NSW 2550  
AUSTRALIA  
Telephone: +61 4 2250 3681  
Email: [dsch5166@uni-sydney.edu.au](mailto:dsch5166@uni-sydney.edu.au)  
Web: <http://www.sydney.edu.au/>

*Research training – long term outcomes, impacts and skill development*

**CONSENT FORM**

I, ..... [PRINT NAME], consent to participating in this research study.

In giving my consent I state that:

- ✓ I understand the purpose of the study and any risks/benefits involved.
- ✓ Joining this study involves participating in an interview or focus group (face to face or webconference) for approximately one hour
- ✓ I have read the Information Statement and have been able to discuss the study with the researchers if I wished to do so.
- ✓ The researchers have answered any questions that I had about the study and I am happy with the answers.
- ✓ I understand that being in this study is completely voluntary. My decision whether to take part in the study will not affect my relationship with Health Education And Training Institute, my LHD, the researchers or anyone else at the University of Sydney now or in the future.
- ✓ I understand that I am able to withdraw from the study and do not need to provide reason for doing so.
- ✓ I understand that sensitive information collected over the course of this project will be stored securely and will only be used for purposes that I have agreed to. I understand that this sensitive information will only be told to others with my permission, except as required by law.
- ✓ I understand that the results of this study may be published, and that these publications will not contain any identifiable information about the organisation or any individual within the organisation.
- ✓ I understand that I will receive a report summarising the study's findings independent of any publication.

.....  
Signature

.....  
PRINT name

.....  
Date

Consent form: Research training – long term outcomes, impacts and skill development  
Version 1 [07/02/2020]

Page 1 of 1

## Appendix 2: participant information sheet



Long term  
outcomes of research

### Appendix 3: Email invitation to participants

Dear [insert name]

We are writing to invite you to participate in a research project exploring the long term outcomes of research training. As a graduate of the Rural Research Capacity Building Program, we believe that you will have important insights in this topic.

Please note that we are looking to hear about a range of experiences. You do NOT have to be active in research to participate in this study.

Please find attached a Participant Information Sheet which explains more about the project and what is involved. You will also find attached a consent form via which you may indicate your willingness to participate in this study.

If you consent to participating in the study, please sign the attached consent form and return to Dr Emily Saurman via email at [Emily.Saurman@health.nsw.gov.au](mailto:Emily.Saurman@health.nsw.gov.au), or if you wish you can provide verbal consent which will be audio recorded.

If you do not consent to participating in this study, you do not have to do anything. However if you are unable to participate and want to let us know, please reply to Lynette Gillies so that another person may be offered the option of participating. You do not have to provide any reasons for wishing not to participate.

If you would like to know more about this study, please contact the lead researcher David Schmidt. PhD Candidate, School of Public Health, Faculty of Medicine, University of Sydney. Ph. +61 4 22503681. [Dsch5166@uni.sydney.edu.au](mailto:Dsch5166@uni.sydney.edu.au) or any of the research team listed on the information sheet.

We look forward to hearing from you.

Yours sincerely

David Schmidt for the research team

David Schmidt, Dr Kerith Duncanson, Dr Emma Webster and Professor David Lyle

#### Appendix 4: interview guide



Interview schedule  
value of research tra

## Appendix 5: Investigator Curricula Vitae



CV D Schmidt 2020  
1 page.doc

1. David Schmidt
2. Dr Kerith Duncanson: <https://www.newcastle.edu.au/profile/kerith-duncanson>
3. Prof David Lyle: [https://www.nswruralhealthresearch.org.au/committee\\_members/professor-david-lyle/](https://www.nswruralhealthresearch.org.au/committee_members/professor-david-lyle/)



david.lyle\_publications.pdf

[lyle/](#)

4. Dr Emma Webster <https://www.sydney.edu.au/medicine-health/about/our-people/academic-staff/emma-webster.html>

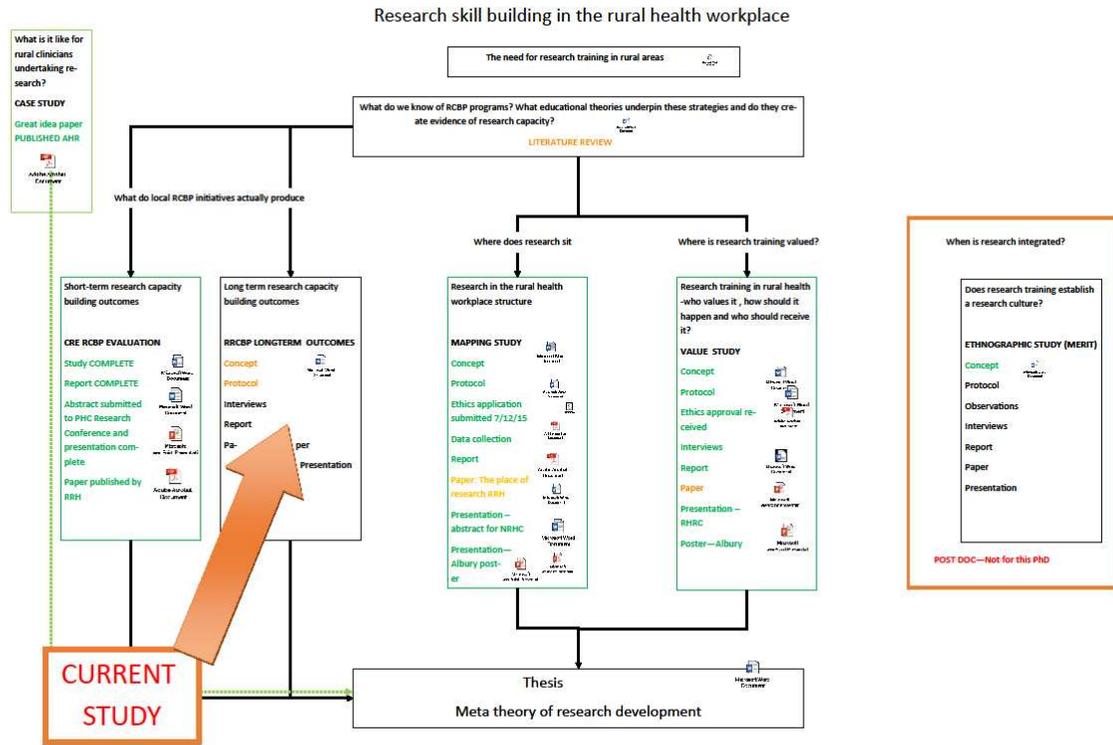


Emily Saurman CV-abbreviated 2020.pc

5. Dr Emily Saurman

Appendix 6

PhD Map of related research activities



## Interview/focus group schedule: Research training – long term outcomes, impacts and skill development

We are undertaking this study to understand the role research and research training plays within the development of individuals and the organisations they work in. Just a reminder that this focus group / interview will be recorded.

**Reminder: Please ensure that discussions that occur as part of this focus group / interview remain confidential.**

1. Describe how you have used research specific skills at work since undertaking research training?  
[prompt] These might include analysing data, critically appraising literature, writing protocols, etc
2. What surprised you most as an outcome from undertaking a research training program?
3. What transferable or “soft” skills have you developed as a result of undertaking research education and research?
4. Can you describe the role research has played in your career to date?  
[probe] Can you tell me more about how undertaking research has influenced your career?  
[probe] In what ways do you see research playing a part in the remainder of your career?
5. What longer-term changes do you see for yourself as a result of undertaking research training?
6. What longer-term changes for your organisation do you see as a result of undertaking research training?
7. It is more than five years now since you undertook research training. In hindsight... What was the value (or not) for you? And your work team or health service- do you see a value (or not) for that perspective?
8. What were the changes in the health service in which you work as a result of your RRCBP project? Changes in other health services or health districts? What were you pleased about? Disappointed with?

9. Has the system changed for supporting clinicians who want to undertake research? Who has led that change? Have you been an active part of that change?