

**Public health/health promotion research workforce:
development, progression and retention**

FINAL REPORT

April 2004

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Executive Summary

Anecdotal ‘evidence’ suggests that people with extensive research training are choosing to leave public health research. The primary aim of the project was to identify factors that may contribute to this apparent exodus from public health research of early and mid career researchers. Rather than focus only on barriers, the project also aimed to identify strategies that are currently used to support early career researchers in public health.

With the full co-operation of several universities and research centres, public health researchers shared their views about their current work life. They spoke about what attracted them to public health research. They described what excited them and what disappointed them. Some discussed what drove them to continue to work in public health research while others discussed their career options. Finally, participants focused on specific barriers that they may have experienced and made suggestions about how the situation could be improved.

Data collected from interviews challenged the underlying premise that people were leaving public health research. Most participants were astonished that people who had spent many years investing in specialist knowledge would choose to leave public health research. The underlying premise also implied that there were plenty of other jobs for early and mid career researchers to move into. The early career researchers nearing the end of their current employment contracts felt this was not the case. In recent months, they had not seen any suitable jobs advertised.

Although large numbers of people may, or may not, be leaving public health research, participants identified barriers to their career progression. Some of these barriers were unique to public health research, others were not. For example, participants working at universities described a number of barriers that were structural and not specific to public health researchers.

In general, public health researchers working in research centres described themselves as much better supported than those working within universities. The differences were particularly evident in the area of mentoring and development of collegial networks.

Data identified current career paths in public health research as a major barrier. Participants at both universities and research centres described a lack of clearly defined career paths in public health research as a barrier to their career progression. Although it may not be possible, or even desirable, to provide a universal job description for a “public health researcher”, participants felt that a range of “sign posts” may provide welcomed support for early and mid career researchers.

The lack of career paths was also identified as a barrier to building the public health research workforce. Without well recognized career paths, it was difficult to attract students to public health research training. Data indicated that the biggest problem to public health research capacity may not be barriers once people were trained. The biggest issue may be getting people trained in the first place.

Data indicated that it was difficult to attract students to an academic discipline that was new and poorly-defined. Without a strong presence at universities, it was difficult to attract the best undergraduate students early in their career. Instead, students entered public health from multiple entry points and diverse academic disciplines. Those currently attracted to public health were described as older professional people, mostly women, with health backgrounds.

As a new discipline within the university, public health not only had difficulties attracting students but also building capacity within public health research. Without research capacity, it was more difficult to attract resources. A new discipline, particularly one that was mostly located at newer universities, also had difficulties finding experienced people to mentor early career researchers. The data also identified difficulties building collaborative relationships with practitioners, policy makers and private industry. Genuine collaborations between urban and rural researchers were also identified as a barrier to building research capacity.

Background

The Victorian Public Health Research & Education Consortium (VPHREC) was formed to advocate for public health research and education in Victoria. Its membership includes universities, research institutes, government bodies, and others interested in promoting public health research and education. The purposes of VPHREC include influencing the development of policy, providing a diverse forum for policy development, raising awareness and appreciation of public health, and building public health research and education capacity in Victoria.

The VPHREC membership expressed the need to improve on the development, progression, and retention of the Victorian public health research and teaching workforce. Perceived shortages of qualified public health researchers and educators—as well as concerns about the lack of progression and retention of early career researchers—are the main drivers of these membership concerns. The VPHREC Workforce Development Committee (WDC) was formed in 2002 to address these membership concerns.

While some information on workforce development can be gleaned from existing sources (e.g. 2002 VPHREC report, NPHP 2002 report entitled “Planning framework for the public health workforce”), the WDC determined that further information was needed in order to constructively comment on these issues and provide guidance for action. As a first step in this effort, the VPHREC WDC and the Victorian Health Promotion Foundation (VicHealth) developed and commissioned a qualitative study. The aim was to interview early- to mid-career researchers and research mentors to gain a better understanding of the factors that influence the retention in public health research. Specifically, the project addressed the following questions:

- How researchers come to be working in the public health / health promotion field in Victoria
- Factors that are enabling them to remain, develop and progress in health promotion / public health research in Victoria
- Factors that may contribute to researchers leaving public health / health promotion research in Victoria
- Any actions / developments that researchers view as being able to enhance the enabling factors and/or offset the barriers to retention and progression.

Method

This qualitative research project was designed to answer questions about the public health workforce that could not be accessed through numerical analysis. The researcher interviewed public health researchers about a range of issues related to their careers. The interview data was analysed according to themes and critical issues.

Stage 1: Selecting organisations

The workforce committee selected seven organisations as potential research sites. These organisations included universities and research centres in both urban and rural/regional areas. Although public health research is undertaken in other settings (e.g. government and industry), this research focused only on universities and research centres because this is where most public health research takes place. Also, people working in universities and research centres were conveniently accessed through the VPHREC membership.

The workforce committee selected diverse research sites. The sample included traditional medical model public health (e.g., a Department of Epidemiology based in a medical school) as well as other settings with a strong emphasis on multi-disciplinary research methods. The organisations which participated in this project were:

Research Centres (urban)

- The Cancer Council Victoria
- Turning Point Alcohol and Drug Centre

Research Centres (rural)

- Australian Rural Centre for Addictive Behaviours

Universities (urban)

- Monash University: Department of Epidemiology and Preventative Medicine
- Deakin University: School of Health Sciences
- Swinburne University: Graduate School of Integrative Medicine

Universities (rural/regional)

- La Trobe University, Bendigo: School of Public Health
- Flinders and Deakin Universities: Greater Green Triangle University Department of Rural Health

Stage 2: Recruiting current public health researchers

Senior people within the selected organisations were informed of the study and invited to participate. They were also asked to nominate a number of early and mid-career researchers within their organisation who may be willing to participate in either a one-to-one interview or a group discussion. Seventeen (17) public health researchers from a range of academic backgrounds agreed to participate in a one hour semi-structured interview (Tables 1 & 2). This included

- 7 senior researchers
- 4 mid-career researchers
- 6 early career researchers

In addition, five (5) early career researchers at Monash University's Department of Epidemiology and Preventative Medicine agreed to participate in a group discussion (Table 1).

Table 1: Academic and demographic details of early career researchers

Level	Discipline	Institution	Sex	Current Position	Employment
Early Career	Psychology	Research Centre	F	Behavioural Scientist	Permanent
Early Career	Psychology	Research Centre	F	Research Fellow	Permanent
Early Career	Policy	University	M	Senior Lecturer	Permanent
Early Career	Medicine	University	M	Senior Research Fellow	Contract
Early Career	Sociology	Research Centre/University	M	Associate Lecturer	Contract
Early Career	Public Health	University	F	Research Assistant	Contract
Early Career*	Epidemiology	University	M	Research Fellow	Contract
Early Career*	Physiotherapy	University	F	Research Fellow	Contract
Early Career*	Physiotherapy	University	F	Research Fellow	Contract
Early Career*	Neuroscience	University	F	Research Fellow	Contract
Early Career*	Env Science	University	F	Research Fellow	Contract

* The 5 participants marked with an asterix* took part in the group discussion.

Table 2: Academic and demographic details of mid career and senior researchers

Mid Career	Epidemiology	Research Centre	F	Co-coordinator of Clinical Research	Permanent
Mid Career	Psychology	Research Centre	F	Deputy Director	Permanent
Mid Career	Social Epi	University	M	Senior Research Fellow	Contract
Mid Career	Speech Path	University	F	Head of school	Permanent
Senior	Psychology	Research Centre	F	Director	Permanent
Senior	Epidemiology	Research Centre	M	Associate Director	Permanent
Senior	Psychology	University	M	Professor	Permanent
Senior	Medicine	Research Centre	M	Director	Permanent
Senior	Medicine	University	M	Head of school	Permanent
Senior	Medicine	University	M	Head of school	Permanent
Senior	Medicine	University	M	Director	Permanent

Stage 3: Recruiting past public health researchers

Using a ‘snowball’ sampling strategy¹, current public health researchers were asked to nominate people with a doctoral qualification who had left public health research within the past 3 years. Two ‘potential participants’ were nominated. When contracted, these ‘potential participants’ stated that they had not left public health research “*altogether*”. They moved “*in and out*” of public health research.

Given that the snowball strategy was unsuccessful in recruiting suitable participants, it was fortuitous that an early career researcher in the group discussion was planning to leave the university to work for the pharmaceutical industry. She agreed to participate. The other two participants were recruited via the researcher’s professional networks. Both had left public health research soon after completing a PhD in public health. They now worked in the Department of Human Services and a School of Nursing respectively (Table 3).

¹ This widely used qualitative research technique involved the investigator asking participants to tell other potential participants about the project.

Table 3: Profiles of participants who are not working in public health research

Age	Sex	PhD discipline & date	PhD scholarship	Public health research >PhD	Current workplace	Current position
31	F	Neuroscience 1999	Yes APA	5 yrs	Amgen	Biometrics Associate - support role for statistician
50	F	Public health 2001	No	0 yrs	Department of Human Service	Regional Health Partnerships Adviser
47	F	Public health 2000	Yes NHMRC PHRDC	0 yrs	School of Nursing	Senior Research Fellow, Health Care Partnership

Stage 4: Interviews and group discussion

The interview schedules were designed in collaboration with the workforce committee. The questions asked participants to reflect on their careers and to comment on the barriers that early career researchers face in advancing their career in public health and the strategies used for overcoming any barriers. All personal interviews and the group discussion were tape-recorded and transcribed. Participants were given the option of making additions/deletions to their individual transcripts. All participants gave consent for their transcripts to be read by members of VPHREC workforce committee. Rather than use participants' names, each transcript was identified by a number.

Stage 5: Analysis

To facilitate a detailed examination of this project's interview data, transcripts were entered into a computer software package designed for qualitative research (NVivo). This computer package was used to store and manage the data. Using NVivo, the transcripts were coded according to categories and sub-categories. The main categories were primarily determined by the interview schedules, though some new sub-categories emerged from the data. In each category and sub-category, data was compared and contrasted.

Table 4: Main categories and sub-categories used in the analysis

<ol style="list-style-type: none">1. Definition of public health:<ul style="list-style-type: none">• Vague• Medical view• Non-medical view2. Attraction to public health research<ul style="list-style-type: none">• Who is attracted• Factors that attract• Process of entry3. Disappointing things about working in public health research<ul style="list-style-type: none">• Clinical bias• Level of intellectualism• Implementing research recommendations• Research funding• Parts of job that need to change• Other career options4. Specific facilitators in career progression<ul style="list-style-type: none">• Mentoring• Supervision• Scholarships• Interesting projects• Support• Stable income5. Specific barriers in career progression<ul style="list-style-type: none">• University culture• Stage of life• Research Grants• Lack of career path• Job insecurity• Senior positions• Non-research work• Gender6. Ways to remove barriers<ul style="list-style-type: none">• Target best students• Career paths• Mentoring• Post doctoral support7. Perceptions of newly enrolled PhD students<ul style="list-style-type: none">• Numbers• Qualifications8. Ways to retain early career researchers<ul style="list-style-type: none">• Support

Findings

In the following discussion of the findings, the text in “*italics and quotation marks*” indicates a direct quotation from a participant.

Factors that attract public health researchers

While some participants came to public health research with “*a mission*”, others moved into public health research “*because it was a job*”. For participants with “*a mission*”, a degree of idealism was evident when asked to describe what had initially attracted them to public health research. However, most participants acknowledged that the pressures of politics and lack of resources in public health research made it difficult for them to remain idealistic.

Data identified a range of factors that attracted participants to public health research. These included:

1. The potential to make a difference

Most participants referred to the importance of public health research and said they were attracted to public health research because of the potential to make “*a difference to people’s lives*”. However, given the nature of public health research, this “*difference*” was often incremental. Few could point to a particular piece of work and say: “*This has changed public health status in Australia.*”

Although data indicated that most participants were driven by a desire to make a difference to people’s lives, there was also disappointment when research recommendations were not implemented. Some participants described the “*politics*” involved in implementing public health research findings as a barrier.

2. Commitment to public health’s values

According to the data, public health was associated with “*certain values*”. This often encouraged people with similar values to move into public health research. For example, most participants preferred to work on research projects that had “*social meaning and value*”.

3. Research process

The pursuit of answering an interesting research question drove many participants to work in public health research. Some public health researchers were simply attracted to “*the research process*” and the potential to use a “*full range of research methods*”.

Data indicated that many participants were working on research projects that excited them. For a mid career researcher, research work was a “*privilege*”.

It is really interesting stuff that we do. It is really lovely to see a grant funded, put into action, and then get some results out of it. It's what I enjoy and it is a real privilege to be doing it. (Mid career researcher)

4. Nexus between research and practice

A senior participant believed it was necessary to have a well resourced service base from which to generate research. However, he described “*the public health apparatus in Australia is trivial in scale,*” particularly outside urban areas. Without this foundation, he described public health researchers as often “*rootless*”.

Seeing research being put into action was a “*really exciting part*” of public health research. However the process of implementing research findings was described as “*not an easy, or even a rational process*”. Public health programs could be “*decimated just because some politician or senior bureaucrat did not like them*”. This made public health research “*incredibly frustrating*”.

Most mid career and senior public health researchers recognised the complex process of getting research evidence into policy and practice. They felt it was important for public health researchers to engage with the political process. Given that there were various ways to interpret data, many participants learnt to translate research findings in ways that could be widely understood.

If researchers want people to see something particular about the research, then researchers need to tell people in a way that they understand it. (Mid career researcher)

Several early career researchers, however, felt unprepared for the processes of translating research findings into bureaucratic-style language that could be easily understood by bureaucrats and practitioners.

Finally, there was the issue of advocating for research findings to be implemented. Although some felt advocacy was the responsibility of “*all public health researchers*”, others had found speaking out on sensitive issues a “*career limiting move*”. A senior participant encouraged public health researchers “*to be courageous*” and accept “*political flak*”.

Barriers to career progression

A lot of Masters of Public Health students ask what public health is like as a career. I actually find it difficult to talk about public health as a career. Not because I don't think it is important. It is clearly important. But the career paths are not obvious. You can't say do a Masters of Public Health and you will certainly get a job in this area and then you can expect to see this sort of progression over 10 years. It is very difficult to predict what sort of jobs or what sort of progression. (Mid career researcher)

The data indicated that the lack of established career paths and visible career sign-posts was a significant barrier for public health researchers' career progression. Participants observed that pathways in many other professions had developed over numerous years. Participants acknowledged that public health research was a new discipline – thirty years ago, there was “*no public health as such*” in Australia.

According to a senior researcher, there were two “*distinct*” career paths:

1. Masters of Public Health
2. Applied public health in the context of the medical profession.

These two “*distinct*” career paths in public health assumed a dichotomy between intellectual and applied public health. They also assumed that applied public health was limited to the medical profession. The data collected in this project challenged both these assumptions.

The data indicated that there were multiple career paths in public health research, and that these paths remained unclear to many early career researchers. Some early and mid career researchers identified the lack of clearly defined career paths as a major barrier to their career progression. Others felt this lack of certainty was ‘OK’. Either way, a lack of established career paths made planning for the future difficult for early and mid career researchers.

In your early career, there is not much information about career path. Informing people how to develop that career path...Maybe that information is out there, I don't know. You know you have to do a PhD, so you do the PhD. You know the traditional thing is to get a post doc, but it's hard to get a post doc. What do you do if you don't get it? Where do you go from there? Maybe just knowing that you work as a Research Officer for 3 years then you should expect to be doing something else. (Mid career researcher)

According to the data, some areas of public health research had stronger career paths than others. For example, senior participants described epidemiology and biostatistics as having a strong career path because “*these skills were in strong demand*”. Yet rather than feel confident about employment and career progression, early career researchers working in epidemiology and biostatistics were mostly employed on research grant money. Short term employment contracts were found to contribute to insecure career paths in public health research.

One participant who left public health research after completing her PhD in public health was advised to move into academic nursing because it had “*a more established career path*”. Her supervisor/mentor believed that her career would be more secure within academic nursing rather than public health research. He also believed that her academic progression would be more rapid.

There were many factors that contributed to insecure career paths in public health research. According to the data, problems with the career path in public health research began with the broad definition of public health.

Broad definition of public health

The broad definition of public health had positive and negative implications for career paths in public health research. For some participants, a broad definition was seen to provide the public health workforce with more career opportunities – “*a range of options made it easier to negotiate career paths*”. For other participants, the “vague” definition of public health research created difficulties. This was particularly the case for early and mid career researchers.

Several participants, including senior researchers, did not see themselves as a “*public health person*”. Although public health informed the research questions that they asked, they preferred to identify with their specialist area or academic discipline rather than under the “*public health banner*”. Although they were “*happy to apply their expertise to public health*”, this expertise could easily have been applied to other areas. In addition, some had “*major reservations*” about the way ‘public health’ was defined, and practiced, at the government level. Several participants did not want to be associated with the “*‘public health’ stream within the Health Department*”.

Public health is a new university discipline

The data indicated that it was difficult to attract students to a poorly defined academic discipline. The difficulty attracting students was exacerbated by the fact that public health was a relatively new university discipline. Prior to the publication of the Kerr White Report² in 1986, there was only one School of Public Health in Australia. There are now approximately 20 Masters of Public Health courses. Although there are more schools of public health, most of them may have not existed long enough to attract large numbers of “*high quality*” PhD students. According to the data, a dearth of high quality students was a major barrier to public health research.

Most schools of public health were small. This created another barrier to attracting the “*brightest and the best*” students. In addition, public health schools were often located within the newer, less established universities. These newer universities did not have a long tradition of research and scholarship.

Attracting students to public health

According to the data, it was difficult to attract undergraduate and postgraduate students into an ill-defined (and low status) discipline, particularly one that considered itself a “*poor cousin to medicine*”. Students with high TER scores, “*enrolled in medicine not public health*”.

In the current sample, few participants followed the academic trajectory of ‘high school, undergraduate degree, Honours, Masters, and PhD’. Most participants described “*falling into public health research*”. Few participants had planned a career in public health research.

Participants recognised the importance of undergraduate students feeling confident that their education would lead to a career. However, they also recognised that undergraduate and postgraduate students may be reluctant to plan a career in public health without the existence of established career paths.

A senior participant described the importance of informing students (and parents) about the large number of job opportunities for graduates in public health. This information may encourage “*more*

² The Kerr White Report was an independent review of research and educational requirements for Public Health and Tropical Health in Australia.

students to enroll in public health". He also recognised that informing students about job opportunities required public health academics to be connected to public health agencies. In his experience, most academics did not know where the jobs were because they were disengaged from the "*outside world*".

Mentoring

Participants acknowledged the differences between 'mentorship' and 'supervision'. Mentorship was considered "*career guidance*" while supervision focused on "*tasks that need to be done to finish the PhD*". Mentoring was sometimes difficult in public health research "*because it was a new area*". This was reflected in participants' limited amount of experience in PhD supervision (Table 5).

There was simply not the culture in public health of mentoring anyone...People in senior positions in public health back then were not in a position to mentor me. They were scrambling for their own jobs and developing a new department. (X-public health researcher)

Another participant considered herself well mentored. She described the process beginning during her Honours year and continuing "*ever since*". Her mentor/supervisor encouraged her to work with him on research projects, published with her in "*the right journals*", supported her to attend conferences and assisted her to write grant applications. During her Honours and PhD candidature, the participant felt that she was not only mentored into the discipline of public health but also into academia more generally.

Data indicated that PhD mentoring remained an ad hoc process at the university: some participants received it, others did not. In addition, data indicated that the decision to mentor PhD students within universities was often a personal, not organisational, decision. While some participants mentored, others provided "*task oriented supervision*".

Like PhD mentoring, early career research mentoring was also the "*luck of the draw*" at universities. For example, an early career researcher who left public health research described little support at the university to "*get her career started*". It was her observation that the university was more interested in supporting the "*high flying post docs*" (e.g. NHMRC, VicHealth).

Early career researchers described PhD supervisors who mentored them as "*invaluable*".

However, some early career researchers chose supervisors who were considered "*famous*" in their academic area. They described these senior researchers as "*too busy*" to provide either

mentorship or supervision. The unavailability of senior people resulted in many participants “working instead with mid-career researchers”. This created the potential for tension because “a lot of mid-career researchers are fighting for their jobs as well”.

Table 5: Number of PhD students supervised by early mid and senior participants.

Level	Workplace	Past PhD students	Current PhD students
Early	Research Centre	0	0
Early	Research Centre	0	0
Early	University	0	0
Early	University	0	0
Early	Research Centre and University	0	0
Early	University	0	0
Mid	University	2	2
Mid	Research Centre	1	1
Mid	Research Centre	0	1
Mid	University	0	0
Senior	Research Centre	0	2
Senior	Research Centre	6	3
Senior	University	20	6
Senior	Research Centre	0	0
Senior	University	20	5
Senior	University	0	15*
Senior	University	3	1

* As head of a new school, the senior participant co-supervised all current PhD students enrolled in the school.

In contrast to universities, senior researchers working at research centres described organisational structures to support mentorship. Senior researchers described mentoring early career researchers as one of their “*key roles*”. Within research centres, mentoring was an explicit process during the first three to five years post doctorate – these were regarded as “*the crucial years post doc.*” Senior researchers at research centres supported “*postdoctoral programs*” to help early career researchers build their careers. Postdoctoral programs included training and support for early career researchers to write publications, network with colleagues, conference support and assistance to prepare grant applications. Early career researchers described the career support given to them at the research centres as a factor in choosing to work there.

At the beginning of their careers, the biggest obstacle for many early career researchers was their track record. Senior participants at research centres described mentoring early career researchers to build a track record by putting them on several collaborative NHMRC grant applications as an associate investigator. After several successful applications, early career researchers would be ready to apply for a NHMRC grant in their own right.

While early career researchers at research centres felt encouraged to apply for NHMRC grants, early career researchers at universities often felt discouraged. Several early career researchers at universities felt that putting themselves on grant applications would “*bring down the research team*”. Some early career researchers described feeling discouraged from applying for NHMRC grants because “*most grant money went to biomedical research*”.

Data collected in this project indicated that several mid career and senior researchers were successful with NHMRC grants (Table 6). In this sample, current projects were funded predominantly by NHMRC and Government (both state and federal). Senior researchers acknowledged that NHMRC were “*hard grants to get*”, but NHMRC grants were “*not more difficult for public health researchers than for others*”.

***If it is good research, it will get up...I have seen enough over the years to know that it is not a bias... Rather than saying “this area of research isn’t supported by NHMRC”... We need to get good people to begin with, encourage them through and mentor them. We also need to ensure they are not cast out on their own too soon.
(Senior researcher)***

Table 6: Organisations that currently fund participants' research projects.

Participant Level	Research Funding							
	NHMRC	VicHealth	ARC	Govt ³	Drug Co	Foundations	Div of GP	Internal
Early	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				
Early			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
Early				<input checked="" type="checkbox"/>				
Early								<input checked="" type="checkbox"/>
Early	<input checked="" type="checkbox"/>							
Early				<input checked="" type="checkbox"/>				
Mid				<input checked="" type="checkbox"/>				
Mid	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>
Mid		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		
Mid			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		
Senior				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
Senior	<input checked="" type="checkbox"/>							
Senior			<input checked="" type="checkbox"/>					
Senior				<input checked="" type="checkbox"/>				
Senior	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>				
Senior				<input checked="" type="checkbox"/>				
Senior				<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	

³ Includes all grants and tenders awarded by any State or Federal Government department

Collaborative relationships

Data indicated that it was important for early career researchers to establish strong collaborative relationships with researchers from a range of academic disciplines, practitioners in the field and policy makers. These ‘interdisciplinary collaborative relationships’ were fostered in forums such as conferences, seminars and “*tea parties*”. Several senior researchers saw it as their role to actively build collegial networks among PhD students and early career researchers.

*And that is why you need a critical mass of senior researchers in one place because it is not just about erudite learning. It is also about mates.
(Senior researcher)*

A new initiative by NHMRC and ARC made it possible for early career researchers to submit Category 1 grant applications alone, as a ‘new investigator’. A senior researcher was not convinced that this initiative would assist public health’s early career researchers because “*public health research is collaborative*”. It was considered important for early career researchers to undertake public health research within a multidisciplinary team.

Early career researchers at universities found these collaborative relationships more difficult to foster than early career researchers at research centres. Conference support was a particular problem at universities for early career researchers working on projects that were funded by external project grant money. Project grants rarely included money for research fellows to attend conferences and other professional development training. The other barrier for early career researchers trying to develop collaborative links with people outside the university was cultural. Participants described universities as “*disengaged from the real world*” with academics “*sitting behind computers, not getting out there enough*”.

Collaborative relationships with rural researchers

Rural researchers indicated that “*genuine collaboration*” between rural and urban researchers would benefit public health’s research capacity. However, urban researchers were often “*only interested in a token collaboration*”. This ‘*token collaboration*’ rarely included any rural involvement in the preparation of the project – it required only a rural researcher’s “*signature on a grant application*”. In some cases, rural researchers were “*lucky to get the opportunity to see the proposal, let alone comment*”.

A senior rural researcher described an “*urban/rural divide in Australia*”. He described a degree of hostility to academics within rural areas because “*city academics come, they go, but none of it makes any useful difference here*”. The data indicated that urban projects in rural areas were often short term, poorly designed and inappropriate for rural communities. Rural researchers felt that short term projects denied rural communities the opportunity to maintain their skill base and build research expertise.

Collaborative relationships with industry and government

According to a senior participant “*if we are interested in public health, we need to have good relationships with industry.*” His idea for developing better relationships with industry was to “*job swap*”. He described academics in America who move into the government sector for a year as helping them “*to get to know the networks*”. This culture of moving between research and service areas did not currently exist in Australia – “*public health in Australia was not a career that allowed people to go from service to research and back again*”. Nonetheless, the three participants who were currently working outside public health research were willing to move back into public health research at a later date. This suggested that the “*swapping*” was currently informal and self-initiated rather than a formal program of “*job swapping*”.

Participants often described the transition to private industry as “*crossing into the forces of darkness*”. Yet the participant who had left public health research to work for a pharmaceutical company did not feel she had moved to the “*dark side*”. She felt her work at the university was “*too removed from people and patients*”. She also believed that her research skills would be better utilised in private industry.

Building research capacity

One of the barriers to public health research was a lack of qualified people. Senior participants described having difficulties finding people to work on projects. Even when there was money to employ people, they described not being able to “*find the right people*”. A rural university department, for example, has been trying to recruit a public health senior lecturer for over a year. The department was bringing over someone from Finland – visiting fellowships were the only way they could fill the gap.

The lack of qualified people to work on projects was also a problem in urban areas. This was evident with the new NHMRC capacity building grants. These grants were designed to help develop public health research workforce and to promote career development. However, it was difficult to appoint experienced and qualified people, particularly in epidemiology and statistics. Senior participants described a “*catch 22 situation*” in which it was not possible to build capacity without first having adequately trained people to fill the spaces.

A senior researcher found a solution to the problem of failing to attract qualified applicants by appointing people with PhDs in basic sciences. However, he also needed large projects to provide adequate research training – “*Flagship projects are fundamental to training and capacity building.*” Epidemiology students in particular needed a “*flagship*” project to help their careers to “*take off*”.

Salaried positions

Given that many departments of public health were small, there were limited salaried positions within universities (Tables 1 and 2). To increase capacity, additional positions were created using grant money. According to the data, grant funded positions were crucial to the public health research workforce. For some research fellows, grant funded positions have become “*career positions, being rolled over from one to the next*”. Early career researchers relied heavily on “*rolling*” from one grant/scholarship/fellowship to the next. With this lack of permanency, several early and mid career researchers described building a research career as “*difficult*”.

Multiple entry points into public health

“With the multiple entry points into public health research, the career path was often described as “*messy*”. Without a natural entry point into public health, participants described difficulties attracting the “*brightest and the best*” students early in their academic careers. According to the data, the “*brightest and the best*” students were attracted to biomedical research rather than public health research.

Rather than attract people early in their careers, public health researchers often entered public health later in their careers. Several participants described public health researchers as predominantly older professional people, mostly women, with health backgrounds. The main factors that were raised about entry into public health research were:

- insufficient number of undergraduate public health degrees
- lack of scholarships.

An insufficient number of undergraduate public health degrees

According to several senior participants, there was an inadequate number of undergraduate streams that led directly into a postgraduate stream in public health. This was considered a significant barrier to attracting public health researchers earlier in their careers. They felt an increased number of undergraduate courses in public health “*may help to attract people earlier*”.

Although more universities were now offering undergraduate public health degrees, some participants described these courses as “*focusing too quickly on health*”. They would prefer more attention to structural considerations such as social determinants. Although participants acknowledged the importance of specialists in public health research, some would prefer more generalists in public health research.

Scholarships

Data indicated that an increased number of scholarships were needed at both the Honours and postgraduate level. Given that the disincentive to undertake research training in public health was often related to income, participants recognised that scholarships often determined whether or not a person undertook a PhD after completing an Honours degree. However, participants acknowledged that it was often difficult for public health students to compete for university scholarships with students from biomedical areas who have “*stellar*” academic records.

For those already in the public health workforce, scholarships were also important. Several participants employed in public health research at research centres worked full-time during their PhDs. Although they felt encouraged and supported by senior staff, working and studying at the same time was “*a barrier*”. For one participant, “*work was a really good excuse not to study*”.

In addition to helping people already working in public health research, some participants suggested using scholarships to attract graduates from a range of other disciplines. Rather than focus only on graduates of medicine and other allied health areas, participants suggested offering scholarships to the best students from a range of non-health disciplines (e.g. philosophy, sociology, geography, environmental sciences, and applied sciences). Students from these disciplines may bring a “*greater breadth of knowledge to public health*”. In addition, several participants suggested attracting graduates into public health research from mathematics and statistics to help the chronic shortage of trained people in biostatistics.

Other possible entry points to public health research included the Masters of Public Health (MPH), doctorates, post doctoral, medicine and public health research experience.

Masters of Public Health

For the past 15 years, the MPH has been a common entry point into the public health workforce. However, participants felt that the MPH had not made much impact on research training – “*they have produced many public health practitioners, but not many researchers*”.

Doctorates

Like the MPH, participants observed that the public health doctorate had not made an impact on public health research capacity. Most participants regarded the doctorate as a good scheme for “*professionals working in public health, but not for those working in research*”.

Doctorates are not anything like a PhD. They are much smaller and do not require the same kind of broad thinking...The perception is that they are equivalent. On a job description they have “PhD or equivalent” but it’s not really. In some ways, they are less qualified but that does not mean they are less capable...People choose to go into a doctorate because they want to be clinicians not researchers. (Mid career researcher)

According to several participants, people who would otherwise have done a PhD were nowadays encouraged to do doctorates – “*if they had done a PhD, they would have come out with much greater research skills*”. Although a PhD was considered a better qualification than a doctorate for research training, a participant described clinicians with doctorates as the “*future translators*” between research and practice.

Post doctoral

A senior researcher suggested offering “*conversion fellowships*” that would take a person with a good track record in basic sciences (immunology, biochemistry, physiology etc). He acknowledged that these graduates needed support to develop their skills and help them to make a career in public health.

Medical graduates

Participants described a number of difficulties in attracting medical graduates to public health research. Firstly, there were major financial disincentives for people in medicine to move into public health because research salaries were much less than clinical salaries. In addition, there were career incentives to stay in medicine. The career paths in medicine were well established and offered many opportunities for medical graduates.

A recent incentive for medical graduates to enter public health research was the requirement that medical graduates wanting leadership positions within medicine must have PhDs. Some senior participants felt that public health was a very attractive area for doctors to get their research training because it was “*fairly easy for a doctor to learn*” and “*it does not take them away from their clinical work*”. For some medical graduates, research training in public health was regarded as “*value adding to their clinical medicine*”.

Some participants described the medical training as a barrier to attracting medical graduates to public health research. Given that the medical training was “*clinical and focused primarily on individuals*” a medical perspective made it “*much harder for medical graduates to look at structural interventions as a way of improving health*”. The distinction was made between “*public health interventions*” and “*clinical interventions*”. Several medical participants described the need to “*work at the public health level, rather than a clinical level, to achieve change*”.

Public health research experience

Although participants described an emphasis on PhDs in public health research, many participants described people who had been working in the area for years without a PhD as “*under valued*”.

Workplace

In this sample, there were two distinct types of workplaces: universities and research centres. Data indicated differences in work cultures between these two workplaces. Early career researchers at research centres described themselves as mentored and nurtured by senior researchers. Early career researchers at universities, on the other hand, described being “*thrown in at the deep end*”.

The contrast between workplaces was evident when early career researchers were asked to identify barriers. Early career researchers working in research centres could not easily identify barriers. Instead, they identified barriers outside the domain of work. For them, postgraduate training and postdoctoral work often coincided with major life events such as starting a family and buying a house.

In contrast, early career researchers at universities identified numerous barriers. These barriers included job insecurity, lack of resources and isolation. In part, this difference may be due to the differences between large and smaller organisations. It may also be due to recent structural changes within Australian universities.

Despite a level of dissatisfaction among university researchers, data indicated that universities played a significant role in training the next generation of public health researchers. For example, most formal research training in public health research occurred at universities. Nevertheless, after completing their PhDs, several participants were glad to move to research centres and leave behind the university’s bureaucratic processes. They were also glad to work in research centres that were engaged with the “*real world*”. In their view, universities were “*too separate from health services and from the population*”.

Workplace demands

Participants from both universities and research centres described non-research work as a barrier to their career. This non-research work included administration, committee work and teaching. Although these activities were considered part of their jobs, they left less time for actual research. In some cases, participants described the non-research work as “*excessive*”.

1. Administration

Senior researchers accepted that the higher up the career ladder they went, the more administration and the less time they had for their “*real work*”. They did not feel that this was any different from other academic areas.

2. Committee work

Given the limited number of senior people in public health, there was an increased demand for senior public health researchers to join committees. Although participants considered committee work to be important, there was the risk of committee work becoming their “*whole job*”.

3. Teaching

The bureaucracy of teaching at universities was often described as onerous. Although participants recognised the value of teaching, teaching could become a barrier to research. Several participants chose employment as research fellows, not lecturers, despite lecturer positions often being tenured and more secure.

Career ceilings

1. Organisational structure

According to the data, the small number of senior positions in some research centres was considered a barrier to career progression – without senior roles to move into, participants described competent and ambitious people moving on, instead of up. In recent years, some research centres have added senior layers to the organisational structure. Participants described these new layers as providing mid-career researchers with new responsibilities. They also gave early career researchers more opportunities to move up.

2. Research salaries

Participants with medical degrees considered salaries in public health research a barrier. They “*topped up*” their research salaries with additional clinical work. Those who had chosen to leave public health research earned between \$20,000 and \$40,000 more in their current positions than they did as a research fellow.

Although there may be more money, better work conditions, and job security, most participants recognised a “*trade-off*” in terms of loss of flexibility, autonomy and interesting projects. Some, however, felt they could “sway”.

Ultimately, to live in this world, your interest in the job doesn't keep you in it. We all have to live in real worlds, pay mortgages and drive cars. People don't get into research because they think they are going to make enormous amounts of money. Clinical people would be better off to stay in clinical. But we do it because it is interesting. But it reaches a point where the job security and lack of support and insecurity about funding would make you sway the other way and get out. (Early career researcher)

3. Isolation

A senior participant described Australia's “*isolation*”, and the lack of a “*public health critical mass*”. These factors made it necessary for many public health researchers to work overseas. He described this as part of Australia's “*brain drain*”.

4. Glass ceiling

Participants observed that public health researchers were predominantly women. However, several participants described a “*glass ceiling*” in public health research in which senior positions were mostly held by men. This gender imbalance was reflected in the current sample in which all but one senior researcher were male. Most of the men in senior positions had medical degrees.

5. Medical degrees

In the current sample, four of the seven senior researchers had a degree in medicine. Some participants described medical graduates as “*one of the best sources of people in public health workforce*”.

If you look around the world, public health leadership – in this generation and all previous ones – has had medical graduates at the forefront.

Other participants questioned whether leadership positions in public health research should continue to be held predominantly by “*men with medical degrees*”.

There are too many medicos in public health. ...When I think about who is in senior positions in public health they would generally have medical degrees... If you look down the list of WHO directors, I think nearly every single one of them has a medical degree. Public health globally has a very narrow view of public health. (Mid career researcher)

Diverse academic disciplines among public health researchers

Public health contains diverse academic disciplines. Participants in this project represented public health's diversity with degrees in psychology, medicine, epidemiology, sociology, speech pathology, policy and public health represented (Tables 1 and 2). To make the mix more complex, two participants who nominated their sub-discipline as medicine also had doctoral qualifications in epidemiology. The participant who nominated speech pathology was also a registered psychologist.

The range of academic disciplines within public health research ensured a range of perspectives. According to a senior researcher, one of public health's "*main strengths is that it really is multidisciplinary*".

Within a multidisciplinary workforce, there were diverse ways for people to contribute to public health research. However, data indicated that public health's diversity sometimes created an environment in which people worked against, rather than with, each other. For example, several participants demonstrated that the "medical"/"non-medical" divide in public health research remained a significant barrier.

Participants held different views about the role medical graduates played in public health research. Several participants were frustrated by the "*bias towards clinical research*". This "*bias*" was caused by the "*strong medical leadership in public health research*". Other participants, however, described medical graduates as the most appropriately qualified to be at the "*forefront*" of public health research.

They have a clearer idea than anyone else about what public health is trying to achieve (Senior Researcher)

Several participants, on the other hand, questioned the premise that medical graduates had "*a clearer idea than anyone else about what public health is trying to achieve*".

Medicos have the view that they understand public health but I think there is a fundamental block in the way they think. It allows them to think about public health in one way, but doesn't allow them to think about it in a broader way. I think this is incredible dangerous for public health. (Mid career Researcher)

According to the data, senior medical people in public health assessed most grant applications. As a result, several participants were not surprised that clinical, rather than social, research received more funding. However, they questioned whether senior medical people without formal research training were qualified to make decisions about a project's merit.

The people who review grants are often doctors. The irony is that doctors are not trained to do research. (Mid career researcher)

Another irony was that some participants perceived the need to include “*token*” medical people on their grant applications. These “*token medicos*” were added to increase the likelihood of their projects receiving funding.

Rather than compete with clinical and biomedical researchers for Category 1 grants, several participants were in favour of a separate funding body for public health research. However senior researchers had witnessed public health reviewers being much tougher on each other than biomedical people were on public health applications.

Another suggestion was to have more public health people on Category 1 grant committees. A stronger public health representation may encourage more respect for non-medical research and recognition of its value. Yet, participants were not agreed who exactly would sit on these newly formed committees. What proportion would be social scientists, epidemiologists, psychologists, social epidemiologists, health economists...? Although public health research was diverse, some participants felt that public health was not yet “*big enough*”.

Conclusion: suggested next steps

The goal of this research was to generate information for action—to guide the development of policy and other efforts to improve the development, progression, and retention of Victorian public health researchers. This project has shown that structural and cultural interventions are required to improve the capacity of public health research. According to the data, early career researchers required more opportunities, both formal and informal, to get started. The data indicated that the approach adopted by senior staff at the research centres was more effective than the university’s current “*stick approach, without much carrot*”.

This project not only identified barriers that currently exist for public health researchers, but also provided some ideas for ways to move forward. The data indicates that early career researchers would welcome a VicHealth/VPHREC postdoctoral support program. This could be offered as an informal program to facilitate networking among early career researchers from a range of disciplines. In addition to the customary wine and cheese, this program could offer some topical seminars and/or workshops that would fill current gaps. Some suggested topics include: How to prepare competitive research grant applications; Understanding political processes; How to implement research findings; Developing professional networks; How to win tenders; and Planning a career in public health research.

The data collected in this study warrants further investigation. One option is to design a quantitative survey to explore specific issues among a larger number of public health researchers. A more worthwhile option, however, is to expand the current project into a small action research project. This would involve inviting those who participated in the initial interviews to a half day workshop. The aim of the workshop would be to work together to identify strategies to overcome barriers that were identified in this initial study. This action research component would make a valuable contribution to publications that may emerge from this research.

Acknowledgements

Thank you to all the public health researchers who participated in this project. This project was supported and funded by VicHealth. Members of the VPHREC Workforce Development Group acted as a steering group for the project.